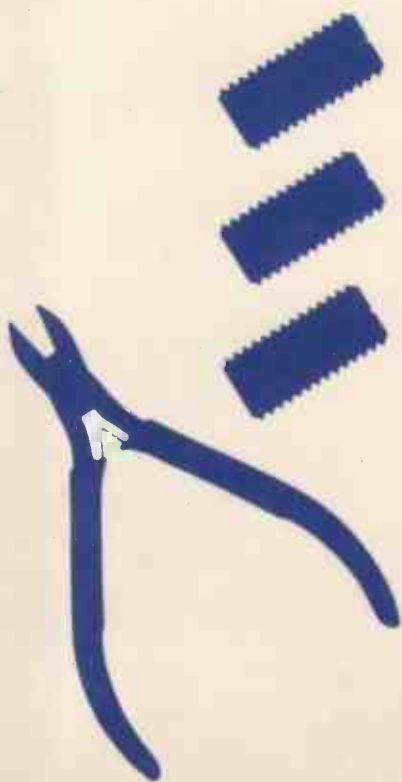

**Rapid
Electronics Ltd**

**Electronic
Components
Catalogue**

**April 1989
- September 1989**



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An economical short circuit tester - page 117



New ranges of SIL resistor networks and wirewound resistors at low cost - page 73



NEW PRODUCTS



A capacitance box to simulate capacitances from 100pF to 10 μ F - page 117

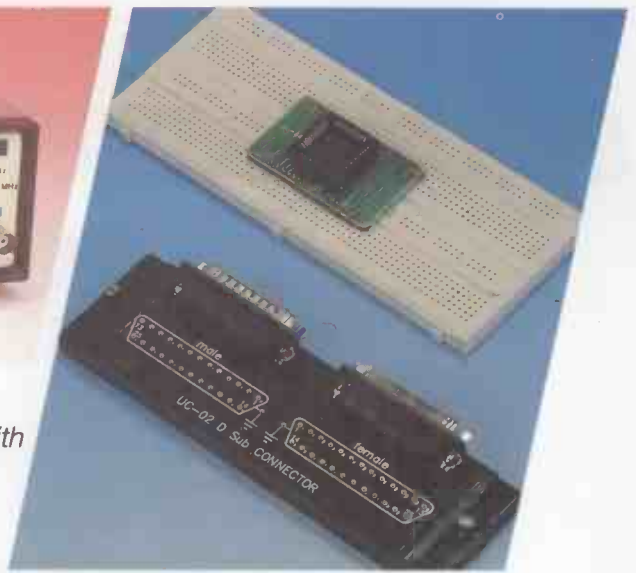


A resistance box to simulate resistances from 1 ohm to 1 Megohm - page 117



A lightweight, compact, fully portable gas soldering iron - page 105

A low cost 150MHz
frequency counter -
page 119



RS232 connector for use with
Protobloc boards - page 63
Test boards designed to
accommodate chip carriers -
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NEW PRODUCTS

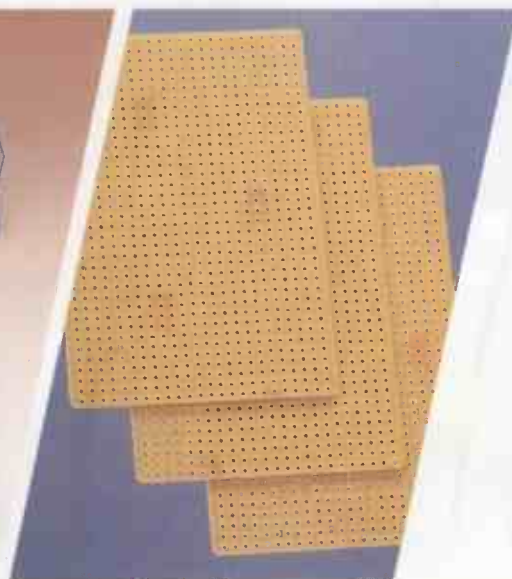
A novel bubble etch
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A range of Protobloc
prototyping boards
incorporating RS232
connectors -
page 62




Matrix board for easy
prototyping of circuits -
page 61



Resistor colour codes

4 Band carton film resistors


Example shown (yellow, violet, orange, gold) = 47k ± 5%



Black	0	0	Silver -100	Gold ±5%
Brown	1	1	Gold +10	
Red	2	2	Black -1	
Orange	3	3		
Yellow	4	4	Red ×100	
Green	5	5	Orange ×1,000	
Blue	6	6	Yellow ×10,000	
Violet	7	7		
Grey	8	8	Blue ×1,000,000	
White	9	9		

5 Band metal film resistors

Example shown (blue, grey, black, orange, brown) = 680k ± 1%



Black	0	0	0	Silver -100	Brown -1%
Brown	1	1	1	Gold -10	Red -2%
Red	2	2	2		
Orange	3	3	3	Brown ×10	
Yellow	4	4	4	Red ×100	
Green	5	5	5	Orange ×1,000	
Blue	6	6	6	Yellow ×10,000	
Violet	7	7	7		
Grey	8	8	8	Blue ×1,000,000	
White	9	9	9		

Preferred values

The figures shown below and their decade multiples or submultiples are the series of preferred values in accordance with BS:2488 and I.E.C. Pub. 63.

E12: 10 12 15 18 22 27 33 39 47 56 68 82

E24: 10 11 12 13 15 16 18 20 22 24 27 30
33 36 39 43 47 51 56 62 68 75 82 91

Total of resistors in series

$$R_T = R_1 + R_2 + R_3 \dots \text{etc.}$$

Total of resistors in parallel

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \dots \text{etc.}$$

Ohm's law

Expressions: $V = IR$ $R = V/I$ $I = V/R$

Related units:

V	R	I
V	Ω	A
V	kΩ	mA
V	MΩ	μA
kV	kΩ	A
kV	MΩ	mA
mV	Ω	mA
mV	kΩ	μA

Capacitors — conversion table

Capacitance (Picofarad PF)	Capacitance (Nanofarad NF)	Capacitance (Microfarad μF)	Capacitance code
10	0.01		100
15	0.015		150
47	0.047		470
82	0.082		820
100	0.1		101
330	0.33		331
470	0.47	0.00047	471
1000	1.0	0.001	102
1500	1.5	0.0015	152
2200	2.2	0.0022	222
4700	4.7	0.0047	472
6800	6.8	0.0068	682
10000	10	0.01	103
22000	22	0.022	223
47000	47	0.047	473
100000	100	0.1	104
220000	220	0.22	224
470000	470	0.47	474

First two digits significant figures
third is number of zeros.

Total of capacitors in series

$$\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} \dots \text{etc.}$$

Total of capacitors in parallel

$$C_T = C_1 + C_2 + C_3 \dots \text{etc.}$$

Semiconductor suffixes

Many semiconductor devices are available with suffix letters after the part number, i.e. BC108B, C106D, TIP31C.

The suffix is used to indicate a specific parameter relevant to the device — some examples are shown below.

Thyristors, triacs, power rectifiers

Suffix indicates voltage rating, e.g. TIC106D indicates device has a 400 volt rating. Letters used are:

Q = 15 Volts	B = 200 Volts	M = 600 Volts
Y = 30 Volts	C = 300 Volts	S = 700 Volts
F = 50 Volts	D = 400 Volts	N = 800 Volts
A = 100 Volts	E = 500 Volts	

Small signal transistors

Suffix indicates h_{FE} range, e.g. BC108C

A = h_{FE} of 125–260

B = h_{FE} of 240–500

C = h_{FE} of 450–900

Power transistors

Suffix indicates voltage, e.g. TIP32C

No suffix = 40 volts

A = 60 volts

B = 80 volts

C = 100 volts

D = 120 volts

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BATTERIES

Rechargeable batteries

A range of rechargeable nickel-cadmium batteries equivalent to the popular alkaline types. Discharge rates are appreciably higher than non-rechargeable types.



Minimum life 600 (300 PP3 size) charge/discharge cycles. Cells may be charged at any current up to the maximum stated, but will take considerably longer to charge at lower currents. All cells have a very low internal resistance and must therefore only be charged from a constant current source. See below for a suitable range of battery chargers.

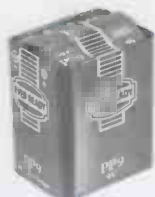
Technical specification

Type	nom. capacity (Ah)	nom. voltage (V)	max. charge rate
PP3	0.11	8.4	1.1mA
AAA	0.18	1.25	20mA
AA	0.5	1.25	20mA
C	1.2	1.25	120mA
D	1.2	1.25	120mA

Type	Order code	1+	25+	100+	500+
PP3	18-0160	3.90	3.60	3.35	3.20
AAA	18-0190	1.25	1.10	0.94	0.90
AA	18-0165	0.90	0.78	0.68	0.64
C	18-0180	1.90	1.60	1.40	1.34
D	18-0185	2.05	1.75	1.50	1.43

Zinc-carbon batteries

A popular size of zinc-carbon battery. Suitable for several applications including bench power packs. Equivalent to 306 and 6F100.



Type	Voltage	Order code	1+	25+
PP9	9V	18-0250	1.25	1.15

Rapid Electronics – the most competitive broadline distributor of electronic components in the UK.

Alkaline batteries

A range of long life alkaline batteries in five popular sizes. Please note that these batteries are non-rechargeable.



These batteries have 4 times the energy content of standard zinc-carbon batteries.

PP3=MN1604=6F22=6LR61
 AAA=MN2400=HP16=LR03
 AA=MN1500=HP7=R6A=LR6
 C=MN1400=U11=HP11=SP11
 D=MN1300=D=U2=HP2=SP2

Type	Voltage	Order code	1+	25+	100+	500+
PP3	9V	18-0200	0.90	0.80	0.72	0.69
AAA	1.5V	18-0205	0.28	0.25	0.22	0.20
AA	1.5V	18-0210	0.25	0.22	0.195	0.18
C	1.5V	18-0215	0.50	0.44	0.39	0.36
D	1.5V	18-0220	0.70	0.63	0.56	0.52

Button cells

A range of popular long life alkaline manganese cells. Rated voltage 1.5V. Used extensively in calculators, cameras, clocks, etc.

Replacement battery LR44 is suitable for use in 85-1445, 85-1450 and 85-1440 timers.

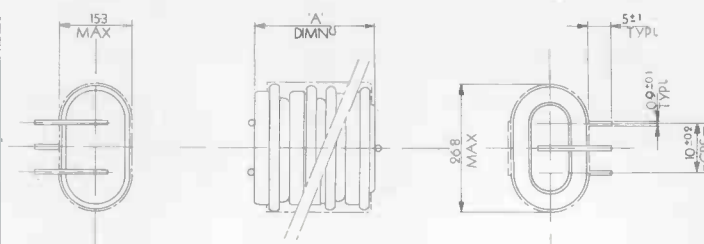


LR43=RW84, V126A, 86A, 4278, BSR43H, 10L124, 186
 LR44=RW82, 76A, A76, V136A, 4276, BSR44H, 10L14

Type	Dia.	H.	Order code	1+	25+	100+
LR43	11.6	4.2	18-0400	0.10	0.09	0.08
LR44	11.6	5.4	18-0405	0.10	0.09	0.08

Memory protection batteries

A range of PCB mounted nickel-cadmium batteries intended as onboard power sources, which will maintain a supply rail in the event of mains failure. Especially suited for support of NMO and CMOS volatile memory systems.

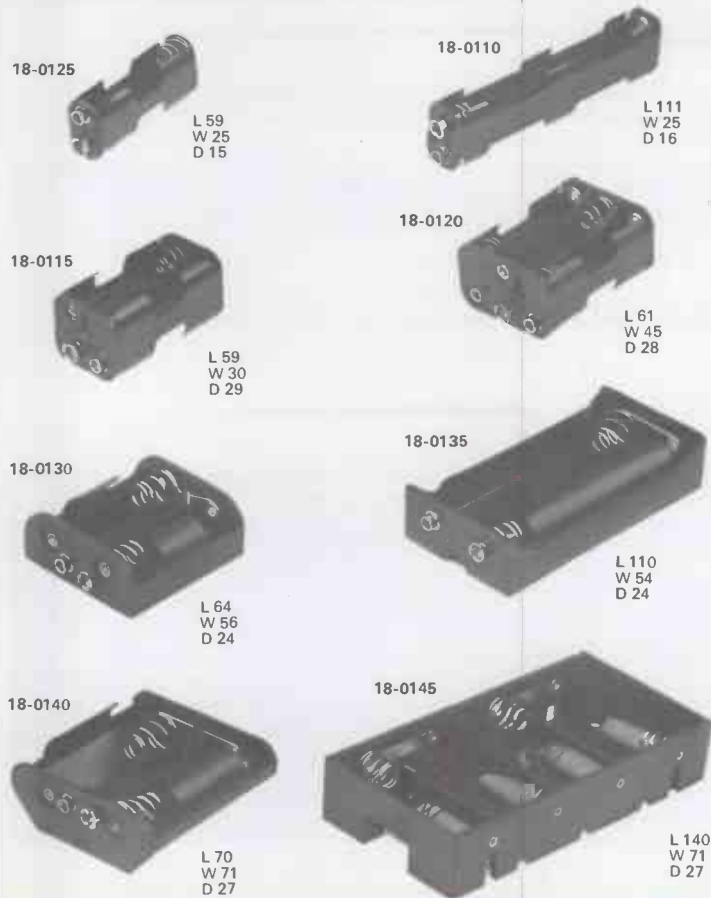


Type	A	Order code	1+	10+	100+
2.4V 100mAh	13.0	18-0192	1.40	1.25	1.12
3.6V 100mAh	19.1	18-0195	1.95	1.75	1.60

BATTERIES

Battery holders

A comprehensive range of battery holders moulded in black thermoplastic suitable for a wide range of applications.



Type	Termination	Order code	1+	25+	100+	500+
2xAA	press stud	18-0125	0.10	0.09	0.08	0.07
4xAA	press stud	18-0110	0.12	0.11	0.10	0.09
4xAA	press stud	18-0115	0.12	0.11	0.10	0.09
6xAA	press stud	18-0120	0.18	0.17	0.15	0.14
2xC	solder tag	18-0130	0.20	0.18	0.16	0.15
4/C	solder tag	18-0135	0.24	0.22	0.20	0.18
2xD	solder tag	18-0140	0.25	0.23	0.21	0.19
4xD	solder tag	18-0145	0.28	0.25	0.23	0.21

Battery holders

A range of battery holders with flying leads for instant connection to equipment. Moulded in black thermoplastic.



Type	Order code	1+	25+	100+	500+
1xAA	18-0121	0.10	0.09	0.08	0.07
2xAA	18-0122	0.10	0.09	0.08	0.07

Battery clips

Twin battery snap to suit PP3 and PP6 type batteries. Lead length 150mm minimum.



Type	Order code	1+	100+	500+	1000+
PP3,PP6 clips	18-0105	0.05	0.033	0.028	0.025

Twin battery 'mouse type' battery snap to suit PP1 and PP9 type batteries. Lead length 100mm minimum.



Type	Order code	1+	100+	500+
PP1, PP9 clips	18-0100	0.10	0.085	0.07

Moulded battery clips

Moulded twin battery snap to suit PP3 and PP6 type batteries. An extremely robust design which prevents the leads from being pulled from their termination. Overall lead length 200mm.



Type	Order code	1+	100+	500+	1000+
Moulded PP3, PP6 clips	18-0080	0.07	0.055	0.045	0.04

Fast charge battery charger

A battery charger suitable for fast charging up to four AA cells. The charger plugs directly into a 13A socket. High charger current cuts charge time from 16 hours to approximately 3 hours. An automatic cut-out turns charger off when batteries are fully charged. Tough black plastic case with transparent cover.



Technical specification

Power requirements	240V AC 50Hz
Consumption	5W
Output voltage	2.4V per channel
Output current	150mA
Charge time	2-3 hours

Type	order code	1+	10+	25+
Fast charger	18-0310	3.9	3.70	3.50

Universal battery charger

A universal battery charger capable of charging between 1 and 4 AA, C or D cells singly or simultaneously in any combination. A PP3 rechargeable cell may also be charged. LED indicators are provided at each charge location to indicate charging is taking place. The charger also has a 'test' facility to evaluate the condition of cells. Supplied complete with 1.7m of mains lead.



Technical specification

Power requirements	240V AC 50Hz
Consumption	3.9W
Output voltage	2.9V per channel 9.0V for PP3
Output current	50mA for AA 120mA for C and D 11mA for PP3
Charging time	AA: 16 hours C: 20 hours D: 20 hours PP3: 16 hours

Type	Order code	1+	10+	25+
Universal battery charger	18-0300	4.20	3.80	3.50

CABLES

Single core equipment wire packs

Wire having a solid core ideal for plate wiring (running wires across a chassis with all wires straight or at right angles to one another) because wire stays in formed shape without cable ties.

1/0.6mm copper conductor. Overall diameter 1.4mm. Rating 1kV rms 1.8A at 70 deg C. Supplied in packs of 20 metres (2 metres each of ten different colours).

	Order code	1+	50+	500+
20M single cable pack	01-0100	0.50	0.45	0.33

Single core equipment wire on 100M reels

As above but supplied on 100M reels per colour.

1/0.6mm copper conductor. Overall diameter 1.2mm. Rating 1kV rms 1.8A at 70 deg C. Reel weight approx. 400g.

Colour	order code	1+	10+	25+
Black	01-0300	1.70	1.50	1.45
Blue	01-0305	1.70	1.50	1.45
Brown	01-0310	1.70	1.50	1.45
Green	01-0315	1.70	1.50	1.45
Grey	01-0320	1.70	1.50	1.45
Orange	01-0325	1.70	1.50	1.45
Pink	01-0330	1.70	1.50	1.45
Red	01-0335	1.70	1.50	1.45
Violet	01-0340	1.70	1.50	1.45
White	01-0345	1.70	1.50	1.45
Yellow	01-0350	1.70	1.50	1.45
1 each of above (11 reels)	01-0380	17.90	15.90	15.50

Miniature stranded equipment wire

A flexible wire, which is ideal for signal interconnections within apparatus where it is necessary to pack a large number of wires into small spaces.

10/0.1mm copper conductor. Overall diameter 0.9mm. Rating 750V rms 0.5A at 70 deg C. Supplied in packs of 10 metres. Eight different colours are available.

Colour	Order code	1+	25+	Colour	Order code	1+	25+
Black	01-0110	0.40	0.36	Red	01-0130	0.40	0.36
Blue	01-0115	0.40	0.36	White	01-0135	0.40	0.36
Brown	01-0120	0.40	0.36	Yellow	01-0140	0.40	0.36
Green	01-0125	0.40	0.36	Orange	01-0145	0.40	0.36

Our new 7020 oscilloscope represents a true breakthrough in price and performance – see page 121.

Stranded equipment wire packs

A flexible wire for general interconnection within apparatus.

7/0.2mm copper conductor. Overall diameter 1.4mm. Supplied in packs of 20 metres (2 metres each of ten different colours). Rating 1kV rms 1.4A at 70 deg C.

	Order code	1+	50+	500+
20M stranded pack	01-0105	0.48	0.42	0.30

Stranded equipment wire on 100M reels

As above but supplied on 100M reels per colour.

7/0.2mm copper conductor. Overall diameter 1.2mm. Rating 1kV rms 1.4A at 70 deg C. Reel weight approx. 360g.

Colour	order code	1+	10+	25+
Black	01-0400	1.65	1.45	1.40
Blue	01-0405	1.65	1.45	1.40
Brown	01-0410	1.65	1.45	1.40
Green	01-0415	1.65	1.45	1.40
Grey	01-0420	1.65	1.45	1.40
Orange	01-0425	1.65	1.45	1.40
Pink	01-0430	1.65	1.45	1.40
Red	01-0435	1.65	1.45	1.40
Violet	01-0440	1.65	1.45	1.40
White	01-0445	1.65	1.45	1.40
Yellow	01-0450	1.65	1.45	1.40
1 each of above (11 reels)	01-0480	17.40	15.35	14.95

Extra-flexible cable

A very flexible wire ideal for test leads and as interconnection-wires which are frequently being moved.

55/0.1mm copper conductor. Overall diameter 2.8mm. Max. current rating 6A. Supplied per metre. Reel length 25 metres.

Colour	Order code	1M+	25M+
Red extra-flex	01-0150	0.13	0.10
Black extra-flex	01-0155	0.13	0.10

Extra flexible cable on 25M reels

As above but supplied on 25 metre reels.

5/0.1mm copper conductor. Overall diameter 2.8mm. Max. current rating 6A. Supplied on 25M reels.

Type	Order code	1+	10+
Red extra-flex	01-0600	1.50	1.35
Black extra-flex	01-0605	1.50	1.35
Blue extra-flex	01-0610	1.50	1.35
Green extra-flex	01-0615	1.50	1.35
Brown extra-flex	01-0620	1.50	1.35
White extra-flex	01-0625	1.50	1.35
Yellow extra-flex	01-0630	1.50	1.35

Speaker wire

A flexible twin cable having a 'figure 8' shape. Ideal for speaker connection.



7/0.25mm copper conductor. Rating 60V rms 1A. Overall size 4+1.6mm. Grey colour with one side ribbed for identification of polarity. Supplied per metre.

	Order code	1M+	100M+
Speaker cable	01-0160	0.10	0.048

Speaker wire on 100M reels

As above but on 100M reels.



7/0.25mm copper conductor. Rating 60V rms 1A. Overall size 4x1.6mm. Grey colour with one side ribbed for identification of polarity. 100M reels.

	Order code	1+	10+
100M reel speaker cable	01-0162	4.60	3.90

Signal cable

A range of cables ideal for alarm, security and other low voltage/low current signal applications.

The cable consists of several 7/0.2 tinned copper conductor cores each individually colour coded sheathed overall in white PVC. Supplied on 100M reel. Rating 60V rms 1A per core.



Colour coding:

4 core: red, yellow, blue, black

6 core: red, yellow, blue, black, white, green

8 core: red, yellow, blue, black, white, green, brown, orange

Type	Order code	1+	10+
4 core	01-0700	8.50	7.30
6 core	01-0705	10.50	9.10
8 core	01-0710	15.00	13.50

Miniature mains cable

A three core mains cable ideal for equipment having ratings up to 600W.



Three 13/0.2mm copper conductors sheathed overall in black PVC. Nominal current rating 2.5A. Overall diameter 4.9mm. Supplied per metre. Reel length 100 metres.

	Order code	1M+	25M+
Min. mains cable	01-0215	0.23	0.19

Miniature mains cable on 100M reels

As above but supplied on 100M reels.



Three 13/0.2mm copper conductors sheathed overall in black PVC. Nominal current rating 2.5A. Overall diameter 4.9mm. Supplied on 100M reels.

	Order code	1+	10+	25+
100M reel min. mains cable	01-0220	10.50	10.00	9.30

Ribbon cable

Ribbon cable in grey or rainbow colour for use with IDC connectors. Consists of parallel stranded tinned copper wire conductors laminated between layers of PVC film to form a flat ribbon cable. May be split in any number of ways. Conductor rating 300V DC 1A. Conductor spacing 0.05in. Each conductor contains 7 strands of 28 awg wire. Capacitance max. 60nF/Km. UL approved. Supplied on reels of 100 feet.



Grey ribbon cable	Order code	100' rl.	100' rl.	100' rl.
		1+	5+	10+
10 way	01-0167	5.35	4.55	4.00
16 way	01-0172	8.60	7.30	6.50
20 way	01-0177	10.80	9.15	8.10
26 way	01-0182	14.00	11.90	10.50
34 way	01-0187	18.30	15.50	13.80
40 way	01-0192	21.50	18.30	16.15
50 way	01-0197	26.90	22.85	20.20
60 way	01-0202	32.30	27.40	24.20
Rainbow ribbon				
10 way	01-0207	9.60	8.95	8.35
20 way	01-0212	19.20	17.90	16.60

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Our change
of address,
new telephone and
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CABLES

Miniature screened cable

A single miniature lapped screened cable for general purpose audio connection. Ideally suited for use in equipment where space is at a premium.



7/0.1mm copper conductor. Overall diameter 2mm. Capacitance core to screen 320pF/M. Sheathed in grey PVC. Supplied per metre. Reel length 100 metres.

	Order code	1M+	25M+
Min. screened cable	02-0100	0.12	0.095

Standard screened cable

A single screened cable for general audio connection.



7/0.2mm copper conductor. Overall diameter 3.1mm. Capacitance core to screen 322pF/M. Sheathed in grey PVC. Supplied per metre. Reel length 100 metres.

	Order code	1M+	100M+
Standard screened	02-0105	0.16	0.085

Stereo screened cable

A stereo screened cable for general audio connection.

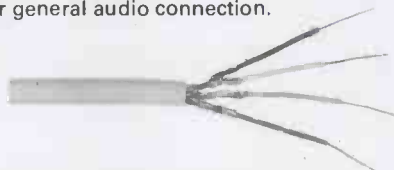


13/0.1mm copper conductor. Overall dimensions 2.5x5.5mm. Capacitance core to screen 340pF/M. Sheathed overall in grey PVC. Supplied per metre. Reel length 100 metres.

	Order code	1M+	100M+
Stereo screened	02-0110	0.24	0.13

Four core screened cable

A four core screened cable for general audio connection.



7/0.1mm copper conductor. All cores individually screened. Overall diameter 4.5mm. Sheathed in grey PVC. Supplied per metre. Reel length 100 metres.

	Order code	1M+	100M+
Four core screened	02-0115	0.35	0.25

Multicore screened cable

Screened multicore cable intended for general audio connection.



7/0.13mm copper conductor with overall braided screen. Overall diameter 5.6mm for 10 core, 6.3mm for 15 core. All cores are colour coded. Sheathed overall in black PVC. Supplied on 100M reels.

	Order code	1+	10+
10 core screened cable	02-0185	19.00	17.50
15 core screened cable	02-0190	24.50	22.00

RF cable type RG58C/U

A high quality cable with a 19/0.8mm tinned copper conductor, solid polythene insulation, tinned copper braid. Sheathed overall in black PVC.



5mm diameter. Impedance nom. 50 ohms. Capacitance 100pF/M. Attenuation at 100MHz 1.43dB, at 1000MHz 4.85dB (per 10M). 2.8kV peak RF working. Supplied per metre.

	Order code	1M+	25M+
RG58C/U RF cable	02-0200	0.25	0.20

RF cable type RG58C/U on 100M reels

As above but supplied on 100M reels.



5mm diameter. Impedance nom. 50 ohms. Capacitance 100pF/M. Attenuation at 100MHz 1.43dB, at 1000MHz 4.85dB (per 10M). 2.8kV peak RF working. Supplied on 100M reels.

Type	Order code	1+	10+
RG58C/U RF cable	02-0220	16.50	14.50

RF cable type RG59B/U

A high quality cable with a 1/0.6mm copper plated steel conductor, solid polythene insulation, plain copper braid and sheathed in black PVC.



6.15mm diameter. Impedance nom. 75 ohms. Capacitance 68pF/M. Attenuation at 100MHz 1.3dB; at 1000MHz 4.6dB (per 10M). 6kV RF working.

	Order code	1M+	100M+
RG59B/U RF cable	02-0205	0.35	0.29

RF cable type RG59B/U on 100M reels

As above but supplied on 100m reels.



6.15mm diameter. Impedance nom. 75 ohms. Capacitance 68pF/M. Attenuation at 100MHz 1.3dB, at 1000MHz 4.6dB (per 10M). 6kV RF working. Supplied on 100M reels.

Type	Order code	1+	10+
RG59B/U RF cable	02-0225	18.00	16.00

RF cable type RG62A/U

A high quality cable with 1/0.64mm copper braided steel conductor, polythene insulation, plain copper braid and sheathed in black PVC. Ideally suited on VDU installation and other data transmission applications



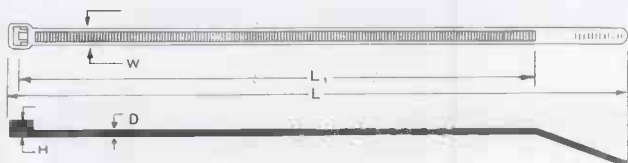
6.15mm diameter. Impedance nom. 93 ohms. Capacitance 44pF/M. Attenuation at 100MHz 8.9dB (per 10M). 750V DC working. Supplied on 100M reels.

Type	Order code	1+	10+
RG62A/U RF cable	02-0230	22.50	19.80

Cable ties

White nylon cable ties with a non-releasable ratchet lock action. Suitable for binding cable or components.

Tensile strength exceeds MIL-M-23190.



Order code	Length L	Width W	Max. bundle dia.	Tensile strength Kg min.
04-0050	75	2.4	18	8
04-0100	100	2.5	25	8
04-0105	142	3.2	35	18
04-0110	203	4.6	55	22
04-0150	292	3.6	85	18
04-0155	385	5.0	116	22

Order code	1+	100+	1000+	10K+	50K+	100K+
04-0050	0.02	0.008	0.004	0.003	0.0025	0.0023
04-0100	0.02	0.009	0.0042	0.0031	0.0027	0.0024
04-0105	0.03	0.012	0.008	0.007	0.0062	0.0059
04-0110	0.04	0.015	0.013	0.0115	0.0105	0.0095
04-0150	0.05	0.03	0.025	0.02	0.017	0.015
04-0155	0.06	0.05	0.042	0.038	0.036	0.034

Cable tie bases

Self adhesive bases which will accept above cable ties. The base has a fixing hole of 5mm as an alternative.



Size	Order code	1+	100+	500+
21x21mm	04-0115	0.05	0.035	0.025
28x28mm	04-0130	0.07	0.05	0.04

Cable tie gun

An inexpensive pocket-size cable tie installation tool which facilitates rapid installation of all cable tie sizes. The tie is first tensioned and the surplus is then neatly cut flush simply by twisting the tool. An extremely useful tool offered at low cost.



Cable tie gun	Order code	1+	10+
	04-0185	4.90	4.40

Moulded grommets

Moulded PVC grommets available in two sizes. Suitable for panels up to 16 swg.



Cable hole	Panel hole	Order code	1+	100+	1000+
6.3	9.5	04-0120	0.02	0.012	0.01
9.5	12.7	04-0125	0.03	0.016	0.013

Sleeved PVC grommet

Sleeved PVC grommet to provide support for cables at panel entry/exit points. Max. panel thickness 2.4mm. Sleeve length 14mm.



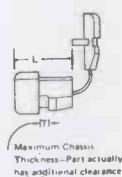
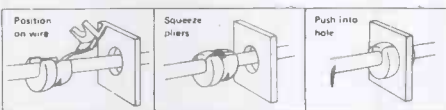
Cable hole	Panel hole	Order code	1+	100+	1000+
6.3	9.5	04-0200	0.03	0.013	0.011

Strain relief bushes

A range of nylon bushes used to protect and secure cables at panel exit/entry. Finished in black.



Assembly Procedure:



Type	Profile	Cable dia.	dim. H	dim. W	max. panel thickness
1	flat	3-6	11	10	2.5
2	round	6-7.5	12.7	11.5	1.6
3	round	8.2-9.2	16	14	1.6

Type	Order code	1+	100+	1000+	5000+
1	04-0250	0.03	0.024	0.015	0.012
2	04-0255	0.03	0.025	0.016	0.013
3	04-0260	0.04	0.03	0.022	0.019

CABLES

Strain relief fixing tool

A tool specifically designed to fit nylon strain relief bushes. Insulated handles complete with opening spring and tool locking clamp.



Type	Order code	1+	10+
Strain relief tool	85-0250	2.50	2.30

Heat shrinkable sleeving

A highly flexible polyolefin tubing which will shrink in a ratio of 2:1 by heating above 120 deg C. Continuous operation from -55 deg C to +135 deg C with short duration capability to +300 deg C. Typical applications are insulation and strain relief on electrical connections. Supplied in lengths of 1.2M in a wide range of colours. Bore size is size before shrinking.



Approvals: Military: MIL-I-23053/5, Classes 1, 2 and 3
MIL-R-46846 Type V

AMS: 3636 Class 1 - 3637 Class 2 3587

Nasa: MSFC 2764: Clas 1 - Class 2

MOB: DEF standard 59 - 97 1A

Clear				
Bore size (mm)	Order code	1+	25+	100+
1.6	03-0100	0.55	0.48	0.38
2.4	03-0105	0.60	0.52	0.40
3.2	03-0110	0.60	0.52	0.40
4.8	03-0115	0.80	0.70	0.56
6.4	03-0120	0.90	0.80	0.67
9.5	03-0125	1.10	0.95	0.75
12.7	03-0130	1.25	1.10	0.90
19.0	03-0135	1.60	1.35	1.20
Yellow				
Bore size (mm)	Order code	1+	25+	100+
1.6	03-0200	0.55	0.48	0.38
2.4	03-0205	0.60	0.52	0.40
3.2	03-0210	0.60	0.52	0.40
4.8	03-0215	0.80	0.70	0.56
6.4	03-0220	0.90	0.80	0.67
9.5	03-0225	1.10	0.95	0.75
12.7	03-0230	1.25	1.10	0.90
19.0	03-0235	1.60	1.35	1.20
Blue				
Bore size (mm)	Order code	1+	25+	100+
1.6	03-0300	0.55	0.48	0.38
2.4	03-0305	0.60	0.52	0.40
3.2	03-0310	0.60	0.52	0.40
4.8	03-0315	0.80	0.70	0.56
6.4	03-0320	0.90	0.80	0.67
9.5	03-0325	1.10	0.95	0.75
12.7	03-0330	1.25	1.10	0.90
19.0	03-0335	1.60	1.35	1.20
Red				
Bore size (mm)	Order code	1+	25+	100+
1.6	03-0400	0.55	0.48	0.38
2.4	03-0405	0.60	0.52	0.40
3.2	03-0410	0.60	0.52	0.40
4.8	03-0415	0.80	0.70	0.56
6.4	03-0420	0.90	0.80	0.67
9.5	03-0425	1.10	0.95	0.75
12.7	03-0430	1.25	1.10	0.90
19.0	03-0435	1.60	1.35	1.20
Black				
Bore size (mm)	Order code	1+	25+	100+
1.6	03-0500	0.55	0.48	0.38
2.4	03-0505	0.60	0.52	0.40
3.2	03-0510	0.60	0.52	0.40
4.8	03-0515	0.80	0.70	0.56
6.4	03-0520	0.90	0.80	0.67
9.5	03-0525	1.10	0.95	0.75
12.7	03-0530	1.25	1.10	0.90
19.0	03-0535	1.60	1.35	1.20

Heatshrink sleeving kit

A heatshrink sleeving kit which comprises a wide variety of the most commonly used bore sizes and colours of 2:1 shrink ratio sleeving. Supplied in pre-cut lengths. Ideally suited to research and development establishments. Supplied in a handy two-tier carry case.



Kit contents:

Bore size	Length (mm)	Quantity	Colours
2.4	50	30x2	black, white
3.2	50	25x2	red, blue
3.2	50	30x2	yellow, black
4.8	50	50x2	yellow, clear
4.8	100	20x2	yellow, blue
4.8	200	20x2	black, clear
6.4	50	15x4	red, blue, black, yellow
6.4	100	10x2	white, yellow
6.4	200	10x4	red, blue, black, yellow
9.5	100	10x2	black, green/yellow

	Order code	1+	5+
Heatshrink kit	03-0800	34.50	32.70

Insulated copper wire

Enamelled copper wire for winding transformers and coils, etc. Supplied on 500g reels.



SWG	Approx. length (m)	Order code	1+	10+
35/36	1850	05-0200	4.65	4.20
34/35	1450	05-0205	4.50	4.10
33	1120	05-0210	4.40	3.90
30	720	05-0215	4.10	3.70
27	450	05-0220	3.90	3.55
25	290	05-0225	3.75	3.35
24	230	05-0230	3.65	3.30
22	140	05-0235	3.50	3.10
20	100	05-0240	3.20	2.80

Tinned copper wire

Tinned copper wire supplied on 500g reels.



SWG	Approx. length (m)	Order code	1+	10+
16	27	05-0300	3.10	2.65
18	28	05-0305	3.10	2.65
20	86	05-0310	3.15	2.75
22	140	05-0315	3.25	2.80
24	230	05-0320	3.35	2.85

CAPACITORS

Sub-miniature ceramic plate capacitors

Miniature low K capacitor used for temperature compensation in tuned circuits where close tolerance, high stability and low losses are important. Lead pitch 2.5mm. Tip colour indicates temperature coefficient. 1.8-15pF NPO (0ppm/deg C) black 22-100pF N150 (-150ppm/deg C) orange



Technical specification

Tolerance	±0.25pF below 10pF ±2% for 10pF and above
Tan at 1MHz	C less than 50pF 0.0055 max. C greater than 50pF 0.0015 max.
Insulation resistance	Greater than 10 ¹⁰ ohms
Temperature range	-55 to +85 deg C

Value	Order code	1+	100+	1000+	width	height
1.8pF	08-0300	0.04	0.025	0.018	3	4
2.2pF	08-0305	0.04	0.025	0.018	3	4
3.3pF	08-0310	0.04	0.025	0.018	3	4
4.7pF	08-0315	0.04	0.025	0.018	3	4
6.8pF	08-0320	0.04	0.025	0.018	3	4
10pF	08-0325	0.04	0.025	0.018	3	4
15pF	08-0330	0.04	0.025	0.02	3	4
22pF	08-0335	0.04	0.025	0.019	4	5
33pF	08-0340	0.04	0.025	0.02	4	5
47pF	08-0345	0.04	0.025	0.02	5	6
56pF	08-0350	0.04	0.025	0.021	5	6
68pF	08-0355	0.04	0.025	0.021	6	7
82pF	08-0360	0.04	0.035	0.024	6	7
100pF	08-0365	0.04	0.035	0.024	6	7

Ceramic disc capacitors

General purpose disc capacitors manufactured from high dielectric constant ceramics. Durez coated and high temperature wax impregnated.



Technical specification

Tolerance	±10% below 4n7 -20 to +80% for 4n7 and above
Working voltage	50V DC (100n 25V DC)
Temperature range	-25 to +80 deg C

Value	Order code	1+	100+	1000+	5000+	pitch
100pF	08-0140	0.03	0.015	0.009	0.007	2.5
120pF	08-0145	0.03	0.015	0.009	0.007	2.5
150pF	08-0150	0.03	0.015	0.009	0.007	2.5
180pF	08-0155	0.03	0.015	0.009	0.007	2.5
220pF	08-0160	0.03	0.015	0.009	0.007	2.5
270pF	08-0165	0.03	0.015	0.009	0.007	2.5
330pF	08-0170	0.03	0.015	0.009	0.007	2.5
390pF	08-0175	0.03	0.015	0.009	0.007	2.5
470pF	08-0180	0.03	0.015	0.009	0.007	2.5
560pF	08-0185	0.03	0.015	0.009	0.007	2.5
680pF	08-0190	0.03	0.015	0.009	0.007	2.5
820pF	08-0195	0.03	0.015	0.009	0.007	2.5
1n	08-0200	0.03	0.015	0.009	0.007	2.5
1n5	08-0205	0.03	0.015	0.009	0.007	2.5
2n2	08-0210	0.03	0.018	0.01	0.008	5
3n3	08-0215	0.03	0.018	0.01	0.008	5
4n7	08-0220	0.03	0.015	0.009	0.007	2.5
6n8	08-0225	0.03	0.015	0.009	0.007	2.5
10n	08-0230	0.03	0.014	0.008	0.006	5
100n	08-0235	0.04	0.025	0.018	0.014	5

High voltage disc ceramics

Low inductance makes this capacitor particularly suitable for high frequency decoupling and suppression in logic circuits. Rated at 1000V DC (300V AC). Tolerance +80% to -20%. Temperature range -25 to +85 deg C.



Value	Order code	1+	100+	1000+	5000+	pitch
1n	08-0250	0.04	0.025	0.02	0.017	6.5
10n	08-0255	0.06	0.04	0.03	0.026	10

Dipped multilayer ceramic capacitors

A high quality epoxy DIP coated ceramic capacitor ideally suited to decoupling applications Z5U dielectric.



Technical specification

Tolerance	-20% +80%
Temperature coefficient	C +22%/-56%
Working voltage	50V DC
Insulation resistance	Greater than 10 ⁹ ohms
Temperature range	-10 to +85 deg C

Values	Dimensions (mm)	Pitch (mm)	Order code
10n	3.35x2.67	5	08-0260
47n	3.35x2.67	5	08-0265
100n	3.35x2.67	5	08-0270
100n	3.35x2.67	2.5	08-0275
220n	4.5x3.0	5	08-0280

Value	Order code	1+	100+	1000+	5000+
10n	08-0260	0.05	0.03	0.022	0.0195
47n	08-0265	0.05	0.03	0.022	0.0195
100n	08-0270	0.05	0.03	0.022	0.0195
100n	08-0275	0.05	0.03	0.022	0.0195
220n	08-0280	0.09	0.06	0.042	0.037

Polystyrene capacitors

Polystyrene dielectric gives a high insulation resistance with good electrical properties. Maximum operating temperature is lower than for polycarbonate and polyester types. Physically smaller than silvered mica types.



Technical specification

Tolerance	±5%
Temperature coefficient	-150x10 ⁻⁶ per deg C
Working voltage	160V DC
Insulation resistance	Greater than 5x10 ⁹ ohms
Temperature range	-40 to +70 deg C

Value	Order code	1+	100+	1000+	L	dia.
47pF	09-0130	0.06	0.045	0.035	8	4
68pF	09-0140	0.06	0.045	0.035	8	4
82pF	09-0145	0.06	0.045	0.035	8	4
100pF	09-0150	0.06	0.04	0.023	10	4
120pF	09-0155	0.06	0.04	0.023	10	4
150pF	09-0160	0.06	0.04	0.023	10	4
180pF	09-0165	0.06	0.04	0.03	10	4
220pF	09-0170	0.06	0.04	0.023	10	4
270pF	09-0175	0.06	0.04	0.023	10	4
330pF	09-0180	0.06	0.04	0.023	10	4
390pF	09-0185	0.06	0.04	0.023	10	4
470pF	09-0190	0.06	0.04	0.024	12	5.5
560pF	09-0195	0.06	0.04	0.024	12	5.5
680pF	09-0200	0.06	0.04	0.025	12	5.5
820pF	09-0205	0.06	0.04	0.025	12	6
1n	09-0210	0.06	0.04	0.027	12	6
1n5	09-0215	0.06	0.04	0.027	12	6
2n2	09-0220	0.06	0.04	0.028	12	6.5
3n3	09-0225	0.06	0.04	0.028	12	6
4n7	09-0230	0.06	0.045	0.028	12	6
6n8	09-0235	0.07	0.045	0.032	12	7
10n	09-0240	0.07	0.05	0.04	14	8

CAPACITORS

Miniature polyester capacitors

A cost effective range of miniature metallised polyester capacitors with a 5mm pitch. Self extinguishing plastic case and sealed with epoxy resin. An ideal decoupling capacitor where space is at a premium. All types are maximum 7.5mm wide.



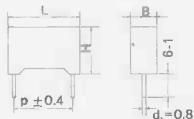
Technical specification

Tolerance	±10%
Temperature coefficient	-5 to +5%
Working voltage	100V DC below 22n 63V DC 22n and above
Insulation resistance	Greater than 10 ⁹ ohms
Temperature range	-55 to +85 deg C

Value	Order code	1+	100+	1000+	5000+	h	d
1n	10-0300	0.05	0.035	0.03	0.027	6.5	2.5
2n2	10-0305	0.05	0.035	0.03	0.027	6.5	2.5
4n7	10-0310	0.05	0.035	0.03	0.027	6.5	2.5
10n	10-0315	0.05	0.035	0.03	0.027	6.5	2.5
22n	10-0320	0.05	0.035	0.032	0.03	6.5	2.5
47n	10-0325	0.05	0.04	0.035	0.031	6.5	2.5
100n	10-0330	0.06	0.04	0.035	0.031	6.5	3
220n	10-0335	0.08	0.065	0.058	0.052	8.5	3.5
470n	10-0340	0.11	0.09	0.075	0.066	10	5

Metallised polyester capacitors

A cost effective range of miniature metallised polyester capacitors housed in a self extinguishing plastic case and sealed with epoxy resin.



Case code	B	H	L	Case code	B	H	L
A	4	9	13	E	6	15	26.5
B	5	11	13	F	7	16	26.5
C	5	11	18	G	8.5	17	26.5
D	6	12	18				

Technical specification

Tolerance	±10%
Temperature range	-55 to +100 deg C
Environment class	55/100/56 IEC 68-1

	Value	Order code	1+	100+	1000+	case	pitch
1000V	1n	10-0400	0.06	0.05	0.045	A	10
	1n5	10-0405	0.07	0.055	0.05	A	10
	2n2	10-0410	0.07	0.055	0.05	A	10
	3n3	10-0415	0.07	0.055	0.05	A	10
630V	4n7	10-0480	0.06	0.05	0.045	A	10
	6n8	10-0485	0.06	0.05	0.045	A	10
	10n	10-0490	0.06	0.05	0.04	A	10
400V	15n	10-0550	0.06	0.05	0.045	A	10
	22n	10-0555	0.06	0.05	0.045	A	10
	33n	10-0560	0.06	0.05	0.045	B	10
250V	47n	10-0600	0.06	0.05	0.045	A	10
	68n	10-0605	0.06	0.05	0.045	A	10
	100n	10-0610	0.07	0.06	0.05	C	15
	150n	10-0620	0.10	0.08	0.07	C	15
	220n	10-0625	0.10	0.08	0.07	C	15
	330n	10-0630	0.12	0.10	0.085	D	15
	470n	10-0635	0.20	0.16	0.13	E	22.5
	680n	10-0640	0.23	0.18	0.16	F	22.5
1u	10-0645	0.30	0.25	0.21	G	22.5	

Metallised polyester capacitors

Metallised polyester capacitors compatible to Mullard C280/352 Series. Particularly suited to coupling and decoupling applications. Pitch is 10mm except 150n and 220n (15mm) and 330n and 470n which are 20mm.



Technical specification

Tolerance	±20% below 220n ±10% 200n and above
Tangent of loss angle	Less than 75 × 10 ⁻⁴ at 1KHz
Working voltage	250V DC
Insulation resistance	Greater than 10 ¹⁰ ohms
Temperature range	-40 to +85 deg C

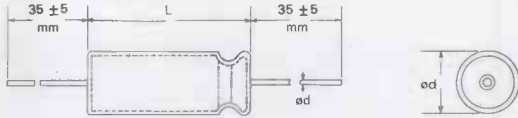
Value	Order code	1+	100+	1000+	w	h	d
10n	10-0200	0.05	0.035	0.028	12.5	9	4
15n	10-0205	0.05	0.035	0.028	12.5	9	4
22n	10-0210	0.05	0.035	0.028	12.5	9	4
33n	10-0215	0.05	0.039	0.034	12.5	9	4
47n	10-0220	0.05	0.039	0.034	12.5	9	4
68n	10-0225	0.05	0.039	0.034	12.5	11	6
100n	10-0230	0.06	0.045	0.035	12.5	11	6
150n	10-0235	0.07	0.055	0.045	17.5	12	7
220n	10-0240	0.09	0.065	0.052	17.5	12	7
330n	10-0245	0.11	0.08	0.062	22.5	12.5	7
470n	10-0250	0.13	0.095	0.075	22.5	12.5	7.5

For quantities above price breaks listed in the catalogue contact Sales for an immediate competitive quotation.

CAPACITORS

Axial electrolytic capacitors

Miniature axial lead electrolytic capacitors manufactured to high technical and quality standards. All types are fully sleeved. Ripple current quoted is at 85 deg C.



Case code	L	D	d	Case code	L	D	d
A	12	6	0.5	G	25	13	0.6
B	16	6	0.5	H	26	13	0.6
C	16	8	0.6	I	31.5	16	0.8
D	16	10	0.6	J	40	16	0.8
E	20	10	0.6	K	40	22	1.0
F	20	13	0.6				

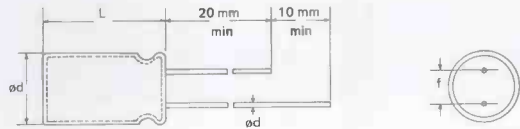
Technical specification

Tolerance	±20%
Temperature range	-40 to +85 deg C
Climatic category	40/085/56 (IEC 68)
Shelf life	Minimum 2 years
Manufactured to spec.	IEC 384-4, DIN 41316

Voltage	Value	Order code	1+	100+	1000+	case	ripple
10V	47u	11-0170	0.05	0.04	0.033	A	200
	100u	11-0175	0.05	0.04	0.034	B	290
	1000u	11-0180	0.13	0.11	0.086	E	1000
	2200u	11-0185	0.22	0.18	0.145	G	1560
16V	47u	11-0010	0.05	0.04	0.033	A	200
	100u	11-0115	0.05	0.042	0.035	C	330
	220u	11-0020	0.06	0.048	0.038	C	490
	470u	11-0025	0.10	0.08	0.065	E	740
	1000u	11-0030	0.14	0.115	0.09	G	1130
	2200u	11-0035	0.25	0.20	0.165	I	1750
	4700u	11-0040	0.55	0.424	0.37	J	2220
25V	10u	11-0120	0.05	0.038	0.03	A	90
	22u	11-0125	0.05	0.038	0.03	A	160
	47u	11-0130	0.06	0.045	0.035	B	240
	100u	11-0135	0.06	0.045	0.036	C	360
	220u	11-0140	0.09	0.07	0.05	D	540
	470u	11-0145	0.14	0.115	0.09	F	810
	1000u	11-0150	0.22	0.175	0.14	H	1130
	2200u	11-0155	0.36	0.295	0.235	I	1870
	4700u	11-0160	0.65	0.53	0.44	K	2690
35V	10u	11-0045	0.05	0.038	0.03	A	105
	22u	11-0050	0.05	0.038	0.03	A	180
	47u	11-0055	0.06	0.045	0.036	C	270
	100u	11-0060	0.08	0.064	0.051	E	400
	220u	11-0065	0.11	0.09	0.069	E	600
	470u	11-0070	0.20	0.16	0.128	G	920
63V	1u	11-0105	0.05	0.038	0.03	A	35
	2u2	11-0110	0.05	0.038	0.03	A	45
	4u7	11-0115	0.05	0.042	0.035	A	80
	10u	11-0075	0.06	0.045	0.036	A	120
	22u	11-0080	0.06	0.048	0.038	C	210
	47u	11-0085	0.08	0.06	0.046	E	290
	100u	11-0090	0.11	0.084	0.067	E	450

Radial electrolytic capacitors

A comprehensive range of miniature radial lead aluminium electrolytic capacitors for mounting directly to PCBs manufactured to high technical and quality standards. All types are fully sleeved. Ripple current quoted at 85 deg C.



Case code	L	D	f	Case code	L	D	f
A	11	5	2	F	20	10	5
B	11	6	2.5	G	20	13	5
C	11.5	8	3.5	H	25	13	5
D	12.5	10	5	I	25	16	7.5
E	16	10	5	J	34.5	16	7.5

Technical specification

Tolerance	±20%
Temperature range	-40 to +85 deg C
Leakage current	0.03CV or 4µA whichever is greater

Voltage	Value	Order code	1+	100+	1000+	5000+	case
10V	47u	11-0305	0.04	0.022	0.015	0.013	A
	100u	11-0310	0.04	0.026	0.018	0.015	B
	1000u	11-0315	0.08	0.06	0.044	0.037	H
	2200u	11-0320	0.16	0.125	0.095	0.076	J
16V	47u	11-0325	0.04	0.025	0.018	0.015	B
	100u	11-0245	0.04	0.028	0.02	0.017	C
	220u	11-0260	0.05	0.035	0.026	0.021	D
	470u	11-0275	0.07	0.055	0.043	0.036	F
	1000u	11-0290	0.11	0.085	0.071	0.061	G
	2200u	11-0300	0.19	0.14	0.125	0.109	I
25V	10u	11-0220	0.04	0.022	0.013	0.011	A
	22u	11-0230	0.04	0.022	0.014	0.012	A
	47u	11-0235	0.04	0.027	0.02	0.017	B
	100u	11-0250	0.05	0.035	0.024	0.021	C
	220u	11-0265	0.07	0.052	0.042	0.036	E
	470u	11-0280	0.10	0.075	0.064	0.059	G
	1000u	11-0295	0.18	0.135	0.11	0.094	H
	2200u	11-0330	0.32	0.23	0.20	0.178	J
35V	22u	11-0340	0.04	0.025	0.018	0.015	B
	47u	11-0345	0.05	0.033	0.023	0.019	C
	100u	11-0350	0.06	0.043	0.035	0.03	D
	220u	11-0355	0.08	0.06	0.047	0.043	F
63V	470u	11-0360	0.13	0.10	0.09	0.082	H
	1u	11-0205	0.04	0.022	0.015	0.013	A
	2u2	11-0210	0.04	0.022	0.015	0.013	A
	4u7	11-0215	0.04	0.023	0.016	0.014	A
	10u	11-0225	0.05	0.025	0.018	0.015	A
	22u	11-0335	0.05	0.036	0.026	0.022	C
	47u	11-0240	0.07	0.045	0.03	0.026	D
	100u	11-0255	0.09	0.065	0.055	0.048	F
	220u	11-0385	0.14	0.11	0.09	0.078	G
	470u	11-0390	0.21	0.165	0.14	0.122	I

CAPACITORS

Power supply electrolytics

Elna type L Series single ended power supply electrolytics complete with vertical mount fixing clips. All capacitors are fully sleeved. Temperature range -25 to +85 deg C. Ripple current quoted is 85 deg C. Tolerance -10 to +50%.



Value	V	Order code	1+	25+	ripple	L	dia.	Fixing centres
2200u	63	11-0400	1.50	1.25	2.3A	50	22	35
4700u	35	11-0405	1.50	1.25	2.3A	40	25	38
4700u	63	11-0410	2.10	1.80	3.0A	50	22	42

Tantalum bead capacitors

Tantalum bead capacitors, suitable for coupling and bypassing, filters, timing circuits and general applications. Very low cost, small size. 5mm lead spacing. In low impedance circuits care should be exercised to ensure that the surge voltage is not exceeded.



Technical specification

Tolerance	±20%
Tangent of loss angle	0.012 max.
Leakage current	0.04CV or 2uA whichever is greater
Temperature range	-55 to +85 deg C

Value	V	Order code	1+	100+	1000+	h	dia.
0.1u	35	11-0500	0.07	0.05	0.044	7	4
0.22u	35	11-0505	0.07	0.05	0.044	7	4
0.33u	35	11-0510	0.07	0.05	0.044	7	4
0.47u	35	11-0515	0.07	0.05	0.044	7	4
1u	35	11-0520	0.07	0.05	0.044	7	4
2.2u	25	11-0525	0.08	0.062	0.056	7	4
3.3u	25	11-0530	0.10	0.08	0.068	8.5	5.5
4.7u	25	11-0535	0.10	0.08	0.072	8.5	5.5
6.8u	25	11-0540	0.12	0.10	0.088	10	6
10u	25	11-0545	0.14	0.115	0.104	9	5.5
15u	16	11-0550	0.19	0.15	0.138	10	6
22u	16	11-0555	0.19	0.14	0.116	10	6
33u	16	11-0560	0.36	0.26	0.235	11	6.5
47u	6	11-0565	0.16	0.125	0.11	10	6
47u	16	11-0570	0.40	0.33	0.30	12	8
68u	6	11-0575	0.50	0.41	0.37	14	7
100u	10	11-0580	0.90	0.78	0.62	15	8
100u	16	11-0585	1.00	0.85	0.68	15	8

Miniature trimmer capacitors

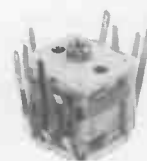
Miniature single turn trimmer capacitors suitable for mounting directly on to a 0.1in pitch printed circuit board. Polypropylene dielectric. Rated at 100V DC. Temperature range -40 to +70 deg C.



Value	Order code	1+	100+	h	dia.
2-10pF	12-0100	0.22	0.17	10	7.7
2-22pF	12-0105	0.24	0.19	10	7.7
5.5-65pF	12-0110	0.25	0.20	11	10.5

Miniature tuning capacitor

A miniature tuning capacitor suitable for ZN414 circuits and crystal sets. Comprises AM sections of 126pF with trimmers and FM sections of 20pF with trimmers. Control shaft is a *flatted* 6mm diameter tapped with an M2.5 thread. Rotation 180°. Max. voltage 100V. Dimensions 20x20x18mm.



	Order code	1+	25+	100+
Miniature tuning capacitor	12-0250	0.90	0.78	0.65

Jackson variable capacitors

A range of variable tuning capacitors manufactured by Jackson Bros.

Dilecon type. A compact solid dielectric variable capacitor. Tested at 750 volts. Suitable for panels from 1/16th to 1/4in thickness.



Value	Order code	1+	25+
0-300pF	12-0200	3.90	3.60
0-500pF	12-0205	3.90	3.60

Type C804. Air spaced trimmer capacitor. Ceramic insulation. Stainless steel spindle. Silver plated wipers.



Value	Order code	1+	25+
0-10pF	12-0220	3.80	3.50
0-25pF	12-0225	4.30	4.10
0-50pF	12-0230	4.30	4.10
0-100pF	12-0235	4.80	4.50

Type 'O'. Single and dual spaced variable capacitor. Silver plated wiper contacts. Temp. coefficient less than 100ppm deg C.



Value	Order code	1+	25+
0-365pF	12-0210	4.10	3.80
0-365pFx2	12-0215	4.80	4.50

Telephone orders placed before 5pm ensure same day despatch via next day carrier.

Potting boxes

A range of miniature potting boxes moulded in black ABS. Ideal for permanent encapsulation of small circuits.

Operating temperature -20 to +90 deg C. See page 101 for suitable potting compound.



Length	Width	Height	Wall thick.	Order code	1+	50+	500+	1000+
30	20	15	1.0	30-0540	0.05	0.036	0.031	0.029
40	40	20	1.0	30-0545	0.10	0.08	0.068	0.065
50	50	30	1.0	30-0550	0.14	0.11	0.094	0.089
75	50	30	1.0	30-0555	0.18	0.14	0.12	0.114
100	60	25	1.3	30-0560	0.25	0.21	0.17	0.162

ABS boxes

A range of boxes moulded in high impact ABS for maximum strength but easily drilled or punched. The lids on all the boxes in the range are retained by 4 self-tapping screws. Printed circuit board slots are included. Finished in black.



Length	Width	Height	Order code	1+	25+	100+	500+
72	45	22	30-0500	0.48	0.42	0.38	0.32
107	53	18	30-0520	0.58	0.51	0.46	0.39
97	73	35	30-0505	0.70	0.60	0.55	0.47
145	95	55	30-0510	1.30	1.08	0.95	0.84
207	122	77	30-0515	2.90	2.60	2.40	2.20

ABS boxes

A range of attractive two tone ABS boxes in a wide range of sizes. A deep recessed lid in beige is secured to a dark grey base by four self-tapping screws supplied. The base incorporates a large number of PCB slots and the cover includes four pillars to accept a PCB.



Length	Width	Height	Order code	1+	25+	100+
90	45	37	30-0400	1.10	0.90	0.80
110	55	43	30-0405	1.30	1.10	0.98
125	70	49	30-0410	1.70	1.40	1.25
155	90	61	30-0415	2.20	1.80	1.60
190	110	74	30-0420	2.80	2.40	2.15
220	135	92	30-0425	3.40	3.00	2.65

Miniature aluminium boxes

A range of attractive aluminium boxes, finished in grey, for a wide range of applications requiring a sturdy enclosure. Two U sections are secured by four self-tapping screws. The box is covered in a protective plastic film.



Length (mm)	Width (mm)	Height (mm)	Order code	1+	25+	100+
55	40	25	30-0300	0.65	0.57	0.51
75	55	25	30-0305	0.90	0.83	0.74
105	75	35	30-0310	1.40	1.30	1.15
105	125	35	30-0315	1.75	1.58	1.40
125	85	60	30-0320	2.40	2.18	1.95
155	105	45	30-0325	2.60	2.30	2.05
175	125	45	30-0330	3.00	2.75	2.45

Diecast aluminium boxes

A range of diecast aluminium boxes for use where electrical screening is required. Natural finish.



Length	Width	Height	Order code	1+	25+
114	64	30	30-1000	1.95	1.75
114	64	55	30-1005	2.35	2.15
114	89	55	30-1010	2.85	2.55
171	121	55	30-1015	4.30	3.95
222	46	55	30-1020	7.10	6.40

Hand held box

An attractive hand held box moulded in black ABS to suit a wide range of applications. A clip in cover at the back of the box conceals a battery compartment capable of accepting up to 2 PP3 style batteries. The box has a window size 49x20mm to accept displays, etc. Four self-tapping screws secure the top and bottom sections of the box. Pillars are provided for PCB mounting of max. size 105x56mm. A removable insert is included in the side of the box to accommodate cables, etc.



Length	Width	Height	Order code	1+	25+	100+
155	81	35	30-0260	2.70	2.20	1.85

Miniature cases

A range of small cases with aluminium base and steel cover providing a strong enclosure for miniature power supply applications, etc. Two self-tapping screws secure the two U sections. Finished in grey and beige. Vents are supplied at the front and rear of the case.



Length (mm)	Width (mm)	Height (mm)	Order code	1+	25+	100+
74	73	54	30-0380	2.20	1.98	1.76
104	73	54	30-0385	2.55	2.30	2.05
134	73	54	30-0390	2.90	2.60	2.30

We offer customers an unbeatable service:

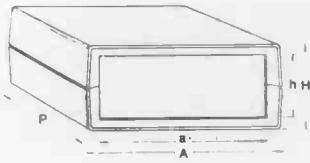
- ★ **Ex-stock delivery**
- ★ **Immediate shipment of all orders**
- ★ **Lowest prices in the market**
- ★ **Over 4000 product lines**

Contact us now with your requirements

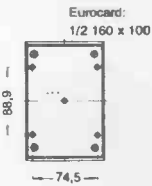
CASES

Instrument cases

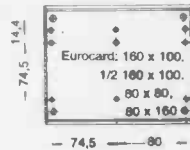
A range of attractive cases in ABS complete with anodised aluminium front and rear panels manufactured to professional standards. The cases are particularly useful for mounting Eurocard sized PCBs as detailed below. Finished in grey.



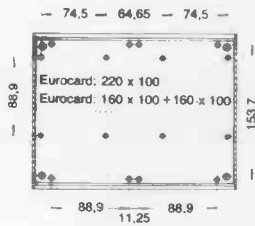
30-0900



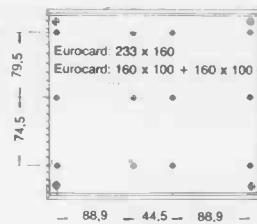
30-0905



30-0910



30-0915



Case is supplied complete with PCB supports as indicated. Two halves of case are secured by four screws. Cabinet feet are also supplied and front feet incorporate 'flip up' feet to adjust case angle if desired. An extremely attractive range of cases offered at very competitive prices.

A	H	P	a	h	Order code
90	41	145	71	25	30-0900
171	56	145	152	40	30-0905
231	77	181	212	61	30-0910
247	102	220	228	86	30-0915

Order code	1+	10+	50+
30-0900	4.00	3.65	3.35
30-0905	5.30	4.85	4.45
30-0910	8.60	7.85	7.20
30-0915	10.90	9.90	9.10

Sloping front cases

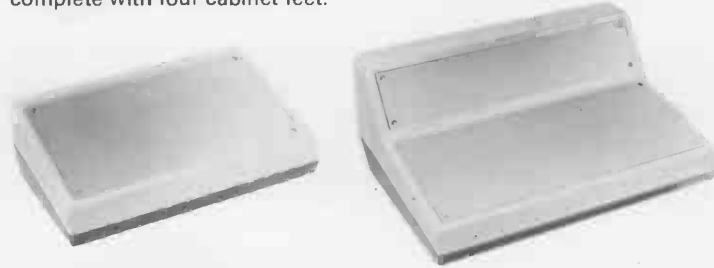
Instrument cases in ABS with sloped aluminium front panels with grey painted finish. Panels are secured by M3 screws threaded into integral brass bushes. The case sides have internally moulded slots for PCB insertion and the base also incorporates four brushes suitable for fixing boards. Supplied with four self-adhesive feet.



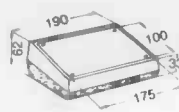
Height (min.)	Height (max.)	Width	Depth	Order code	1+	10+
39	57	161	96	30-0700	2.12	1.95
47	73	215	130	30-0705	3.20	2.90

Console cases

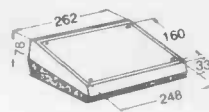
A range of attractive two part ABS console cases finished in grey, suited to a wide variety of applications. All panels are 1.5mm anodised aluminium. Manufactured to exacting professional standards. Mounting pillars are provided to suit a wide range of PCB sizes with emphasis on Eurocard sizes as detailed below. Supplied complete with four cabinet feet.



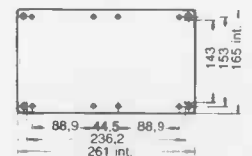
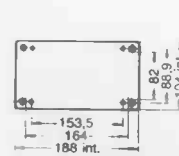
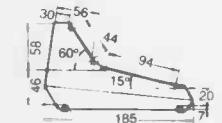
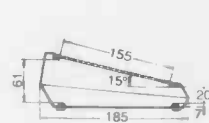
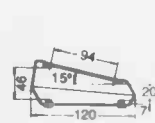
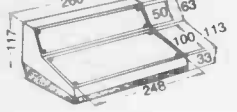
30-0950



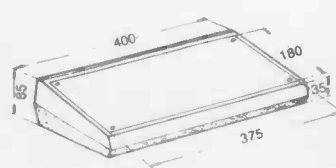
30-0955



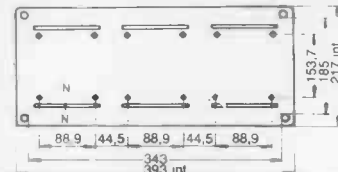
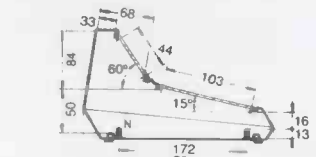
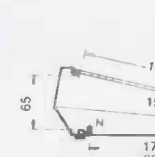
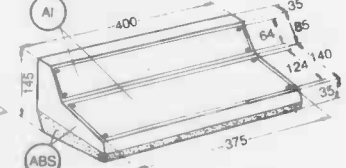
30-0960



30-0965



30-0970



Order code	1+	10+	50+
30-0950	4.55	4.05	3.65
30-0955	7.20	6.40	5.80
30-0960	8.00	7.15	6.45
30-0965	10.00	8.90	8.10
30-0970	12.60	11.15	10.15

COMPONENT KITS

Component kits

Our Component kits have always been a great success – as they provide an ideal opportunity for the research engineer or student to stock up on a range of products at greatly reduced prices. All kits contain carefully selected quantities of a wide range of different values of components. Each value is prepacked in a reusable polythene bag complete with identification label. See page 103 for suitable storage cabinets.

CR25 carbon film resistor kit

A pack containing a total of 1,000 0.25W 5% carbon film resistors ranging in value from 4.7 ohms through to 10 Megohms. A total of 64 different values. Supplied in 8 packs. See page 103 for suitable storage cabinets.



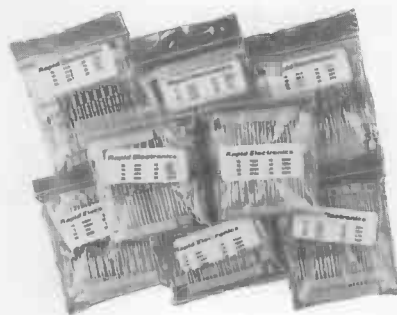
Contents:

10x4R7	10x120R	30x1K	10x8K2	15x68K	10x560K
5x5R6	10x150R	15x1K2	30x10K	10x82K	10x680K
10x10R	10x180R	15x1K5	15x12K	30x100K	5x820K
10x15R	20x220R	10x1K8	15x15K	20x120K	20x1M
10x22R	20x270R	25x2K2	15x18K	15x150K	10x2M2
10x33R	20x330R	20x2K7	20x22K	15x180K	5x3M3
20x47R	10x390R	20x3K3	15x27K	20x220K	10x4M7
10x56R	30x470R	15x3K9	20x33K	15x270K	5x6M8
10x68R	20x560R	25x4K7	10x39K	15x330K	20x10M
10x82R	20x680R	20x5K6	30x47K	10x390K	
20x100R	10x820R	15x6K8	20x56K	25x470K	

Type	Order code	1+	5+
Resistor kit	13-0200	6.90	6.10

CR50 carbon film resistor kit

A pack containing a total of 1,000 0.5W 5% carbon film resistors ranging in value from 4.7 ohms through to 10 MΩ. A total of 64 different values. See page 103 for suitable storage cabinets.



Contents:

10x4R7	10x120R	30x1K	10x8K2	15x68K	10x560K
5x5R6	10x150R	15x1K2	30x10K	10x82K	10x680K
10x10R	10x180R	15x1K5	15x12K	30x100K	5x820K
10x15R	20x220R	10x1K8	15x15K	20x120K	20x1M
10x22R	20x270R	25x2K2	15x18K	15x150K	10x2M2
10x33R	20x330R	20x2K7	20x22K	15x180K	5x3M3
20x47R	10x390R	20x3K3	15x27K	20x220K	10x4M7
10x56R	30x470R	15x3K9	20x33K	15x270K	5x6M8
10x68R	20x560R	25x4K7	10x39K	15x330K	20x10M
10x82R	20x680R	20x5K6	30x47K	10x390K	
20x100R	10x820R	15x6K8	20x56K	25x470K	

Type	Order code	1+	5+
CR50 0.5W resistor kit	13-0260	8.50	7.30

MR25 metal film resistor kit

A pack containing a total of 1,000 0.25W 1% 50ppm precision metal film resistors ranging in value from 10 ohms through to 1 MΩ. A total of 70 different values including many selected from the E24 range to provide a comprehensive spread of resistances. Supplied in 10 packs all clearly marked with contents. See page 103 for suitable storage cabinets.



Contents:

10x10R	10x150R	10x910R	15x5K6	15x330K	15x220K
10x15R	10x180R	20x1K	15x6K8	10x39K	10x240K
10x22R	20x220R	20x1K2	10x7K5	10x43K	10x270K
10x33R	20x270R	15x1K5	10x8K2	20x47K	20x330K
10x39R	30x330R	10x1K8	30x10K	15x56K	10x390K
15x47R	10x390R	10x2K	15x12K	10x68K	20x470K
10x56R	10x430R	20x2K2	15x15K	10x75K	10x560K
10x68R	20x470R	10x2K7	10x16K	10x82K	10x680K
10x75R	10x560R	15x3K3	10x18K	40x100K	10x820K
10x91R	10x620R	10x3K9	10x20K	15x120K	30x1M
30x100R	20x680R	25x4K7	20x22K	10x150K	
10x120R	10x820R	10x5K1	15x27K	10x180K	

Type	Order code	1+	5+
MR25 0.25W resistor kit	13-0270	10.80	9.40

Schools, colleges, Government departments and public-quoted companies have automatic account facilities. Orders may be placed for immediate despatch.

COMPONENT KITS

Ceramic capacitor kit

A pack containing a total of 240 50V ceramic disc and plate capacitors ranging in value from 22pF to 0.1uF. Each value is individually packed. A total of 26 different values. See page 103 for suitable storage cabinets.



Contents:	5x82p	10x220p	10x560p	10x2n2
	5x22p	20x100p	5x270p	5x680p
	5x33p	5x120p	15x330p	5x880p
	10x47p	10x150p	5x390p	20x1n
	5x56p	5x180p	15x470p	20x10n
	5x68p			10x100n

Type	Order code	1+	5+
Ceramic capacitor kit	13-0205	6.90	6.10

Radial electrolytic capacitor kit

A package containing a total of 93 miniature radial lead electrolytic capacitors. Each value individually packed. A total of 12 different values. See page 103 for suitable storage cabinets.

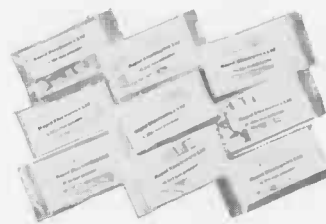


Contents:	15x10u 25V	15x100u 16V	3x1000u 16V
10x1u 63V	5x22u 25V	5x220u 16V	3x1000u 25V
10x2u2 63V	10x47u 25V	5x470u 16V	2x2200u 16V
10x4u7 63V			

Type	Order code	1+	5+
Electrolytic capacitor kit	13-0220	6.90	6.10

Miniature polyester capacitor kit

A pack containing a total of 100 miniature 5mm pitch polyester capacitors. Each value individually packed. A total of 9 different values. See page 103 for suitable storage cabinets.



Contents:	10x4n7	10x22n	20x100n	5x470n
	15x10n	10x47n	5x220n	

Type	Order code	1+	5+
Miniature polyester kit	13-0215	5.20	4.70

Metallised polyester capacitor kit

A pack containing a total of 110 250V C380 metallised polyester capacitors ranging in value from 10n to 470n. Each value individually packed. A total of 11 different values. See page 103 for suitable storage cabinets.

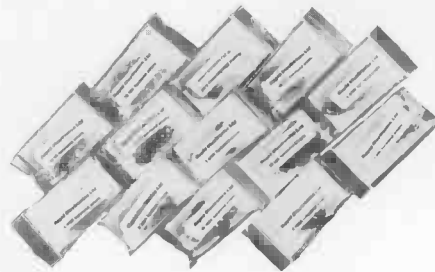


Contents:	10x22n	15x47n	20x100n	10x220n	5x470n
	20x10n	10x33n	5x68n	5x150n	5x330n
	5x15n				

Type	Order code	1+	5+
Metallised polyester kit	13-0210	6.20	5.50

Preset potentiometer kit

A pack containing a total of 110 miniature horizontal mounting preset potentiometers. Each value individually packed. A total of 13 different values. See page 103 for suitable storage cabinets.



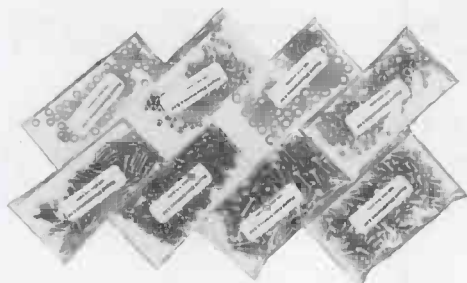
Contents:	10x1K	15x10K	15x100K	10x1M
	5x100R	10x2K2	5x22K	5x220K
	5x220R	10x4K7	10x47K	5x470K
	5x470R			

Type	Order code	1+	5+
Preset potentiometer kit	13-0225	5.90	5.30

COMPONENT KITS

Nut and bolt kit

A pack containing a total of 800 assorted BA nuts, bolts and washers. Bolts are cheese head type. All cadmium plated steel. All types are individually packed. See page 103 for suitable storage cabinets.



Contents:
 100x6BA 1/4in bolts 100x4BA 1/4in bolts
 100x6BA 1/2in bolts 100x4BA 1/2in bolts
 100x6BA nuts 100x4BA nuts
 100x6BA washers 100x4BA washers

Type	Order code	1+	5+
Nut and bolt kit	13-0230	3.20	2.80

Self-tapping screw kits

Kits of slotted pan head self-tapping screws. Type AB screws finished in clear passivated zinc plate.

No. 4 size. Thread dia. 2.9, 200 screws:
 50 12.7mm, 100 9.5mm, 50 6.4mm.

No. 6 size. Thread dia. 3.5, 220 screws:
 20 19.1mm, 100 12.7mm, 50 9.5mm, 50 6.4mm.

No. 10 size. Thread dia. 4.8, 170 screws:
 20 25.4mm, 50 19.1mm, 50 12.6mm, 50 9.5mm.



Type	Order code	1+	5+
No. 4 size	13-0235	1.95	1.70
No. 6 size	13-0240	1.70	1.55
No. 10 size	13-0245	2.20	1.95

Fuse kit

A kit of 20mm quick blow fuses. Each type individually packed. Selection has been carefully selected by rating. See page 103 for suitable storage cabinets.

Contents:

2	50mA	15	1A	10	3A
5	100mA	5	1.6A	10	5A
5	250mA	10	2A	5	6.3A
10	500mA				



Type	Order code	1+	5+
Fuse kit	13-0300	4.40	3.95

We offer customers an unbeatable service:

- ★ Ex-stock delivery
 - ★ Immediate shipment of all orders
 - ★ Lowest prices in the market
 - ★ Over 4000 product lines
- Contact us now with your requirements**

CONNECTORS

XLR connectors

A range of professional precision engineered audio connectors for a wide range of applications. Rugged construction ensures low noise and high reliability in low level audio circuits. Self adjusting cable strain relief, accepts cable diameters 5.5 to 9.5mm.



Technical specification

Housing	Diecast zinc. Matt chrome plated
Moulding	Glass filled nylon/noryl
Working voltage	150V DC
Current rating	15A
Contact resistance	2m max.

Type	Order code	1+	25+
3 way cable socket 3-11C	20-0400	1.60	1.35
3 way cable plug 3-12C	20-0405	1.20	1.05
3 way chassis socket 3-31	20-0410	1.75	1.45
3 way chassis plug 3-32	20-0415	1.00	0.85
5 way cable socket 5-11C	20-0440	2.80	2.30
5 way cable plug 5-12C	20-0445	2.30	1.95
5 way chassis socket 5-31	20-0450	3.00	2.45
5 way chassis plug 5-32	20-0455	1.85	1.55

Low cost XLR connectors

A range of low cost professional quality plugs and sockets moulded from tough nylon. Sockets may be mounted to front or rear of chassis. To facilitate soldering rear contact pins are hollow. Cable plug and socket incorporate cable strain relief.



Type	Order code	1+	25+	100+
3 way cable socket	20-0480	1.00	0.90	0.78
3 way cable plug	20-0485	0.90	0.82	0.72
3 way chassis socket	20-0490	0.50	0.41	0.36
3 way chassis plug	20-0495	0.40	0.33	0.28

Mains connectors

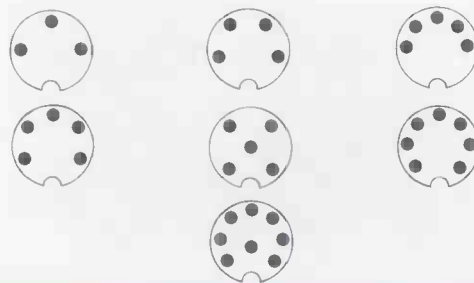
3 pole connectors for 250V AC. Chrome plated finish. Live and neutral contacts on plugs and sockets are shrouded. Contact rating 5A max. Earth connected to body shell.



Type	Order code	1+	25+
Mains cable plug male LNE-11C	20-0800	2.50	2.15
Mains cable plug female LNE-12C	20-0805	2.00	1.70
Mains chassis socket LNE-32	20-0810	1.70	1.45
Mains chassis plug LNE-31	20-0815	2.50	2.15

DIN audio connectors

A range of economical insulated DIN plugs. Will match with all DIN socket types detailed below. Black PVC body.



Type	Order code	1+	100+	500+
Speaker plug	20-0230	0.08	0.06	0.05
3 way	20-0240	0.12	0.09	0.08
4 way	20-0260	0.13	0.11	0.095
5 way 180°	20-0250	0.14	0.10	0.085
5 way 240°	20-0265	0.15	0.11	0.095
5 way 'Domino'	20-0270	0.15	0.11	0.095
6 way	20-0280	0.15	0.11	0.095
7 way	20-0290	0.16	0.12	0.105
8 way	20-0295	0.20	0.16	0.135

Screened DIN audio connectors

A range of screened plugs. Robust nickel-plated diecast bodies with cable clamp and supporting sleeve.



Type	Order code	1+	50+
3 way	20-0300	0.65	0.57
5 way 180°	20-0315	0.68	0.60
5 way 240°	20-0320	0.70	0.62
5 way 'Domino'	20-0325	0.80	0.70
6 way	20-0330	0.80	0.70
7 way	20-0335	0.90	0.78
8 way	20-0340	1.00	0.85

DIN chassis sockets

Chassis mounting sockets suitable for insulated or screened DIN audio connectors. Panel cutout is 16mm. 2 pin type has plastic body.



Type	Order code	1+	100+	500+
Speaker socket	20-0235	0.08	0.06	0.05
3 way	20-0245	0.14	0.11	0.10
4 way	20-0360	0.15	0.12	0.11
5 way 180°	20-0255	0.15	0.12	0.11
5 way 240°	20-0365	0.15	0.12	0.11
5 way 'Domino'	20-0370	0.15	0.12	0.11
6 way	20-0375	0.16	0.13	0.12
7 way	20-0380	0.18	0.14	0.125
8 way	20-0385	0.20	0.16	0.145

CONNECTORS

Professional DIN chassis sockets

Professional quality chassis mounting DIN sockets. Single hexagonal nut fixing. Nickel-plated brass body with latching slot and locating spigot. Suitable for use with our insulated and screened DIN plugs. 16mm panel cutout.



Type	Order code	1+	50+
3 way	20-0500	0.85	0.75
5 way 180°	20-0505	1.00	0.85
5 way 240°	20-0510	1.05	0.90
6 way	20-0515	1.10	0.95
7 way	20-0520	1.20	1.05

PCB mounting DIN sockets

A range of PCB mounting DIN sockets. All types have inter-locking facility.



Type	Order code	1+	100+	500+
5 way 180°	20-0550	0.14	0.11	0.095
6 way	20-0560	0.25	0.20	0.18
7 way	20-0565	0.26	0.21	0.19
8 way	20-0570	0.30	0.25	0.23

Phono plugs

Insulated phono plugs in red or black.



Type	Order code	1+	100+	500+
Red phono plug	20-0200	0.09	0.07	0.06
Black phono plug	20-0205	0.09	0.07	0.06

Screened phono plugs

Screened version of the above.



Type	Order code	1+	100+	500+
Screened phono plug	20-0210	0.18	0.15	0.12

PCB mounted phono socket

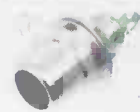
Single PCB mounted right angle phono socket with black insulator. Incorporates single switch.



Type	Order code	1+	100+	500+
PCB phono socket	20-0212	0.12	0.09	0.075

Single phono sockets

Chassis mounting phono sockets for use with above plugs. Socket is all metal type with single hole fixing of 6mm. Colour coded insulators for easy identification.



Type	Order code	1+	100+	500+
Single socket black	20-0215	0.13	0.11	0.095
Single socket red	20-0225	0.13	0.11	0.095

Twin phono socket

Chassis mounting twin phono socket mounted on paxolin sheet. Earth connections are independent.



Type	Order code	1+	100+
Twin socket	20-0220	0.18	0.15

Audio leads

A range of made up audio leads for general industrial and audio-visual applications.

5 pin 180 DIN plug to 5 pin 180 DIN plug. Four core screened cable. Overall length 1.5M.



5 pin 180 DIN plug to 5 pin 180 DIN plug with 'Mirror' connections – pin 1 to 3, pin 4 to 5. Overall length 1.5M.



Phono to phono. 2 phono plugs, to 2 phono plugs. Twin screened cable with colour coded plugs. Overall length 1.5M.



Type	Order code	1+	10+
5 pin DIN-DIN audio lead	16-0360	0.90	0.80
5 pin DIN-DIN 'Mirror' lead	16-0365	0.90	0.80
Phono to phono lead	16-0370	0.85	0.75

For quantities above price breaks listed in the catalogue contact Sales for an immediate competitive quotation.

CONNECTORS

Miniature jack plugs

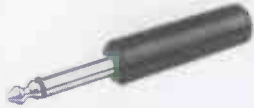
Miniature 2.5mm and 3.5mm insulated and screened jack plugs.



Type	Order code	1+	100+	500+
2.5mm insulated plug	20-0100	0.10	0.075	0.065
2.5mm screened plug	20-0050	0.18	0.15	0.135
3.5mm insulated plug	20-0105	0.10	0.075	0.065
3.5mm screened plug	20-0055	0.18	0.15	0.135
3.5mm stereo insulated plug	20-0125	0.15	0.13	0.105
3.5mm stereo screened plug	20-0060	0.23	0.19	0.165

Standard jack plugs

Standard insulated and screened jack plugs. Solder termination. 0.25in diameter.



Type	Order code	1+	100+	500+
Std insulated mono plug	20-0110	0.16	0.12	0.105
Std screened mono plug	20-0070	0.25	0.21	0.19
Std insulated stereo plug	20-0120	0.24	0.21	0.19
Std screened stereo plug	20-0080	0.28	0.24	0.22

Miniature jack sockets

Miniature enclosed type jack sockets for 2.5 and 3.5mm jack plugs. Max. panel thickness 2.5mm. Panel cutout 4.5mm for 2.5mm type; 6mm for 3.5mm type.



Type	Order code	1+	100+	500+
2.5mm	20-0130	0.08	0.06	0.045
3.5mm	20-0135	0.08	0.06	0.045
3.5mm stereo	20-0155	0.11	0.085	0.07

PCB jack socket

A PCB mounting version of the popular 3.5mm jack socket. Both contacts are switched. PCB pins 1mm diameter. Panel cutout 8.2mm.



Type	Order code	1+	100+
3.5mm PCB socket	20-0140	0.20	0.16

Standard jack sockets

Chassis mounting jack sockets to suit standard jack plugs. Switched contacts with normally 'closed' contacts which open upon insertion of the plug. 0.25in size.



Type	Order code	1+	100+	500+
Standard mono	20-0145	0.20	0.16	0.14
Standard stereo	20-0150	0.25	0.18	0.16

PCB standard jack sockets

PCB mounted versions of the above to suit standard jack plugs. PCB pin size 1.3mm. Switched contacts with normally 'closed' contacts which open upon insertion of the plug. 0.25in size.



Type	Order code	1+	100+	500+
Standard mono PCB	20-0160	0.20	0.16	0.14
Standard stereo PCB	20-0165	0.25	0.18	0.16

Jack line sockets

A range of cable mounting jack line sockets. Black moulded body complete with cable clamp.



Type	Order code	1+	100+
2.5mm	20-0175	0.14	0.12
3.5mm	20-0180	0.14	0.12
3.5mm stereo	20-0185	0.20	0.17
Standard mono	20-0190	0.22	0.18
Standard stereo	20-0195	0.28	0.23

Edge connectors ■

Edge connectors with contacts on a 0.1in pitch primarily intended for use with the Sinclair ZX81 and Spectrum computers.



Contacts phosphor bronze. Wirewrap termination. Current rating per contact 5A. 23 way connector is polarised in position 3 and is 60mm wide.

Type	Order code	1+	50+
23 way ZX81	19-0100	1.50	1.40

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■ Available until stocks are exhausted

CONNECTORS

DIN 41612 connectors

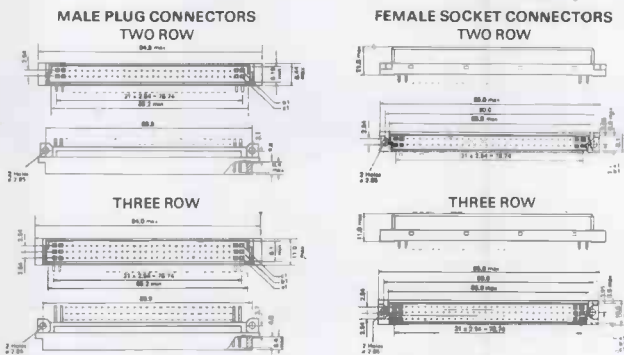
Moulded glass filled polyester connectors to DIN 41612 manufactured with gold flashed contacts for making up to 64 or 96 individual connections to PCBs.



The plug moulding houses single piece 90 degree angled pins on a 0.1in pitch between rows allowing horizontal mounting on Eurocard, whilst mating sockets all have wire wrapping pins. Both plugs and sockets have two hole fixing with integral steps for 180 degree polarisation.

	fixing cen.	length	width	depth
plugs	89x2.5	94	8.6 (11.1)	—
sockets	90x2.5	95	8.1 (10.6)	11.6

figures in brackets refer to 96 way connectors.



Technical specification

Proof voltage	1050V DC
Max. current per contact	1.5A
Contact resistance	15m ohms max.
Insulation resistance	5x10 ⁹ ohms
Engaging force	0.94N max. per contact
Separating force	0.19N min. per contact

Type	Order code	1+	25+	100+
64 way a+b plug	19-0120	1.00	0.95	0.90
64 way a+b socket	19-0125	1.60	1.50	1.40
64 way a+c plug	19-0130	1.05	1.00	0.95
64 way a+c socket	19-0135	1.70	1.60	1.50
96 way a+b+c plug	19-0140	1.40	1.30	1.20
96 way a+b+c socket	19-0145	2.35	2.25	2.10

IDC connectors

A range of insulation displacement connectors; cable mounting sockets with mating PCB mounting plugs, edge connectors, 'D' connector plugs and sockets. When used in conjunction with ribbon cable provides a quick and simple interconnection system.

PCB mounting plugs

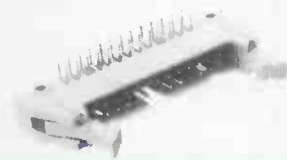
Plugs for soldering directly to printed circuit boards. Both incorporate phosphor bronze contacts with solder spills on a 0.1in grid. Available in straight form or right angle spill form. Mounting holes are provided at each end. Long latches are supplied as standard to accommodate sockets with strain relief which also serve to disengage mated connectors.

ways	overall length	fixing centres	
		straight	rt. angle
10	32.0	21.8	28.0
16	39.6	29.4	35.6
20	44.7	34.4	40.7
26	52.3	42.1	48.3
34	62.5	52.3	58.5
40	70.1	59.9	66.1
50	82.8	72.6	78.8
60	95.5	85.3	91.5

Technical specification

	socket/plug	edge conn.
Working voltage	250V AC	300V AC
Proof voltage	750V AC	1000V AC
Current rating	1A	
Contact resistance	15m ohms	30m ohms
Insulation resistance (min.)	5x10 ⁹ ohms	10 ⁹ ohms

Right angle PCB plugs



Type	Order code	1+	50+
10 way	19-0200	0.70	0.65
16 way	19-0205	0.85	0.80
20 way	19-0210	0.95	0.90
26 way	19-0215	1.10	1.00
34 way	19-0220	1.30	1.15
40 way	19-0225	1.50	1.40
50 way	19-0230	1.80	1.60
60 way	19-0235	2.10	1.95

Straight PCB plugs

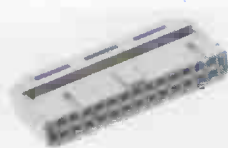


Type	Order code	1+	50+
10 way	19-0250	0.70	0.60
16 way	19-0255	0.80	0.75
20 way	19-0260	0.90	0.85
26 way	19-0265	1.10	1.00
34 way	19-0270	1.20	1.10
40 way	19-0275	1.40	1.25
50 way	19-0280	1.70	1.50
60 way	19-0285	2.10	1.95

CONNECTORS

Cable mounting sockets

Cable mounting sockets which mate directly with the PCB mounting plugs. Complete with cable strain relief. Beryllium copper contacts.



Type	Length	Order code	1+	50+
10 way	17.3	19-0300	0.70	0.65
16 way	24.9	19-0305	0.90	0.80
20 way	30.0	19-0310	0.90	0.75
26 way	37.6	19-0315	1.05	0.85
34 way	47.8	19-0320	1.30	1.10
40 way	55.4	19-0325	1.45	1.20
50 way	68.1	19-0330	1.70	1.50
60 way	80.1	19-0335	2.00	1.70

Edge connectors

Edge connectors for direct connection to double sided PCBs. Cable piercing tines effect a permanent 4-point contact with each individual conductor of the ribbon cable via its 'V' shaped teeth. Main contact block is supplied without mounting flanges.



Type	Length	Order code	1+	50+
34 way	56.84	19-0370	1.65	1.45

Commercial IDC connectors

A range of commercial specification insulation displacement connectors/cable mounting sockets with mating PCB mounting plugs and edge connectors. Supplied in four popular sizes.

Right angle PCB plugs

Right angle plugs for soldering directly to printed circuit boards. Phosphor bronze contacts. Supplied with long latches to accommodate sockets with strain relief.



Type	Order code	1+	50+	500+
20 way right angle plug	19-0150	0.60	0.52	0.44
26 way right angle plug	19-0155	0.75	0.68	0.57
34 way right angle plug	19-0160	0.95	0.85	0.72
40 way right angle plug	19-0165	1.10	0.98	0.80

Straight PCB plugs

Straight spill plugs for soldering directly to printed circuit boards. Phosphor bronze contacts. Supplied with long latches to accommodate sockets with strain relief.



Type	Order code	1+	50+	500+
20 way straight plug	19-0180	0.50	0.45	0.37
26 way straight plug	19-0185	0.65	0.58	0.48
34 way straight plug	19-0190	0.85	0.75	0.64
40 way straight plug	19-0195	1.00	0.90	0.75

Cable mounting sockets

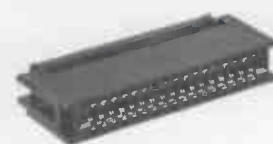
Cable mounting sockets with strain relief to match above PCB plugs. Interchangeable with other IDC connector plugs. Black glass-filled polyester body. Phosphor bronze contacts.



Type	Order code	1+	50+	500+
20 way socket	19-0340	0.20	0.14	0.11
26 way socket	19-0345	0.25	0.16	0.12
34 way socket	19-0350	0.25	0.16	0.12
40 way socket	19-0355	0.55	0.40	0.29

Edge connector

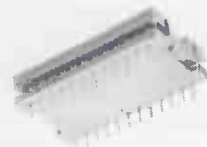
Edge connector for direct connection to double sided PCBs. Phosphor bronze contacts. Black glass-filled polyester body. For direct connection to 2.54mm pitch ribbon cable. Supplied without mounting flanges.



Type	Order code	1+	50+	500+
34 way edge connector	19-0390	0.28	0.20	0.15

IDC type DIL connectors

IDC type DIL plugs for direct termination to ribbon cable. Open construction to permit daisy chains. Tin plated contacts. Current rating 1A DC.



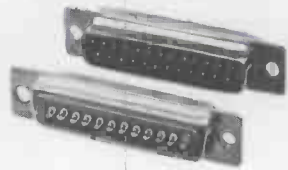
Type	Order code	1+	100+	500+
14 pin IDC DIL plug	80-0200	0.30	0.23	0.18
16 pin IDC DIL plug	80-0205	0.33	0.26	0.21
24 pin IDC DIL plug	80-0210	0.50	0.40	0.31
40 pin IDC DIL plug	80-0215	0.80	0.64	0.51

Schedule your order to obtain a better price break based on overall quantity ordered.

CONNECTORS

Commercial 'D' connectors

A range of low cost commercial specification 'D' connectors which meet the dimensional requirements of MIL-C-24308. Plugs and sockets are tin plated to allow full grounding for EMI/RFI shielding. Grounding fingers are incorporated in the plug shell. Stamped contacts.



Type	Order code	1+	50+	500+
9 way solder lug plug	15-0100	0.17	0.12	0.085
15 way solder lug plug	15-0105	0.24	0.16	0.12
25 way solder lug plug	15-0110	0.27	0.18	0.135
9 way solder lug socket	15-0150	0.19	0.125	0.095
15 way solder lug socket	15-0155	0.25	0.17	0.14
25 way solder lug socket	15-0160	0.29	0.19	0.145

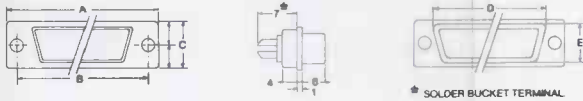
Right angle 'D' connectors

Commercial specification right angle PCB mounting 'D' connectors. Both types are tin plated to allow full grounding for EMI/RFI shielding. Grounding fingers are incorporated in the plug shell. Both types incorporate jack posts. PCB locating spigots are electrically connected to the shell of the connector to facilitate grounding. Stamped contacts.



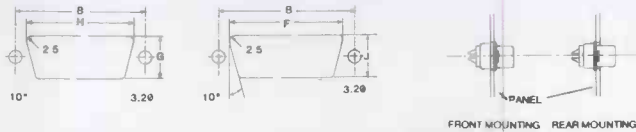
Type	Order code	1+	50+	500+
25 way r/a plug	15-0135	0.55	0.36	0.28
25 way r/a socket	15-0185	0.48	0.32	0.25

SHELL DIMENSIONS



* SOLDER BUCKET TERMINAL

PANEL CUT OUT DIMENSIONS



FRONT MOUNTING REAR MOUNTING

DIMENSIONS

SHELL SIZE	A ± 0.2	B ± 0.1	C ± 0.2	D ± 0.2	E ± 0.2	F ± 0.2	G ± 0.2	H ± 0.2	J ± 0.2
9 WAY	30.8	25	12.4	19.3	10.7	22.2	11.4	20.5	13.0
15 WAY	39.2	33.3	12.4	27.5	10.7	30.5	11.4	28.8	13.0
25 WAY	53.1	47	12.4	41.3	10.7	44.3	11.4	42.5	13.0
37 WAY	89.5	83.5	12.4	57.7	10.7	60.7	11.4	59.1	13.0
50 WAY	87	81.1	15.4	55.3	13.6	58.3	14.1	56.3	15.8

CONTACT ARRANGEMENTS & IDENTIFICATION



Professional 'D' connectors

A comprehensive range of professional specification 'D' connectors offering a minimum of 100 mating cycles. Offered in three options: straight, solder lug, straight PCB mount and right angle PCB mount. Plugs and sockets are tin plated with dimples incorporated in the male shell. Turned pin contacts.



Technical specification

Shell material	Tin plated steel
Insulator	Glass filled polyester
Contacts	Machined copper alloy gold plated over nickel
Current rating	5A per contact
Working voltage	300V rms
Temperature range	-55 to +125 deg C

Straight solder lug

Type	Order code	1+	50+	500+
9 way plug	15-0500	0.27	0.23	0.205
15 way plug	15-0505	0.40	0.34	0.30
25 way plug	15-0510	0.62	0.54	0.47
37 way plug	15-0515	0.95	0.80	0.70

9 way socket	15-0525	0.31	0.27	0.235
15 way socket	15-0530	0.62	0.54	0.47
25 way socket	15-0535	0.70	0.59	0.52
37 way socket	15-0540	1.30	1.10	0.97

Straight PCB mount

Type	Order code	1+	50+	500+
9 way plug	15-0550	0.27	0.23	0.205
15 way plug	15-0555	0.40	0.34	0.30
25 way plug	15-0560	0.62	0.54	0.47
37 way plug	15-0565	0.95	0.80	0.70

9 way socket	15-0575	0.31	0.27	0.235
15 way socket	15-0580	0.62	0.54	0.47
25 way socket	15-0585	0.70	0.59	0.52
37 way socket	15-0590	1.30	1.10	0.97

Right angle PCB mount

Type	Order code	1+	50+	500+
9 way plug	15-0600	0.63	0.49	0.45
15 way plug	15-0605	0.82	0.65	0.58
25 way plug	15-0610	1.06	0.84	0.77
37 way plug	15-0615	1.60	1.28	1.16

9 way socket	15-0625	0.74	0.59	0.53
15 way socket	15-0630	0.91	0.72	0.65
25 way socket	15-0635	1.20	0.95	0.85
37 way socket	15-0640	1.75	1.40	1.25

IDC 'D' connectors

A range of IDC 'D' connector plugs and sockets for direct termination to ribbon cable. Gold over nickel-plated beryllium copper contacts housed in a tinned metal shell for extra reliability and EMI/ESD reduction. Complete with cable strain relief.



Type	Order code	1+	50+	500+
9 way IDC plug	19-0410	0.65	0.56	0.49
15 way IDC plug	19-0415	0.70	0.58	0.52
25 way IDC plug	19-0400	0.80	0.64	0.57

9 way IDC socket	19-0420	0.65	0.56	0.49
15 way IDC socket	19-0425	0.70	0.58	0.52
25 way IDC socket	19-0405	0.80	0.64	0.57

CONNECTORS

Low cost 'D' connector covers

A range of very low cost two part plastic 'D' connector covers in grey. Supplied complete with cable clamp and short jack screws. Top cable entry type.



Type	Order code	1+	50+	500+
9 way cover	15-0230	0.20	0.12	0.10
15 way cover	15-0235	0.22	0.13	0.105
25 way cover	15-0240	0.24	0.135	0.11
37 way cover	15-0245	0.40	0.34	0.29

Moulded covers

Moulded covers manufactured in flame retardant thermoplastic, finished in grey. Compatible with other comparable systems. All connector housings are supplied with cable clamps and connector mounting screws. Top entry type.



Type	Order code	1+	50+	500+
9 way moulded cover	15-0200	0.75	0.62	0.55
15 way moulded cover	15-0205	0.80	0.64	0.56
25 way moulded cover	15-0210	0.80	0.66	0.57
37 way moulded cover	15-0215	0.95	0.75	0.66

Screw lock covers

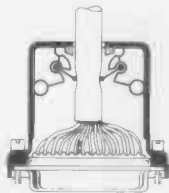
A hood moulded in self-extinguishing thermoplastic to fit 'D'-type connectors. Screw locks are compatible with other similar systems and feature long shanks with finger grips and screwdriver slots for maximum operating convenience. Screw locks are captive. Receptacle jackposts are also available and are supplied complete with hexagonal nut, one plain and one lock washer. Hood incorporates an adjustable cable clamp and the whole assembly may be fitted to connectors which have already been wired. Hood is secured by two screws.



Type	Order code	1+	50+	500+
9 way screwlock	15-0300	0.95	0.80	0.68
15 way screwlock	15-0305	1.00	0.85	0.70
25 way screwlock	15-0310	1.00	0.75	0.65
37 way screwlock	15-0315	1.20	0.95	0.85

Rapid assembly screwlock covers

A new two piece 25 way 'D' connector cover moulded in self extinguishing thermoplastic. A simple push-fit cable clamp can be adjusted easily to accommodate cable sizes from 3 to 12mm in diameter, considerably reducing assembly time. Hood is secured with two screws. Offered with short or extended finger screws with screwdriver slots.



Type	Order code	1+	50+	500+
Cover with short screws	15-0320	0.60	0.49	0.43
Cover with long screws	15-0325	0.75	0.58	0.50

Screwlock assemblies

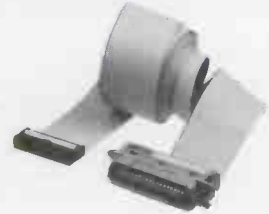
Assemblies for securing mated 'D' connectors. Two sizes of female are offered to accommodate plastic flange 'D' connectors. Sold in packs of 2.



Type	Order code	1+	50+	500+
Pair male D20419	15-0360	0.30	0.26	0.22
Pair female D20418-2 8mm	15-0365	0.32	0.28	0.24
Pair female D20418-2 13mm	15-0370	0.32	0.28	0.24

BBC printer cable

A printer cable suitable for interfacing the BBC microcomputer to a printer. Both connectors are supplied with cable strain relief. Overall length of cable 1.5M.



Type	Order code	1+	10+	50+
BBC printer lead	19-0610	3.50	2.70	2.20

IBM printer cables

A completely screened Centronics type parallel cable for interfacing IBM and compatible computers to a printer comprising a 36 way male Centronics connected to a 25 way 'D' connector plug. Manufactured from 7/0.2 cable, sheathed in grey PVC with aluminium screen. Fully moulded construction. Available in two lengths.



Type	Order code	1+	10+	50+
2M IBM printer cable	19-0620	5.00	4.00	2.90
3M IBM printer cable	19-0625	5.50	4.40	3.70

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Centronics data cable

A completely screened Centronics type parallel cable for use to interface between printers, word processors and VDUs, etc. Manufactured from 7/0.2 cable, sheathed in grey PVC with aluminium screen to minimise crosstalk and provide protection against external noise. 36 way male Centronics connectors at each end. Overall length 2 metres. Fully moulded construction.



Type	Order code	1+	10+	50+
36 way Centronics cable	19-0600	5.00	4.20	3.80

For Dii sockets at the most competitive price in the UK – see page 32.

CONNECTORS

RS232 data cable

RS232 data cable completely screened end to end with 25 way 'D' connectors at each end. Overall length 2 metres. Manufactured from 7/0.2 cable, sheathed in grey PVC with aluminium screen to minimise crosstalk and protect against external noise. All 25 pins interconnected. Fully moulded construction.



	Order code	1+	10+	50+
RS232 cable (male-male)	19-0605	5.00	4.00	2.90
RS232 cable (male-female)	19-0615	5.00	4.00	2.90

Printer/data switches

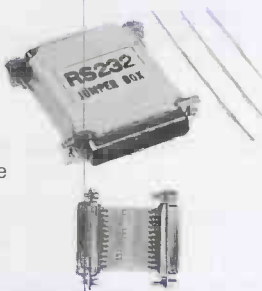
A range of attractively styled data switches housed in an attractive steel case to provide excellent screening. A wide range of configurations are available including 2 port, 3 port, 4 port and changeover styles. High quality screened connectors are used throughout. Offered with female RS232 (25 way 'D') or Centronics terminations at rear of case.



Type	Order code	1+	5+	10+
2 port RS232	19-0650	11.45	9.60	8.70
3 port RS232	19-0670	15.50	13.00	11.80
4 port RS232	19-0655	18.25	15.30	13.90
2 port changeover RS232	19-0675	18.50	15.50	14.10
2 port Centronics	19-0660	14.75	12.40	11.20
3 port Centronics	19-0680	19.60	16.50	14.90
4 port Centronics	19-0665	21.25	17.85	16.15
2 port changeover Centronics	19-0685	21.25	17.85	16.15

RS232 patch box

The RS232 patch box specifically designed for easy construction of custom RS232 interfaces. 25 way 'D' male and female connectors are terminated to small PCB pads. By custom wiring these pads a wide variety of interfaces can be constructed. The cover of the box snaps into position and snap-out positions are included to allow a cable to be brought out. Supplied complete with 20 jumper wires.



	Order code	1+	10+	50+
RS232 patch box	19-0770	2.50	2.00	1.70

RS232 tester

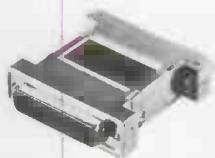
A simple plug-in tester for RS232 data communication lines. The tester has one male and one female 'D' connector for easy insertion into any RS232 interface. All 25 lines are connected straight through. Bi-colour LEDs monitor seven of the lines, TxD, RxD, RTS, CTS, DSR, CD and DTR. The tester obtains its power from the RS232 lines and may be permanently left in situ without affecting data transfer characteristics.



	Order code	1+	10+	50+
RS232 tester	19-0775	4.50	3.90	3.50

RS232 Surge protector

This device is employed to protect RS232 ports from high voltage surges such as lightning strikes, etc. Fitted with 25 way male and female connectors with metallised cover. Pins 2 and 3 are protected by metal oxide varistors which suppress any voltage above 26V.



	Order code	1+	10+	50+
Surge protector	19-0780	4.50	3.90	3.50

25 way 'D' gender changers

A 25 way 'D' subminiature connector adaptor for RS232C interface connections. Male to male fitted with male jackscrews. Female to female version fitted with female screw receptacles.



Type	Order code	1+	10+	50+
Male to male	19-0750	2.15	1.75	1.55
Female to female	19-0755	2.15	1.75	1.55

IEEE-488 connectors

This range of connectors is normally used for the connection of data interface cables to computers ATE and peripherals. All connectors are totally interchangeable with similar connectors used for IEEE-488 and printer interfacing (Centronics). All male connectors have spring clip retainers, all female connectors have spring clips.



Cable mounting plug

A 36 way cable mounting plug with tin plated solder terminations. Supplied complete with shielded metal cover and rubber cable gland.

	Order code	1+	50+	500+
36 way cable plug	19-0830	1.10	0.65	0.45

IDC cable mounting plugs

36 way IDC cable mounting plug for direct termination to 0.05in pitch ribbon cable. Supplied complete with cable strain relief.



	Order code	1+	50+	500+
36-way IDC plug	19-0805	1.10	0.85	0.70

Cable mounting socket

A 26 way cable mounting socket with tin-plated terminations. Supplied complete with shielded metal cover and rubber cable gland.



	Order code	1+	50+	500+
36 way cable socket	19-0835	1.10	0.65	0.50

IDC Cable mounting socket

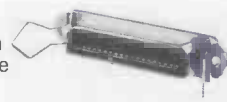
A 36 way IDC cable mounting socket for direct termination to 0.05in pitch ribbon cable. Supplied complete with cable strain relief.



	Order code	1+	50+	500+
36 way IDC socket	19-0810	1.10	0.85	0.70

Straight PCB mounted socket

36 way straight PCB mounted socket with tin plated solder terminations supplied complete with spring clips for connection to plugs.



	Order code	1+	50+	500+
36 way PCB socket	19-0840	1.10	0.85	0.70

Right angle PCB mounted socket

36 way right angle PCB mounted socket with tin plated solder terminations. Supplied complete with spring clips for connection to plugs.

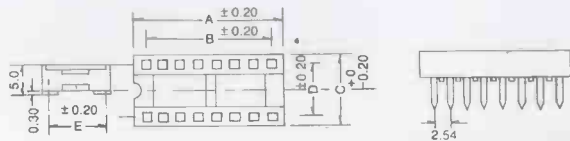


	Order code	1+	50+	500+
36 way R/A PCB socket	19-0860	1.10	0.85	0.70

CONNECTORS

Low profile DIL sockets

High quality low profile DIL sockets, end and side stackable for high density circuit layouts. Tin plated dual wipe contact gives maximum contact retention at minimum cost. Body moulding is in black polyester (UL94V-0). Temperature range -40 to +125 deg C.



Dimensions

Type	A	B	C	D	E
8 pin	10.16	7.62	10.16	8.05	7.62
14 pin	17.78	15.24	10.16	8.05	7.62
16 pin	20.32	17.78	10.16	8.05	7.62
18 pin	22.86	20.32	10.16	8.05	7.62
20 pin	25.50	22.86	10.16	8.05	7.62
24 pin	30.48	27.94	17.78	16.10	15.24
28 pin	35.56	33.02	17.78	16.10	15.24
40 pin	50.80	48.26	17.78	16.10	15.24

Type	Order code	1+	50+	500+	1000+	5000+
8 pin	22-0150	0.04	0.03	0.015	0.013	0.012
14 pin	22-0155	0.07	0.05	0.027	0.023	0.02
16 pin	22-0160	0.08	0.06	0.03	0.026	0.023
18 pin	22-0165	0.09	0.065	0.034	0.029	0.026
20 pin	22-0170	0.10	0.07	0.038	0.032	0.028
24 pin	22-0180	0.12	0.08	0.045	0.039	0.034
28 pin	22-0185	0.13	0.085	0.053	0.045	0.04
40 pin	22-0190	0.16	0.11	0.075	0.064	0.056

Low profile turned pin DIL sockets

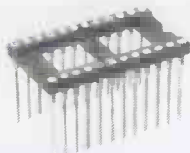
Low profile high-quality machined contact DIL sockets. Each socket is fitted with precision two-part sockets consisting of a four fingered gold over nickel plated beryllium-copper inner contact with a tin plated brass outer shell. Moulded in black glass-filled flame retardant polyester. Temperature range -55 to +180 deg C.



Type	Order code	1+	50+	500+
8 pin	22-0400	0.13	0.10	0.085
14 pin	22-0405	0.22	0.17	0.145
16 pin	22-0410	0.25	0.19	0.165
18 pin	22-0415	0.29	0.21	0.185
20 pin	22-0420	0.32	0.24	0.205
24 pin	22-0430	0.38	0.29	0.245
28 pin	22-0435	0.45	0.33	0.285
40 pin	22-0400	0.13	0.10	0.085

Wire wrap turned pin DIL sockets

Professional quality turned pin wire wrap sockets with 13mm tin plated brass terminations to allow three wraps per pin. Moulded in black glass-filled flame retardant polyester. Temperature range -55 to +180 deg C.



Type	Order code	1+	25+	100+
8 pin	22-0210	0.28	0.26	0.25
14 pin	22-0215	0.48	0.45	0.42
16 pin	22-0220	0.55	0.52	0.48
18 pin	22-0225	0.65	0.61	0.55
20 pin	22-0230	0.75	0.68	0.63
22 pin	22-0235	0.80	0.72	0.66
24 pin	22-0240	0.85	0.80	0.75
28 pin	22-0245	1.00	0.94	0.89
40 pin	22-0250	1.40	1.32	1.25

Wirewrap turned pin SIL socket

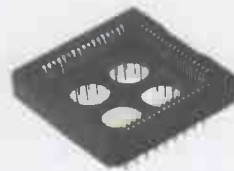
Professional quality turned pin SIL wirewrap connector with 13mm tin plated brass terminations to all 3 wraps per pin. Suitable for use with our wirewrap DIL sockets. Supplied in strips of 32 ways.



	Order code	1+	25+	100+
32 pin SIL connector	22-0260	1.20	1.10	1.00

Chip carrier socket

A chip carrier socket for 68 way J-leaded or leadless VLSI devices. Beryllium copper contacts with closed contacts on 0.1in grid to prevent solder wicking. No retention cover is required allowing the carrier to operate at a cooler temperature. Carrier body is thermoplastic to UL94V-0.



	Order code	1+	50+	500+
68 easy chip carrier socket	22-0360	0.90	0.72	0.58

Transistor and IC holders

Printed circuit mounting transistor and IC sockets moulded in red thermoplastic. Gold flashed contacts. Temperature range -50 to +150 deg C.



Type	Order code	1+	100+
3 pin T018	22-0100	0.16	0.14
3 pin T05	22-0105	0.17	0.15
8 pin T099	22-0110	0.38	0.36
10 pin T0100	22-0115	0.42	0.38

Zero insertion force sockets

Professional quality zero insertion force sockets in 24, 28 and 40 ways. Designed to eliminate mechanical damage to expensive ICs during test, burn-in or programming applications. May be used for high speed testing and production use. Current rating per contact 1A. Voltage rating 500V DC. Temperature range -50 to +150 deg C.



Type	Order code	1+	10+	25+	100+
24 pin ZIF	22-0300	4.30	4.10	3.70	3.35
28 pin ZIF	22-0305	4.80	4.80	4.30	4.00
40 pin ZIF	22-0310	5.95	5.80	5.60	5.15

IC extraction tool

Simple spring clip tool for easy extraction of integrated circuits. Suitable for use with ICs with up to 28 pins. Insulated handle.



	Order code	1+	25+
IC extraction tool	22-0320	0.42	0.37

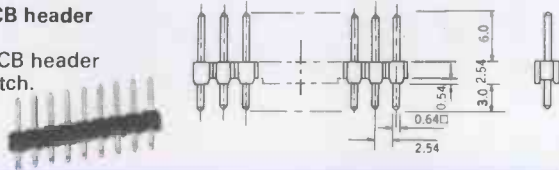
CONNECTORS

PCB interconnection system

A sophisticated but low cost interconnection system for making multiple connections to PCBs. Ideal for making quick on board contact with multi-way circuits. Connectors are available in 3, 4, 5 and 10 way single row versions and 6, 8, 10 and 20 way in double row versions. All pins are on 0.1in spacing and connectors are stackable end to end and side to side. System consists of straight PCB mounting headers and top entry sockets which are also PCB mounting types. All headers have square pins suitable for wire wrapping purposes. Jumper shorting links are also available which provide a cost effective programming facility and an inexpensive alternative to DIL switches. Fully compatible with other PCB connection systems.

Single row PCB header plug

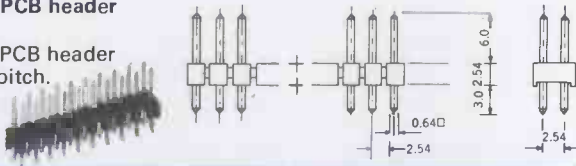
Gold plated PCB header on 2.54mm pitch.



Type	Order code	1+	100+	1000+
3 way	22-0500	0.04	0.03	0.02
4 way	22-0505	0.05	0.038	0.027
5 way	22-0510	0.06	0.046	0.033
10 way	22-0515	0.09	0.07	0.052

Double row PCB header plug

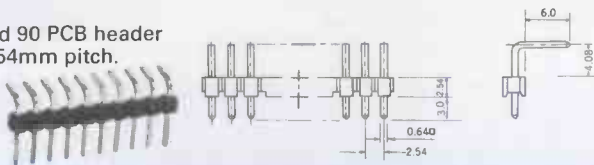
Gold plated PCB header on 2.54mm pitch.



Type	Order code	1+	100+	1000+
3+3 way	22-0550	0.08	0.06	0.04
4+4 way	22-0555	0.10	0.076	0.054
5+5 way	22-0560	0.12	0.092	0.066
10+10 way	22-0565	0.18	0.14	0.104

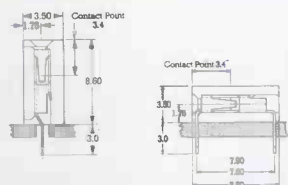
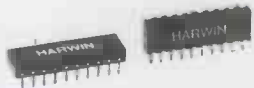
Single row 90 PCB header plug

Gold plated 90 PCB header plug on 2.54mm pitch.



Type	Order code	1+	100+	1000+
3 way	22-0700	0.05	0.036	0.024
4 way	22-0705	0.06	0.046	0.033
5 way	22-0710	0.07	0.055	0.04
10 way	22-0715	0.11	0.084	0.063

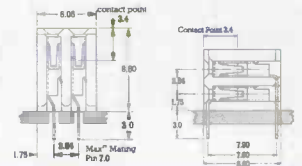
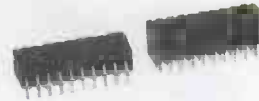
Single row PCB socket



Straight PCB				
Type	Order code	1+	100+	1000+
3 way	22-0600	0.10	0.09	0.085
4 way	22-0605	0.13	0.115	0.095
5 way	22-0610	0.16	0.145	0.12
10 way	22-0615	0.30	0.27	0.23

Right angle PCB				
Type	Order code	1+	100+	1000+
3 way	22-0625	0.10	0.09	0.085
4 way	22-0630	0.13	0.115	0.095
5 way	22-0635	0.16	0.145	0.12
10 way	22-0640	0.30	0.27	0.23

Double row PCB socket

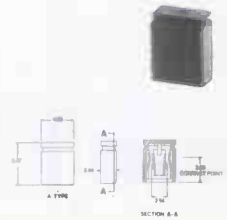


Straight PCB				
Type	Order code	1+	100+	1000+
3+3 way	22-0650	0.16	0.145	0.12
4+4 way	22-0655	0.21	0.19	0.155
5+5 way	22-0660	0.26	0.23	0.21
10+10 way	22-0665	0.50	0.45	0.38

Right angle PCB				
Type	Order code	1+	100+	1000+
3+3 way	22-0670	0.19	0.17	0.14
4+4 way	22-0675	0.25	0.225	0.185
5+5 way	22-0680	0.30	0.275	0.23
10+10 way	22-0685	0.60	0.54	0.45

Jumper links

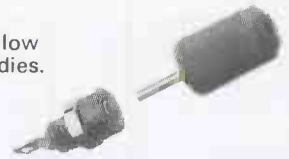
Miniature jumper links in black thermoplastic for use with the above headers of similar types. Dual side wipe contact provides excellent reliability under repeated usage. Contacts are gold plated phosphor bronze.



Type	Order code	1+	100+	1000+	5000+
Jumper link	22-0690	0.03	0.025	0.017	0.014

1mm plugs and sockets

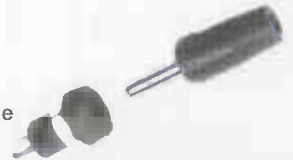
Single pole connectors suitable for low voltage circuits. Moulded acetal bodies. Silver plated contacts. Rated at 1A. Socket is 2BA fixing.



Type	Order code	1+	25+	100+
1mm red plug	17-0100	0.12	0.10	0.09
1mm black plug	17-0105	0.12	0.10	0.09
1mm red socket	17-0110	0.10	0.09	0.08
1mm black socket	17-0115	0.10	0.09	0.08

3mm plugs and sockets

Nickel alloy plated brass plugs and sockets to replace 'Wander' type connectors. Acetal body mounting. Available in red or black. Mounting hole for socket 7.9mm.



Type	Order code	1+	100+
3mm red plug	17-0600	0.12	0.095
3mm black plug	17-0605	0.12	0.095
3mm red socket	17-0610	0.12	0.095
3mm black socket	17-0615	0.12	0.095

CONNECTORS

Low cost 4mm plugs and sockets

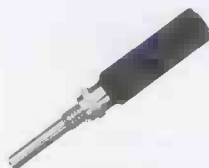
A range of very economically priced 4mm plugs and sockets. Available in red and black. Can be used in conjunction with our 4mm terminals. Solder connection.



Type	Order code	1+	100+	500+
Low cost 4mm red plug	17-0130	0.12	0.095	0.085
Low cost 4mm black plug	17-0135	0.12	0.095	0.085
Low cost 4mm red socket	17-0140	0.12	0.085	0.07
Low cost 4mm black socket	17-0145	0.12	0.085	0.07

Solderless 4mm plugs

4mm plugs in red and black which do not require soldering to cable. A simple screw mechanism firmly clamps the cable into position and ensures good electrical contact.



Type	Order code	1+	25+	100+
Solderless red plug	17-0150	0.16	0.15	0.14
Solderless black plug	17-0155	0.16	0.15	0.14

4mm plugs

Nickel alloy plated brass plugs with stainless steel spring to maintain contact pressure in 4mm socket. Wide range of colours. Acetal body moulding. Solder connection. 10A rating.



Type	Order code	1+	100+
Black 4mm plug	17-0170	0.17	0.15
Blue 4mm plug	17-0175	0.17	0.15
Green 4mm plug	17-0180	0.17	0.15
Brown 4mm plug	17-0185	0.17	0.15
Red 4mm plug	17-0190	0.17	0.15
White 4mm plug	17-0195	0.17	0.15
Yellow 4mm plug	17-0200	0.17	0.15

In-line stackable 4mm plugs

4mm plug with 4mm socket in the rear providing an in-line stacking facility. The lead wire is clamped in position by screw located at the bottom of the 4mm socket. Nickel plated brass insert with stainless steel plug spring. 10A rating.



Type	Order code	1+	100+	500+
Black stackable plug	17-0400	0.25	0.21	0.18
Blue stackable plug	17-0405	0.25	0.21	0.18
Green stackable plug	17-0410	0.25	0.21	0.18
Brown stackable plug	17-0415	0.25	0.21	0.18
Red stackable plug	17-0420	0.25	0.21	0.18
White stackable plug	17-0425	0.25	0.21	0.18
Yellow stackable plug	17-0430	0.25	0.21	0.18

4mm sockets

4mm panel mounting round sockets. Tin plated brass inserts accept a wide range of 4mm plugs. Mounting hole 8.1mm. 10A rating. Max. panel thickness 13mm.



Type	Order code	1+	100+	500+
Black 4mm socket	17-0560	0.14	0.11	0.10
Blue 4mm socket	17-0565	0.14	0.11	0.10
Green 4mm socket	17-0570	0.14	0.11	0.10
Brown 4mm socket	17-0575	0.14	0.11	0.10
Red 4mm socket	17-0580	0.14	0.11	0.10
White 4mm socket	17-0585	0.14	0.11	0.10
Yellow 4mm socket	17-0590	0.14	0.11	0.10

4mm stackable test leads

A range of ready assembled test leads comprising 0.5M of 55/0.1 extra-flexible cable terminated at each end with an in-line stackable 4mm plug. Maximum working voltage 50V. Fully moulded construction provides long term life.



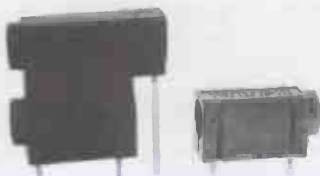
Type	Order code	1+	25+	100+
Black stackable lead	17-0385	0.65	0.55	0.48
Blue stackable lead	17-0381	0.65	0.55	0.48
Green stackable lead	17-0382	0.65	0.55	0.48
Brown stackable lead	17-0383	0.65	0.55	0.48
Red stackable lead	17-0380	0.65	0.55	0.48
White stackable lead	17-0384	0.65	0.55	0.48
Yellow stackable lead	17-0386	0.65	0.55	0.48

For Stripboard at the most competitive price in the UK – see page 61.

CONNECTORS

4mm PCB sockets

A range of PCB mounting 4mm sockets which can be mounted directly on to the PCB. Available in single or double height versions which are side stackable. Rated at 10A.



Type	Order code	1+	100+
Single height			
Black 4mm socket	17-0850	0.25	0.22
Blue 4mm socket	17-0855	0.25	0.22
Green 4mm socket	17-0860	0.25	0.22
Brown 4mm socket	17-0865	0.25	0.22
Red 4mm socket	17-0870	0.25	0.22
White 4mm socket	17-0875	0.25	0.22
Yellow 4mm socket	17-0880	0.25	0.22
Double height			
Black 4mm socket	17-0900	0.35	0.31
Blue 4mm socket	17-0905	0.35	0.31
Green 4mm socket	17-0910	0.35	0.31
Brown 4mm socket	17-0915	0.35	0.31
Red 4mm socket	17-0920	0.35	0.31
White 4mm socket	17-0925	0.35	0.31
Yellow 4mm socket	17-0930	0.35	0.31

4mm terminals

High quality moulded terminals in acetal. All metal parts bright nickel plated. Rated at 10A. Will accept our low cost or standard 4mm plugs. Height above panel 24-32mm. 14mm diameter. Maximum panel thickness 12.7mm. Thread size 4BA clearance.



Type	Order code	1+	25+	100+
Red 4mm terminal	17-0230	0.36	0.30	0.27
Green 4mm terminal	17-0235	0.36	0.30	0.27
Blue 4mm terminal	17-0240	0.36	0.30	0.27
Black 4mm terminal	17-0245	0.36	0.30	0.27
Brown 4mm terminal	17-0250	0.36	0.30	0.27
White 4mm terminal	17-0255	0.36	0.30	0.27
Yellow 4mm terminal	17-0260	0.36	0.30	0.27

Low cost 4mm terminals

A low cost alternative to the above terminals. Metal parts bright nickel plated. Will accept our standard or low cost 4mm plugs. Height above panel 24-29mm. 11mm diameter. Max. panel thickness 7mm. Panel cutout 8mm.



Type	Order code	1+	25+	100+
Red 4mm terminal	17-0215	0.28	0.24	0.20
Green 4mm terminal	17-0220	0.28	0.24	0.20
Black 4mm terminal	17-0225	0.28	0.24	0.20

30A 4mm terminals

A range of terminals designed for heavy duty applications featuring 4mm cross holes for heavy conductors including 4mm plugs. The top of the terminals incorporate a groove to accept a coin for improved pressure in heavy current applications. Rated 30A at 250V AC.



Type	Order code	1+	10+	100+
Red 4mm terminal	17-0800	0.80	0.75	0.62
Black 4mm terminal	17-0805	0.80	0.75	0.62
Green 4mm terminal	17-0810	0.80	0.75	0.62
Twin mounting spacer	17-0830	0.10	0.09	0.08

Spade terminals

A nickel plated spade terminal suitable for terminals up to 0BA in size. Solder tag termination.



Type	Order code	1+	25+	100+
Red spade terminal	17-0370	0.13	0.12	0.11
Black spade terminal	17-0375	0.13	0.12	0.11

Standard crocodile clips

Standard crocodile clip. Nickel plated steel. Overall length 42mm. Will accept 4mm plug.



Type	Order code	1+	100+	500+
Standard crocodile clip	17-0340	0.10	0.085	0.065

Miniature crocodile clips

A range of miniature insulated crocodile clips supplied with covers. Solder termination complete with cable grip. Overall length 33mm.



Type	Order code	1+	50+	500+
Black crocodile clip	17-0335	0.05	0.04	0.028
Blue crocodile clip	17-0331	0.05	0.04	0.028
Green crocodile clip	17-0332	0.05	0.04	0.028
Brown crocodile clip	17-0333	0.05	0.04	0.028
Red crocodile clip	17-0330	0.05	0.04	0.028
White crocodile clip	17-0334	0.05	0.04	0.028
Yellow crocodile clip	17-0336	0.05	0.04	0.028

Crocodile lead pack

A set of ten leads 18 inches long in five assorted colours, terminated at each end with a vinyl crocodile clip. Ideal for use as test clips.



Type	Order code	1+	10+	50+
Crocodile lead pack	17-0350	1.30	1.10	0.90

Heavy duty crocodile lead pack

A set of seven leads 18in long in seven assorted colours terminated at each end with a vinyl crocodile clip. Colours are as above and are ideal for use with our 4mm range of connectors. Heavy duty 55/0.1mm test lead cable is employed throughout. Max. current 2A.



Type	Order code	1+	10+
Heavy duty crocodile lead pack	17-0355	1.50	1.40

CONNECTORS

Microminiature probes

Microminiature plunger action probes suited to making contact with components on high density PCBs including DIL packages. Solder connection. Gold flashed contacts. Max. voltage 50V. Available in a wide range of colours. Overall length 42mm.



Type	Order code	1+	10+
Red	17-0305	0.46	0.42
Black	17-0310	0.46	0.42
Blue	17-0315	0.46	0.42
Green	17-0320	0.46	0.42
Yellow	17-0325	0.46	0.42

Low cost microminiature probes

A low cost alternative to the above. Solder connection. Nickel plated contacts. Max. voltage 50V. Overall length 40mm. Available in red or black.



Type	Order code	1+	25+	100+
Red	17-0295	0.15	0.13	0.115
Black	17-0300	0.15	0.13	0.115

Miniature probes

A compact probe with an easily operated plunger action ideally suited for making contact to component leads of high density PCBs including IC pins, etc. Gold plated hook. Overall length 55mm. Max. voltage 50V.



Type	Order code	1+	25+
Red	17-0270	0.18	0.15
Black	17-0290	0.18	0.15

Standard probes

A larger probe for general use. Spring loaded hook with gold plated contact. Screw or solder connection. Max. working voltage 50V. Overall length 84mm.



Type	Order code	1+	10+
Red	17-0550	0.38	0.33
Black	17-0555	0.38	0.33

Professional IC test clips

A range of professional IC test clips with silver alloy contacts. 'Duck bill' contacts are included for high reliability, and heavy springs ensure good contact pressure throughout. Open nose design permits access directly to the IC pins. Available in a wide variety of standard DIL package configurations.



Type	Order code	1+	10+
16 way	80-0305	2.90	2.60
24 way	80-0315	4.90	4.40
28 way	80-0320	5.20	4.70
40 way	80-0325	8.20	7.30

Multimeter test leads

A range of test leads to suit our range of multimeters and other similar types of meter.

2mm multimeter leads

Red and black 2mm moulded leads terminated to red and black probes. Overall lead length 1 metre. Transistor test lead also available.



Type	Order code	1+	10+
Pair 2mm test leads	17-0700	0.65	0.60
Transistor test leads	17-0705	0.70	0.65

208/705A/775 multimeter leads

Red and black 4mm moulded leads terminated to red and black probes. Overall lead length 1 metre. Transistor test and capacitor test leads are also available for the 705A multimeter.



Type	Order code	1+	10+
Pair 4mm test leads	17-0720	0.75	0.70
705A transistor leads	17-0725	0.90	0.80
705A capacitor leads	17-0730	0.90	0.80

Universal test lead set

An extremely versatile universal test lead set with screw on accessories offering a wide variety of probe/test options. Overall lead length 0.9M.

Contents:

- Pair red and black test leads
- Pair red and black probes
- Pair 4mm connectors
- Pair 2mm connectors
- 2 pairs red and black crocodile clips
- Pair spade connectors



Type	Order code	1+	10+
Universal test lead set	17-0750	1.50	1.35

All prices quoted in this catalogue are valid to 30th September 1989.

CONNECTORS

BT connection system

A comprehensive range of connectors suitable for use with a wide range of communication equipment, including telephone, keyboards and audio applications. All connectors are fully British Telecom approved.

4 way line plug

Commonly used 4 way line plug.



	BT ref.	Order code	1+	50+	500+
4 way line plug	431A	24-0100	0.16	0.13	0.115

Line cord – plug to plug

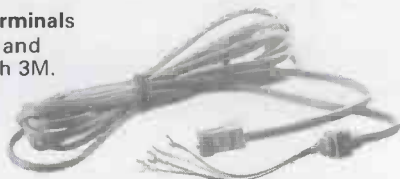
BT standard cord set used when modifying existing equipment. 4 way and 6 way options. Overall length 3M.



	BT ref.	Order code	1+	25+	100+
4 way cord	4/500	24-0150	1.50	1.30	1.15
6 way cord	6/500	24-0155	2.30	2.00	1.70

Line cord – plug to spade terminals

BT standard cord set. 4 way and 6 way options. Overall length 3M.



	BT ref.	Order code	1+	25+	100+
4 way cord	4/502	24-0170	1.20	1.05	0.90
6 way cord	6/502	24-0175	3.30	2.80	2.40

Dual outlet adaptor

A 6 way plug fitting any jack unit, converting to a dual outlet.



	BT ref.	Order code	1+	25+	100+
Dual outlet	LJU10/3A	24-0200	2.60	2.20	1.90

Line jack unit 2

Wall mounted socket assemblies in either master or secondary options. Components fitted to cover. Screw terminal connections. Surface mount style (supplied with back box).



	BT ref.	Order code	1+	25+	100+
Master	LJU2/4A	24-0250	2.50	2.25	2.00
Secondary	LJU2/6A	24-0260	1.60	1.40	1.25

Line jack unit 3

Wall mounted socket assemblies in either master or secondary options. Components fitted to rear of unit. Screw terminal connections. Flush mounting for fitting to standard pattress.



	BT ref.	Order code	1+	25+	100+
Master	LJU3/4A	24-0300	2.60	2.35	2.05
Secondary	LJU3/6A	24-0310	1.60	1.40	1.25

IDC telephone Connector tool

A sophisticated lever action hand tool for terminating 4 or 6 way pre-stripped cable to 4 or 6 way line and handset plugs. Supplied with cable stripper. Telephone connectors can now be assembled in seconds.



	Order code	1+	10+	50+
Telephone connector tool	24-0510	3.95	3.20	2.85

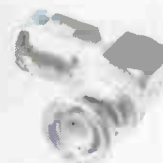
BNC connectors

Constant impedance high quality connectors with beryllium copper female contacts and brass male contacts for 50 ohm and 75 ohm types. Weatherproof bayonet locking construction. 50 ohm types fit UR43 type cable, 75 ohm types fit RG59B/U cable.



Type	Order code	1+	50+	500+
50 ohm BNC plug	16-0100	0.55	0.36	0.29
75 ohm BNC plug	16-0180	0.55	0.36	0.29
50 ohm BNC crimp plug	16-0200	0.55	0.36	0.29
75 ohm BNC crimp plug	16-0205	0.55	0.36	0.29

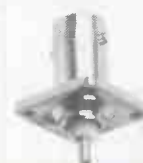
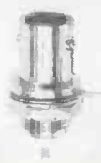
Elbow plug



Type	Order code	1+	50+	500+
50 ohm elbow plug	16-0185	1.50	1.00	0.80
75 ohm elbow plug	16-0190	1.50	1.00	0.80

Sockets

BNC sockets available with square flange 17.5mm square or round for fixing to panels up to 4mm thick.



Type	Order code	1+	50+	500+
Square socket	16-0105	0.70	0.45	0.37
Round socket	16-0110	0.40	0.28	0.23

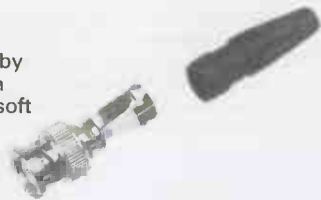
Double ended female BNC coupler for coupling 2 BNC plugs.

	Order code	1+	25+
BNC coupler	16-0125	1.30	1.10

CONNECTORS

Solderless BNC connector

Constant impedance high quality connector. Connection is made via screw connection for the signal and by crimp connection to the outer screen which also acts as a cable clamp. A soft moulded PVC cover covers the completed connector. 50 ohm impedance. Suitable for use with RG58C/U cable.



Type	Order code	1+	25+	100+
Solderless BNC connector	16-0130	0.50	0.40	0.35

BNC adaptor

A useful adaptor comprising a BNC plug terminated to twin 4mm terminals in red and black with 4mm sockets. Signal is connected to red terminal.



Type	Order code	1+	25+	100+
BNC/4mm adaptor	16-0295	1.60	1.35	1.20

Ready assembled test leads

A range of ready assembled test leads employing bright nickel plated connectors complete with moulded-on strain reliefs, using RG-58c/u cable. Black PVC shield. 50Ω impedance.



Type	Cable length	Order code
BNC plug to 4mm plugs	1.2 metres	16-0300
BNC plug to crocodile clips	1.2 metres	16-0315
BNC plug to BNC plug	1.2 metres	16-0330
BNC plug to BNC plug	2 metres	16-0340

Order code	1+	10+	50+
16-0300	1.80	1.70	1.40
16-0315	1.80	1.70	1.40
16-0330	1.70	1.50	1.30
16-0340	1.80	1.55	1.35

Oscilloscope probes

A range of high quality oscilloscope probes for use between DC and 250MHz available in X10 or X1, X10 switched versions. Compensation to match instruments of 10-60pF input capacitance. 1.2M screened lead terminated with 50Ω BNC plug. Detachable 20cm ground lead. Supplied in PVC bag with instructions.



Contents:

A Test hook	D IC test clip
B Ground lead 20cm	E Insulating tip
C BNC adaptor	F Compensating tool

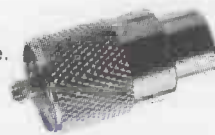
Technical specification

	X1	X10
Band width	DC to 10MHz	DC to 250MHz
Rise time	35ns	1.4ns
Compensation range	10-60pF	10-60pF
Input resistance	Scope input	10M
Input capacitance	40pF	11.5pF
Working voltage	600V max.	600V max.
Temperature range	-25 to +70 deg C	-25 to +70 deg C

Type	Order code	1+	10+	25+
X10 oscilloscope probe	85-1590	9.50	8.50	7.70
Switched X1, X10 probe	85-1595	11.60	10.20	9.30

UHF connectors

A series of connectors for use up to 500V peak and 200MHz. Non constant impedance. Plug PL259 supplied less reducer. PL259 accepts Uniradio NO M67 cable.



Type	Order code	1+	100+
PL259 plug	16-0140	0.40	0.33
Small reducer	16-0145	0.14	0.10

UHF sockets available with square flange 18mm square or round for fixing to panels up to 4mm thick.



Type	Order code	1+	100+
Square socket	16-0150	0.40	0.33
Round socket	16-0155	0.40	0.35

Coax plugs and sockets

Standard coax plugs with aluminium body and cap.



Type	Order code	1+	25+	100+
Standard coax plug	16-0400	0.16	0.14	0.12

Flush mounting socket

Socket to suit above. Fits flush to chassis surface. Panel cut-out 12.7mm. Fixing centres 19mm x 6BA.



Type	Order code	1+	25+	100+
Flush socket	16-0405	0.16	0.14	0.12

Line socket

Free cable mounting socket to suit coax plug. Aluminium construction. Fully screened.



Type	Order code	1+	25+	100+
Line socket	16-0410	0.28	0.26	0.23

Line connector

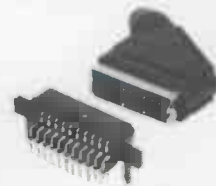
Line connector for connecting two coax plugs together.



Type	Order code	1+	25+	100+
Line connector	16-0415	0.14	0.12	0.10

Scart connectors

Scart connectors are now commonly used for the interconnection of television receivers, video equipment, cameras and recorders. All inputs and outputs are via a 21 pin connector, the socket being PCB mounted. The cable mounting non-reversible plug is supplied with crimp terminals which may be either crimped or soldered.

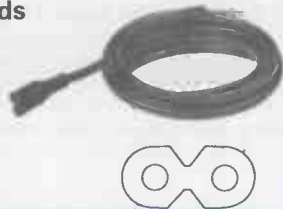


Type	Order code	1+	25+	100+
Scart cable plug	16-0450	0.75	0.65	0.57
Scart PCB socket	16-0455	0.40	0.32	0.27

CONNECTORS

Cassette/calculator mains leads

Two mains supply leads with moulded on connectors suitable for a wide range of cassette recorders, radios, calculators, etc. Double insulated. Overall lead length 2M.



Type	Pin centres	Order code	1+	25+
Cassette mains lead	7.6mm	23-0050	0.55	0.45
Cassette mains lead	8.5mm	23-0055	0.55	0.45

4 way jack plug and lead

A versatile 4 way jack connector terminating to a reversing plug and socket with a flying lead. Twin cable with polarity marking. Suitable for use with power sockets on a wide range of portable equipment. Contains 2.5mm and 3.5mm jack plugs and 2.1mm and 2.5mm power-in plugs. Overall lead length 2M.



Type	Order code	1+	25+
4 way power lead	23-0070	0.70	0.60

IEC connectors

Chassis plug
3 pin chassis plug. Rated 6A 250V AC.
Fixing centres 40mm.
Connection by solder tags.



Type	Order code	1+	50+	500+
Chassis plug	23-0100	0.40	0.30	0.21

Fused chassis plug

A fused version of the IEC chassis plug which will accept 20mm fuses. A variety of fuse carrier options are available which also houses a spare fuse. Rated 6A 250V AC. Fixing centres 36mm. Panel cutout 28x31.5mm. Manufactured to CEE22 and BS4491. SEMKO approved.



Type	Order code	1+	25+	100+
IEC chassis plug	23-0310	0.75	0.68	0.58
110V/240V fuse drawer	23-0315	0.12	0.11	0.10
115V/230V fuse drawer	23-0320	0.12	0.11	0.10
220V/240V fuse drawer	23-0325	0.12	0.11	0.10
Plain drawer	23-0330	0.12	0.11	0.10

Socket

Rewireable cable socket to suit BS6500 cable. Complete with cable sleeve and clamp.



Type	Order code	1+	25+	100+
IEC socket	23-0105	0.50	0.40	0.32

Chassis socket

Female version of chassis plug above. Rated 6A 250V AC, complies with CEE22/B544Q1. Fixing centres 40mm. Ideal for pow take-out applications. Solder tag termination.



Type	Order code	1+	50+	500+
Chassis socket	23-0115	0.45	0.32	0.23

Insulating boots

Insulating boots for the above connectors in moulded PVC designed to insulate and protect the connections of IEC sockets type 23-0100 and 23-0310.



Type	Order code	1+	25+	100+
Boot to suit 23-0100	23-0350	0.18	0.16	0.14
Boot to suit 23-0310	23-0355	0.36	0.32	0.29

IEC leads

A range of IEC leads for a wide range of applications. All connectors are approved to CEE22 and IEC320 and fully shrouded to BS4491. The cable is approved to BS6500.

Straight IEC

A non-rewireable straight socket moulded to a 2M length of 3 core 0.75mm² cable sheathed overall in black. Contacts rated 6A 250V AC.



Type	Order code	1+	25+	100+
IEC socket+2M lead	23-0110	1.25	1.05	0.95

Right angle IEC

A non-rewireable right angle socket moulded to a 2M length of 3 core 0.75mm² cable sheathed overall in black. Contacts rated 6A 250V AC.



Type	Order code	1+	25+	100+
Right angle socket+2M	23-0400	1.25	1.05	0.95

Right angle CEE22

A CEE22/IEC320 right angle plug moulded to a 2M length of 3 core 0.75mm² cable sheathed overall in black. Used for power take-off from equipment. Rated 6A 250V AC.



Type	Order code	1+	25+	100+
Right angle CEE22+2M	23-0410	1.95	1.60	1.45

IEC/CEE22 cord set

An IEC/CEE22 cord set, comprising a free straight socket and shrouded straight plug moulded to a 2 metre length of 3 core 0.75mm² cable sheathed overall in black. Rated 6A 250V AC.

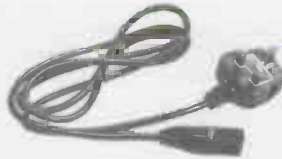


Type	Order code	1+	25+	100+
IEC/CEE22 2M cord set	23-0420	2.60	2.10	1.90

CONNECTORS

IEC + 13A plug

A non-rewireable socket and 13A sleeved pin mains plug fused at 5A moulded to a 2M length of 3 core 0.75mm² cable sheathed overall in black. Replacement fuses available. Available with straight or right angle socket connector.



Type	Order code	1+	25+	100+
Straight socket + 13A plug	23-0450	2.95	2.40	2.10
Right angle socket + 13A plug	23-0455	2.95	2.40	2.10

Bakelite 13A mains plug

A low cost 13A sleeved pin mains plug manufactured to BS1363. Manufactured in white bakelite. Complete with 13A fuse.



Type	Order code	1+	25+	100+
Bakelite 13A plug	23-0145	0.50	0.42	0.39

Thermoplastic 13A mains plug

13A square pin thermoplastic plug to BS1363A which suits standard 13A socket outlets. Supplied fitted with a 13A fuse. Sleeved pins.



Type	Order code	1+	25+	100+
Black 13A plug	23-0125	0.95	0.85	0.81
White 13A plug	23-0130	0.95	0.85	0.81

Moulded 13A plug and lead

A non-rewireable standard sleeved 13A plug moulded to a 2M length of 3 core 0.75mm² cable sheathed overall in black. Fused at 5A. Fully tested and approved by ASTA. The free cable end has stripped conductors.



Type	Order code	1+	25+	100+
13A plug+2M lead	23-0135	2.10	2.00	1.80

Free socket

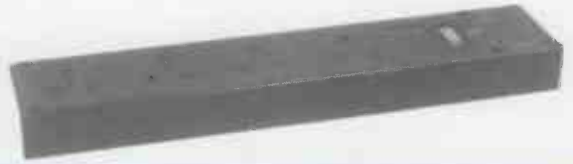
Free 13A socket moulded in black or white thermoplastic. Enables easy construction of extension leads, etc.



Type	Order code	1+	25+
Black free socket	23-0150	1.40	1.25
White free socket	23-0155	1.40	1.25

13A distribution boards with switch

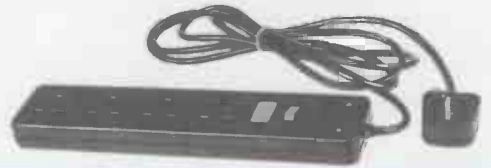
Four way, 13A extension sockets manufactured to BS1363/A for trailing or wall mounted applications. Socket outlets and fuseholder are fully shuttered with the main body of the socket sealed for extra safety. A removable terminal cover is available for ease of wiring. The socket is available in black or white. Complete with on/off switch, 13A fuse, mains 'on' indicator and cable grommet.



Type	Order code	1+	10+
Black distribution board	23-0180	6.40	5.80
White distribution board	23-0185	6.90	6.20

13A distribution boards with switch and lead

Four-way, 13A extension sockets manufactured to BS1363/A for trailing or wall mounted applications. Socket outlets are fully shuttered with the main body of the socket sealed for extra safety. Supplied with 2M of 1.25mm. BASEC approved cable and a sleeved pin mains plug fused at 13A. Complete with mains 'on' indicator and on/off switch.



Type	Order code	1+	10+
Black distribution board & lead	23-0170	8.60	8.10
White distribution board & lead	23-0175	8.90	8.30

Quicktest – 13A mains connector

The Quicktest is ideal for laboratories and service and test departments. With the lid open the wires of plugless lead are inserted into the insulated clips. When the lid is closed current passes to the equipment being demonstrated or tested. The lid has a spring latch to hold it open when the Quicktest is wall mounted. A neon light shows that the connector is live and ready to use. The 13A fuse is easily accessible for replacement. The insulated clips are colour coded for easy identification.



Type	Order code	1+	10+
Quicktest mains connector	23-0195	5.90	5.20

Cable reels

A wide range of cable reels suitable for a wide range of applications from light indoor use through to heavier duty types for use in industrial environments.

6 amp extension leads

A range of three 6A extension leads offering a variety of unwound lengths. 3 core red PVC cable wound on reel with two 13A sockets terminated with an unbreakable red 13A plug. All models are fitted with a safety cut-out to prevent overheating of the wound cable. Maximum rating unwound 6A/1440W.



Type	Length	Order code	1+	10+
6A extension lead	6M	23-0200	6.95	6.50
6A extension lead	12M	23-0205	9.50	8.80
6A extension lead	18M	23-0210	12.90	11.80

CONNECTORS

13 amp extension lead

3 core red PVC cable wound on reel with two 13A sockets terminated with an unbreakable red 13A plug. Max. rating unwound 13A/3120W.



Type	Length	Order code	1+	10+
13A extension lead	9M	23-0215	10.80	10.20

Heavy duty 13A extension lead

Heavy duty reel suitable for industrial applications. 3 core black PVC cable wound on an open reel with two 13A sockets terminated with an unbreakable black 13A plug. Rotating reel facilitates unwinding of cable which also incorporates a novel single handed brake mechanism. Max. rating 13A/3120W.



Type	Length	Order code	1+	10+
HD 13A extension	18M	23-0240	20.80	19.70

Empty 13A cable reel

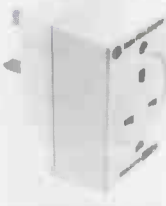
An empty heavy duty cable reel suitable for industrial applications. Supplied with two 13A sockets. Rotating reel facilitates unwinding of cable which also incorporates a novel single handed brake mechanism. Capacity 50M of 1.5mm (13A) cable.



Type	Order code	1+	10+
Empty cable reel	23-0250	20.50	19.50

Plug-in mains filter

An extremely useful device for any user of sensitive electronic equipment. Plugged into an ordinary wall socket it provides adequate protection against distortions in the mains supply, 'laundering' noise and spikes out of the current and preventing digital circuits from misbehaving.



Technical specification

Operating voltage	250V 50Hz
Maximum current	3 amps
Maximum power	750 watts
Temperature range	Max. temperature 40 deg C
Filter insertion loss	Better than 50dB (600kHz-24MHz)
Case material	White flame retardant ABS
Weight	250g
Suppressor type	Metal oxide varistor
Max. average power dissipation	0.3 watts
Energy rating	22J (TP=10mS)
Peak current	800 amps
Typical response time	50 nano seconds

Colour	Order code	1+	10+
Plug-in mains filter	23-0300	19.50	18.50

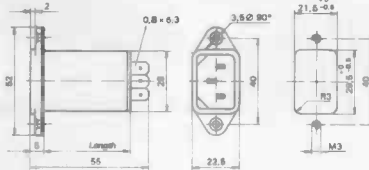
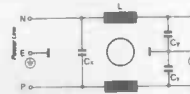
Mains filters

A comprehensive range of chassis mounting filter networks. The current rating of the filter should be selected to be as close to, but higher than, the current rating of the circuit, e.g. a circuit rating of 0.6A would require a 1.0A filter.

Standard IEC chassis filter

Standard IEC chassis plug filter designed to protect all Class 1 equipment from mains interference and also to reduce the level of equipment generated interference fed back to mains supply.

Circuit diagram



Technical specification

Rated current	1A, 3A or 6A
Rated voltage	250V AC 50/60Hz
Temperature range	-25 to +85 deg C
Inductance	1A 2x10mH 3A 2x2.5mH 6A 2x1.0mH
L-N capacitance	68n
Leakage current	0.5mA max.
Termination	6.3mm receptacle
Approvals	VDE, SEV, UL, CSA

Type	Order code	1+	10+	50+
1 Amp	23-0500	4.80	4.35	3.80
3 Amp	23-0505	4.80	4.35	3.80
6 Amp	23-0510	4.80	4.35	3.80

PCB terminal blocks

A range of PCB terminal blocks offering wide versatility. Both types interlock which allow any number of ways to be achieved with ease. Manufactured in flame retardant Noryl, with tin plated brass pins and terminals, zinc plated M3 steel screws and nickel plated phosphor bronze wire protectors. Maximum wire size 2.5mm.



16A 5mm pitch 90°

2, 3 and 4 way interlocking connectors on a 5mm pitch. Pin size 1mm. 13mm high, 9mm wide.

Type	Length (mm)	Order code	1+	25+	100+	1000+
2 way	10	21-0145	0.12	0.11	0.093	0.082
3 way	15	21-0150	0.17	0.15	0.135	0.116
4 way	20	21-0155	0.21	0.20	0.173	0.149
6 way	30	21-0160	0.32	0.30	0.255	0.22
12 way	60	21-0165	0.60	0.55	0.48	0.40

Schedule your order to obtain a better price break based on overall quantity ordered.

CONNECTORS

16A 5mm pitch 45°

2, 3 and 4 way interlocking connectors on a 5mm pitch. Pin size 1mm.



Type	Length (mm)	Order code	1+	25+	100+
2 way	10	21-0175	0.20	0.18	0.165
3 way	15	21-0180	0.24	0.225	0.21
4 way	20	21-0185	0.28	0.26	0.24

PCB terminal blocks

A unique range of terminal blocks offering any number of positions from 2 through to 36. The connector can be cut to the required size with a knife. Rising clamp design for wide cable acceptance. Tinned nickel plated brass pins, tinned nickel plated steel rising clamps and zinc plated M2.5 steel screws. Rated 13A. Maximum wire size 3.5mm. 15mm high, 8.5mm wide. Pin size 1mm.



Type	Length (mm)	Pitch	Order code	1+	10+
2 way	10	5	21-0200	0.17	0.15
3 way	15	5	21-0205	0.25	0.22
36 way	180	5	21-0260	2.90	2.60
18 way	180	10	21-0300	3.60	3.40

Terminal blocks

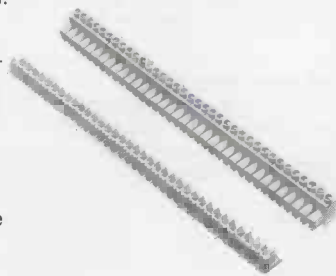
2A commercial quality polythene moulding terminal block. 12 way readily subdivided. Max. temperature 60 deg C. Rated at 380V rms.



	Order code	1+	25+	100+
2A terminal block	21-0100	0.26	0.23	0.21

Plug together terminal blocks

A two-part PCB interconnection system that allows disconnection in either horizontal or vertical position. The male connector mounts vertically onto the board and the female mates either horizontally or vertically-moulded guides ensuring a positive connection. Rising clamp design for wide cable acceptance. 5mm pitch 36 way type is supplied as standard which can be cut down to the required size. Rated 10A. Maximum wire size 3.5mm. Pin size 1mm. Overall assembled size 180x19x15mm. Polarising clips, supplied in pairs, guard in correct connection.



Type	Order code	1+	10+
36 way male+female	21-0300	3.60	3.40
Pair of polarising clips	21-0305	0.10	0.09

Insulated crimp connectors

A wide range of tin plated insulated crimp terminals in red, blue and yellow sleeve varieties. Sold in packs of 100 pieces



Insulated colour	Wire size mm ²	Type
Red	0.25-1.60	16/0.2, 24/0.2, 32/0.2
Blue	1.5-2.5	51/0.2
Yellow	2.6-6.0	

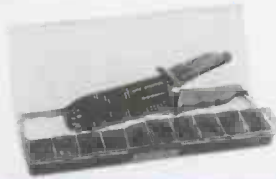
Red Sleeve Type	Stud size	Order code	1+	25+
Eyelet	3.2mm	33-0600	1.50	1.30
	3.7mm	33-0605	1.80	1.50
	4.3mm	33-0610	1.80	1.50
	5.3mm	33-0615	2.00	1.70
Spade	3.7mm	33-0620	1.60	1.40
	4.3mm	33-0625	1.90	1.60
	5.3mm	33-0630	2.20	1.85
Receptacle	0.11in	33-0635	2.20	2.10
	0.25in	33-0640	2.50	2.10

Blue Sleeve Type	Stud Size	Order code	1+	25+
Eyelet	3.2mm	33-0900	1.60	1.40
	3.7mm	33-0905	1.90	1.60
	4.3mm	33-0910	1.90	1.60
	5.3mm	33-0915	2.00	1.70
Spade	3.7mm	33-0920	2.20	1.85
	4.3mm	33-0925	1.60	1.40
	5.3mm	33-0930	1.90	1.60
Receptacle	0.11in	33-0935	2.20	1.85
	0.25in	33-0940	2.30	1.95
		33-0945	2.60	2.20

Yellow Sleeve Type	Stud Size	Order code	1+	25+
Eyelet	3.7mm	33-1200	2.90	2.50
	4.3mm	33-1205	3.20	2.80
	5.3mm	33-1210	3.20	2.80
	6.4mm	33-1215	3.20	2.80
Spade	4.3mm	33-1220	3.20	2.80
	5.3mm	33-1215	3.20	2.80
Receptacle	0.25in	33-1230	3.20	2.80

Crimp tool kit

A kit containing a varied selection of crimp connectors and insulated crimping tool housed in a hinged plastic case. Comprises 80 assorted insulated terminals and 40 assorted non-insulated terminals. Tool incorporates wire cutter and wire stripper.



	Order code	1+	10+
Crimp tool kit	85-0270	3.20	2.90

Crimping tool

A compact crimping tool for crimping red, blue, black and yellow insulated crimp connectors. Also incorporates wire cutter, bolt cutter and a position for crimping ignition terminals. Overall length 200mm.



	Order code	1+	10+
Crimping tool	85-0260	1.70	1.50

Ratchet action crimping tool

A high quality precision engineered ratchet action tool for use with red, blue and yellow insulated crimp connectors. The tool has one fixed jaw and one moving jaw with ratchet action to enable the user to have one free hand to hold cable and connector. The ratchet will release only when the tool has been fully closed and the connector fully crimped to the cable. Crimping dies for the three different types are clearly identified on the tool.



	Order code	1+	5+
Ratchet crimping tool	85-0255	10.50	9.20

DRAFTING AIDS

Fineline clutch pencils

Staedtler F775 Fineline lead holders with fixed lead protector sleeve. Precision mechanism feeds spare leads to pencil tip. Plastic knurled finger grip, metal push button and clip, eraser with cleaning pin. Available in three types offering differing lead diameters.



Type	Order code	1+	10+
0.3mm Fineline	34-1050	1.50	1.40
0.5mm Fineline	34-1055	1.30	1.22
0.7mm Fineline	34-1060	1.30	1.22

Retractable point Fineline clutch pencil

Staedtler 778 Fineline pencil with retractable cone safeguards pockets against damage. Accepts 0.5mm diameter leads. Dark blue plastic barrel, metal tip, dip and push button. Complete with built-in cleaning pin and eraser under the push button.



Type	Order code	1+	10+
0.5mm Retractable Fineline	34-1080	1.40	1.25

Fineline replacement leads

Staedtler Micrograph Super 250 Fineline drawing leads for all leadholders. Hi-polymer Fineline leads feature extraordinarily high resistance to breakage, maximum elasticity and opacity. Supplied in tubes of 12 leads.



Type	Order code	1+	10+
0.3mm HB	34-1200	0.85	0.78
0.3mm H	34-1205	0.85	0.78
0.3mm 2H	34-1210	0.85	0.78
0.3mm 3H	34-1215	0.85	0.78
0.5mm HB	34-1220	0.48	0.44
0.5mm H	34-1225	0.48	0.44
0.5mm 2H	34-1230	0.48	0.44
0.5mm 3H	34-1235	0.48	0.44
0.7mm HB	34-1240	0.30	0.27
0.7mm H	34-1245	0.30	0.27
0.7mm 2H	34-1250	0.30	0.27
0.7mm 3H	34-1255	0.30	0.27

2mm clutch pencil

Staedtler Mars Technico 780 traditional 2mm leadholder. Long finger grip provides sure, yet comfortable hold. The super-lock clutch firmly grips the lead without risk of displacement. Push-button top incorporates a lead pointer. Spare leads are supplied in packs of 12.



Type	Order code	1+	10+
2mm clutch pencil	34-1275	1.55	1.40
Pack of HB leads	34-1280	1.75	1.60
Pack of H leads	34-1285	1.75	1.60
Pack of 2H leads	34-1290	1.75	1.60
Pack of 3H leads	34-1295	1.75	1.60

Erasers

Two erasers suitable for erasing graphite and ink markings. Staedtler 52650 for graphite markings on paper and drafting film. White, block size 65x23x12mm.



Staedtler 52658T for ink markings on paper and drafting film. Light blue, block size 65x23x12mm.

Type	Order code	1+	10+
Graphite eraser	34-1300	0.30	0.27
Ink eraser	34-1305	0.45	0.40

Lead pointer

Rotary action lead pointer for use with 2mm leads. Complete with built-in point cleaner and automatic cutting stop.



Type	Order code	1+	10+
Lead pointer	34-1270	2.20	2.05

Drawing pens

A range of multipurpose, ultra fine point fibre-tip pens available in three point sizes and colours. Provided with a metal tip, the 307 liner is also ideally suited for use with lettering guides and templates.



Type	Order code	1+	10+
0.1mm black	34-1700	0.50	0.47
0.1mm blue	34-1705	0.50	0.47
0.1mm red	34-1710	0.50	0.47
0.3mm black	34-1720	0.50	0.47
0.3mm blue	34-1725	0.50	0.47
0.3mm red	34-1730	0.50	0.47
0.5mm black	34-1740	0.50	0.47
0.5mm blue	34-1745	0.50	0.47
0.5mm red	34-1750	0.50	0.47

**Remember!
Our change
of address,
new telephone and
fax numbers**

DRAFTING AIDS

Technical pens



Two ranges of professional quality drawing pens.

Both types meet ISO 3098/1.

The Staedtler Marsmatic 700 drawing pen is suitable for drawing on paper media. Supplied with a stainless steel pen point and blue finger grip. Ensures trouble-free drawing and is ideally suited for drafting, lettering and sketching. Instant starting without any touch-down blobs producing consistent black lines. Replacement points are available.

Marsmatic 700 pen for paper

Type	Order code	1+	5+
0.25mm pen	34-1400	5.70	5.30
0.35mm pen	34-1405	5.70	5.30
0.5mm pen	34-1410	5.70	5.30
0.7mm pen	34-1415	5.70	5.30

Marsmatic 700 replacement points

Type	Order code	1+	5+
0.25mm point	34-1430	3.10	2.85
0.35mm point	34-1435	3.10	2.85
0.5mm point	34-1440	3.10	2.85
0.7mm point	34-1445	3.10	2.85

The Staedtler Marsmatic 709 drawing pen is suitable for drawing on both film and paper media. Supplied with a DURAGLIDE jewel-tipped point giving superior gliding performance which will not scratch the drafting surface even in the thinner line thicknesses. Suitable for use with the newly developed twin media ink 745M2 as detailed below. Replacement points are available.

Marsmatic 709 pen for paper or film

Type	Order code	1+	5+
0.25mm pen	34-1500	14.50	13.20
0.35mm pen	34-1505	12.20	11.10
0.5mm pen	34-1510	12.20	11.10
0.7mm pen	34-1515	12.20	11.10

Marsmatic 709 replacement points

Type	Order code	1+	5+
0.25mm point	34-1530	11.90	10.80
0.35mm point	34-1535	10.00	9.20
0.5mm point	34-1540	10.00	9.20
0.7mm point	34-1545	10.00	9.20

Black inks for pens

Two ink types to suit the above pens. Staedtler 745R9 to suit 700 series pens for use on paper. Staedtler 745M2 to suit 709 series pens for use on paper or film. Supplied in convenient 23ml squeeze bottle.



Type	Order code	1+	5+
745R9 for paper	34-1600	0.98	0.92
745M2 for film or paper	34-1605	1.16	1.08

Pen cleaner

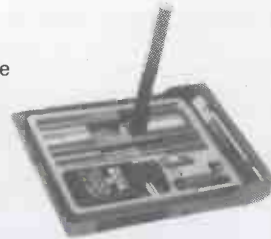
Staedtler 74600 technical pen cleaner. Helps to remove water based ink which has dried in pen. Supplied in 100ml squeeze bottle.



Type	Order code	1+	5+
Pen cleaner	34-1610	1.78	1.65

Marsmatic 700 series pen set

A set of four 700 series technical drawing pens housed in an attractive case complete with drawing ink, lettering joint and compass attachment. Point sizes included are 0.25mm, 0.35mm, 0.5mm and 0.7mm. A novel feature of the case are keyhole spaces to provide a resting place for the pens during short work interruptions.



Type	Order code	1+	5+
Marsmatic 700 pen set	34-1495	20.90	19.90

Highlighter pens

Staedtler 364 series Top Star highlighter brilliant fluorescent ink markers. Cap with pocket clip.



Type	Order code	1+	10+
Yellow highlighter	34-1650	0.65	0.55
Green highlighter	34-1655	0.65	0.55
Pink highlighter	34-1660	0.65	0.55

Twin colour highlighter pens

Staedtler 366 series twin colour fluorescent highlighter pens. Makes highlighting of text an even easier task. Available in three options.



Type	Order code	1+	10+
Yellow/red highlighter	34-1680	0.80	0.70
Yellow/blue highlighter	34-1685	0.80	0.70
Yellow/green highlighter	34-1690	0.80	0.70

Etch resist pen

For use on plain copper boards. Simply press the tip to promote ink flow. Apply slow even pressure in use.



Type	Order code	1+	25+
Etch resist pen	34-0300	0.45	0.38

DRAFTING AIDS

Dalo etch resist pen

For drafting prototype printed circuit boards directly on to copper-clad laminate. Quick drying. Offers a high degree of resistance to acid and alkali etchants. Supplied complete with spare tip.



Type	Order code	1+	25+
Dalo etch resist pen	34-0280	1.15	1.05

Etch-resist transfers

A range of high quality printed circuit symbols which may be used as drawing aids in addition to their function as etch-resistant transfers. High quality ink ensures first class results. The symbols are transferred by rubbing firmly. When etching is complete the transfer may be removed with acetone, electronic cleaning solvent or polifix block. Sheets are individually packed in individual cellophane wallets. Sheet size 150x200mm.

	Order code	OD	ID	A	B	P
	34-0850	1.5	0.5	5.7		
	34-0855	2.5	1.0	4.5		
	34-0860	3.5	1.0	5.75		
	34-0865	4.5	1.0	6.8		
	34-0880	3.0	1.0	6.6		
	34-0885	4.0	1.0	7.4		
	34-0890	3.0	1.0	9.5	6	
	34-0895	4.0	1.0	12.3	8	
	34-0900	3.0	1.0	9.5	6	3
	34-0905	4.0	1.0	12.3	8	4
	34-0910			3.0	0.5	
	34-0915			3.3	0.8	
	34-0920			3.5	1.0	
	34-0925			3.7	1.2	
	34-0930			5.0	2.0	
	34-0935			6.0	3.0	
	34-0940			4.0	0.8	4.0
	34-0945			5.0	1.0	5.0
	34-0950			10.0	2.0	10.0
	34-0960			10.0	0.8	10.0
	34-0965			12.0	1.0	12.0
	34-0970	1.75	0.5	3.04	2.54	7.62
	34-0975	1.3	0.4	3.12	2.54	7.62
	34-0980	1.2	0.38	3.25	2.54	7.62

Type	Order code	1+	10+
1.5mm round pads	34-0850	0.50	0.45
2.5mm round pads	34-0855	0.50	0.45
3.5mm round pads	34-0860	0.50	0.45
4.5mm round pads	34-0865	0.50	0.45
3.00mm teardrop pads	34-0880	0.50	0.45
4.00mm teardrop pads	34-0885	0.50	0.45
3.00mm d/e teardrops	34-0890	0.50	0.45
4.00mm d/e teardrops	34-0895	0.50	0.45
3.00mm oval pads	34-0900	0.50	0.45
4.00mm oval pads	34-0905	0.50	0.45
0.5mm straight tracks	34-0910	0.50	0.45
0.8mm straight tracks	34-0915	0.50	0.45
1.0mm straight tracks	34-0920	0.50	0.45
1.2mm straight tracks	34-0925	0.50	0.45
2.0mm straight tracks	34-0930	0.50	0.45
3.00mm straight tracks	34-0935	0.50	0.45
0.8mm tees	34-0940	0.50	0.45
1.0mm tees	34-0945	0.50	0.45
2.0mm tees	34-0950	0.50	0.45
0.8mm curves	34-0960	0.50	0.45
1.0mm curves	34-0965	0.50	0.45
Rectangular DIL pads	34-0970	0.50	0.45
Oval DIL pads	34-0975	0.50	0.45
Interleaved DIL pads	34-0980	0.50	0.45

Transfer starter pack

A selection of the popular types of the above transfers totalling 12 different sheets. Ideal as an introduction to etch-resist techniques. Supplied complete with free spatula.



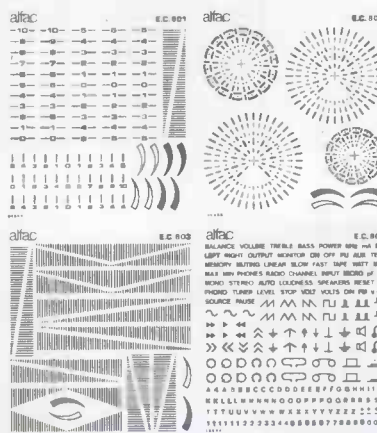
Pack contents:

2.5mm round pads	3.0mm oval pads	2.0mm straight tracks
3.5mm round pads	0.8mm straight tracks	1.0mm tees
3.0mm teardrop pads	1.0mm straight tracks	1.0mm curves
3.00mm d/e teardrops	1.2mm straight tracks	Rectangular DIL pads

	Order code	1+	10+
Transfer starter pack	34-0990	5.90	5.20

Front panel transfers

A range of symbols suitable for direct use on front panels or for the preparation of master artwork for panels employing photo-sensitive techniques. Sheet size 120x100mm.



Alfac reference	Order code	1+
EC801 panel transfer	34-0180	0.50
EC802 panel transfer	34-0185	0.50
EC803 panel transfer	34-0190	0.50
EC804 panel transfer	34-0195	0.50

DRAFTING AIDS

Artwork spatula

A combined plastic spatula and burnishing tool for transferring dry transfer symbols and lettering to drafting film.



Type	Order code	1+	10+
Artwork spatula	34-0285	0.60	0.55

Artwork drafting film

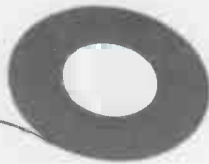
Used in conjunction with drafting tapes and transfer film master artwork for the layout of PCBs can be generated. Packs contain five sheets 0.003in single matt polyester film and one sheet 0.005in film printed with 0.1in grid for accurate layout of pads/symbols. The larger pack is suitable for use with our light box 34-2650.



	Size (mm)	Order code	1+	10+
Small drafting pack	248x148	34-0795	1.90	1.75
Large drafting pack	297x210	34-0798	3.20	2.90

Precision drafting tapes

High precision drafting tapes for preparing PCB layouts. Modern methods of manufacture used in the cutting of Alfac tapes ensure consistent accuracy of the tape widths and a clearer definition on the board. Blister packed for easy storage. Black flexible crepe paper is completely non reflective. High quality adhesive. Tapes have colour coded cores for easy identification. Overall length 16.4 metres.



Tape width		Colour	Order code	1+	10+
in	mm				
0.015	0.38	yellow	34-4000	0.95	0.85
0.02	0.51	green	34-4005	0.95	0.85
0.025	0.63	white	34-4010	0.95	0.85
0.031	0.79	red	34-4015	0.95	0.85
0.04	1.02	blue	34-4020	0.95	0.85
0.05	1.27	green	34-4025	0.95	0.85
0.062	1.57	white	34-4030	0.95	0.85
0.08	2.03	blue	34-4040	1.00	0.90
0.1	2.54	green	34-4050	1.00	0.90
0.125	3.17	white	34-4055	1.00	0.90

Precision transfer film

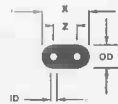
A range of precision transfer 25 micron film for the preparation of PCB layouts. Symbols are printed on transparent film which does not allow any trace on photographic reproduction. Corrections can be made by the use of a thin flexible blade. Blister packaged for ease of use.



OD		ID		Unit	Order code	1+	10+
in	mm	in	mm	qty.			
0.075	1.91	0.02	0.51	960	34-4105	4.50	3.95
0.08	2.03	0.031	0.79	960	34-4110	4.50	3.95
0.1	2.54	0.02	0.51	960	34-4115	4.50	3.95
0.1	2.54	0.031	0.79	960	34-4120	4.50	3.95
0.12	3.05	0.031	0.79	960	34-4125	4.50	3.95
0.156	3.96	0.031	0.79	700	34-4160	4.50	3.95
0.16	4.06	0.031	0.79	700	34-4165	4.50	3.95

Oval pads with two holes

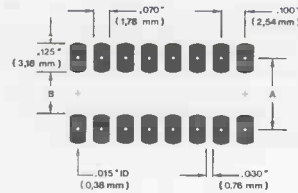
	in	mm
OD	0.1	2.54
ID	0.031	0.79
X	0.2	5.08
Z	0.1	2.54



Oval pads	Order code	1+	10+
	34-4195	4.50	3.95

DIL pads

A range of DIL pads in a wide range of pin configurations. Available in 1:1 or 2:1 scale.



DIL package	Scale	Unit qty.	Order code	1+	10+
14	1:1	160	34-4200	4.50	3.95
14	2:1	60	34-4205	4.50	3.95
16	1:1	140	34-4210	4.50	3.95
16	2:1	60	34-4215	4.50	3.95
24	1:1	75	34-4220	4.50	3.95
24	2:1	20	34-4225	4.50	3.95
28	1:1	60	34-4230	4.50	3.95
28	2:1	20	34-4235	4.50	3.95

Universal compass

The Staedtler Masterbow 551 is a universal compass with centre-wheel adjustment for easy, accurate setting and hinged legs for quick precision setting. Supplied in plastic case with spare leads and point.



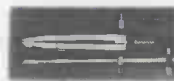
Technical specification

Weight	69g
Length	155mm
Shank	4mm
Minimum circle	1mm
Maximum circle	260mm

Type	Order code	1+	5+
Staedtler 551 compass	34-2000	5.50	5.15

Precision compass with extension bar

The Staedtler Masterbow 553 is a precision quick set compass employing a unique patented locking mechanism, locks legs in any desired position when the knurled metal collars are pressed inwards with a slight twist. Centre-wheel allows fingertip microsetting, even after the legs are locked, eliminating 'flexiback' during setting. Hinged legs with shouldered needle point. Supplied complete with 556 extension bar in plastic case with spare leads.



Technical specification

Weight	96g
Length	170mm
Shank	4mm
Minimum circle	1mm
Maximum circle	380mm
With extension bar	610mm

Type	Order code	1+	5+
Staedtler 553 compass	34-2005	9.90	9.25

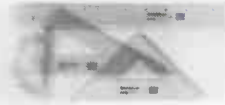
DRAFTING AIDS

Geometry set

An economical set of drawing templates by Staedtler in grey transparent acrylic. All items metric scaled.

Contents:

- 300mm flat ruler
- 100mm 180° protractor
- 210mm 30/40° set square
- 210mm 45° set square



Ideal for use with all our drawing boards as detailed below. Supplied in plastic wallet for safe keeping.

Type	Order code	1+	10+
Geometry set	34-2100	1.95	1.75

Super drawing rulers

The Linex Super Ruler is a ruler made from crystal clear acrylic with a green centre. Bevelled edges ideal for use with pen or pencil. Graduated metric one side, imperial the other. The 300mm ruler has one rubber strip fitted to the underside to prevent the ruler sliding. When tilting the ruler the rubber is freed from the paper and the ruler slides smoothly on the acrylic rib. The 400mm ruler has two rubber strips to ensure that the ruler lies firmly on the paper.



Type	Order code	1+	5+
300mm Super Ruler	34-2200	1.25	1.15
400mm Super Ruler	34-2205	2.00	1.90

Lettering guides

Precision cut lettering guides from Staedtler. Lower and upper case English and European letters plus numerals, 0-10 and other common symbols. Integrated plastic rails with 'H' profile allowing the guide to be moved without the danger of smudging.



Letter Height	Order code	1+	5+
2.5mm	34-2300	2.60	2.45
3.5mm	34-2305	2.60	2.45
5.0mm	34-2310	2.70	2.50
7.0mm	34-2315	2.70	2.50

Lettering joint

The Mars lettering joint for use with our technical pens. The knee-joint permits angle adjustment to give the user a comfortable hold.



Type	Order code	1+	5+
Lettering joint	34-2350	1.15	1.08

PCB design template

Linex 12415 drawing template for PCB design. Scale 1:1. Contains combined figures for point layouts of component view as well as circuit view. Provided with ink bosses for tracing with 0.5mm pen. Outlines include:

7 potentiometer types

TO3, TO66 bodies
TO126, TO220 bodies
TO5, TO18 and TO92 bodies

Flat packs with 14 and 16 pin leads

9 outlines of components with radial leads

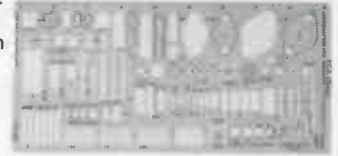
5 groups of edge connectors strip patterns 0.1", 0.125", 0.15", 0.156" and 0.2"

8, 14, 16 and 18 DIL leads 0.3in centres

24 and 28 0.6in centres

17 outlines of components axial leads

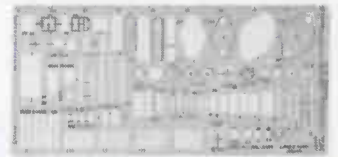
5 circular outlines of vertical components with axial leads



Type	Order code	1+	5+
12415 PCB template 1:1	34-2400	10.90	10.50

PCB design template

Linex 12425A/B templates. As above but with scale of 2:1. Supplied as two templates. Supplied in two leaf folder. Provided with ink bosses for tracing with a 0.7mm pen.



Type	Order code	1+	5+
12425A/B PCB template 2:1	34-2405	16.90	16.10

Drawing template

An economical Electronics Symbols drawing template manufactured in transparent CAB. A variety of symbols are included including AND, OR and NOT logic symbols. Supplied complete in wallet for safe keeping.



Type	Order code	1+	10+
Electronics template	34-0200	2.50	2.20

Logic template

Contains symbols for logic diagrams according to MIL-STD-806B in 2 sizes and symbols for diodes, resistors, capacitors and transistors, especially selected for drawing and logic systems. Dimensions of symbols are suited to drawing on 0.1in or 0.2in cross section paper. 1mm green transparent butyrate. Size 165x95mm.



Type	Order code	1+	5+
1139 logic template	34-2430	5.10	4.70

Circle template

A template containing 39 circles from 0.1 to 35mm. Provided with ink bosses to lift the template 0.5mm above the level of the work to avoid smudging. Centre points are precisely marked on all circles. For use with 0.5mm-tipped pen. Size 235x116mm.



Type	Order code	1+	5+
Circle template	34-2450	4.50	4.20

DRAFTING AIDS

Artwork light box

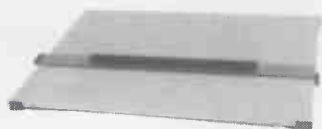
A desktop light box providing a valuable aid to all artwork preparation. The box consists of a white wooden case containing 28W cool white fluorescent tubes and a 5mm thick opal perspex diffuser panel. The box is supplied complete with carrying handle, separate IEC socket fitted to 2 metres of mains lead with a 13A sleeved plug, and non-flip rubber feet. The working surface is completely flush. Viewing area is 255x302mm.



Order code	1+	5+
34-2650	58.00	55.00

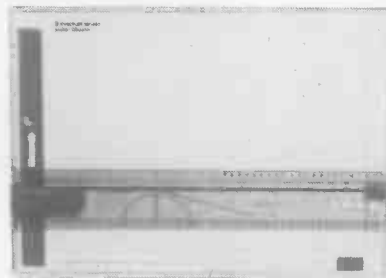
A2 Portable drawing board

The Staedtler 960 drawing board is a portable A2 board constructed from white melamine laminate. Panelled motion with double bevelled acrylic straight edge. Two deep grooved rubber desk strips combined with stainless steel hinged support angle and board and also act as a carrying handle for the board.



Type	Order code	1+	5+
Mars 960 A2 board	34-2605	40.90	32.50

A3 Portable drawing board



Length 507mm Width 363mm Height 25mm

Staedtler 661 A3 portable drawing board offers a professional quality board at reasonable cost. Manufactured from warp-free, dimensionally stable, washable, high impact plastic board with rubber pads which ensure a firm grip on any flat surface. Features include:

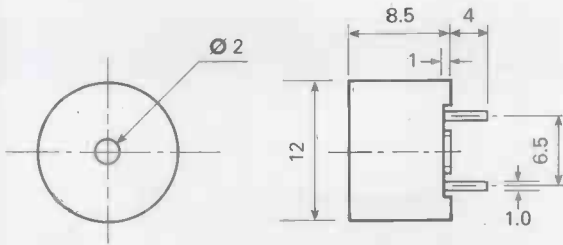
- All round guide grooves for the FIXMATIC parallel drafting arm.
- Recessed sheet clamp strip with scale with 'O' point axis and one handed locking mechanism.
- Recessed spring-loaded sheet clamp for additional paper grip.
- Paper alignment edges for precise positioning of the drawing paper.
- FIXMATIC parallel drafting arm with simple one handed locking mechanism.

Type	Order code	1+	5+
Mars 661 A3 board	34-2600	20.60	18.80

Schools, colleges, Government departments and public-quoted companies have automatic account facilities. Orders may be placed for immediate despatch.

Subminiature transducer

A subminiature electromechanical transducer available with flying leads or PCB mounting options. Requires drive circuit. Flying lead type has self-adhesive pad for mounting to panel. Useful in applications where space is at a premium.



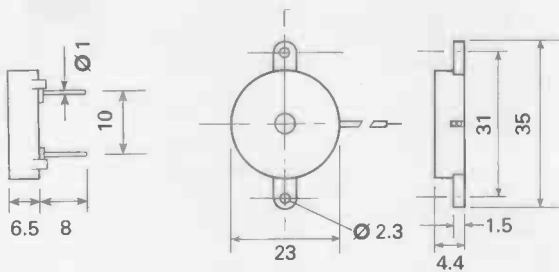
Technical specification

Operating voltage	1-12V DC
Current consumption	10mA max.
Sound output	80dB at 10cm
Frequency	2.0KHz

Type	Order code	1+	25+	100+	500+
Subminiature transducer (leads)	35-0200	0.40	0.35	0.29	0.26
Subminiature transducer (PCB)	35-0205	0.40	0.35	0.29	0.26

Subminiature piezo transducer

A subminiature piezo audio transducer available with flying lead or PCB mounting options. Requires drive circuit. Very low profile.



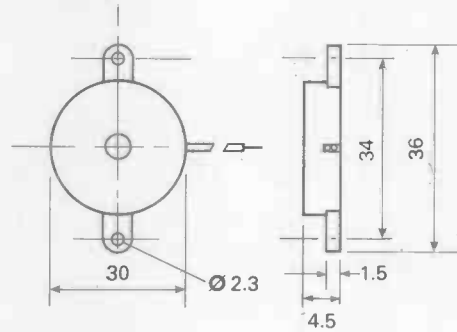
Technical specification

Operating voltage	2-30V pp
Sound output	75dB at 10cm
Frequency	6.0KHz
Capacitance	10,000pF
Impedance	3K

Type	Order code	1+	25+	100+	500+
Piezo transducer (leads)	35-0210	0.45	0.40	0.35	0.31
Piezo transducer (PCB)	35-0215	0.45	0.40	0.35	0.31

Miniature piezo transducer

A miniature piezo audio transducer with flying leads. Requires drive circuit. Very low profile.



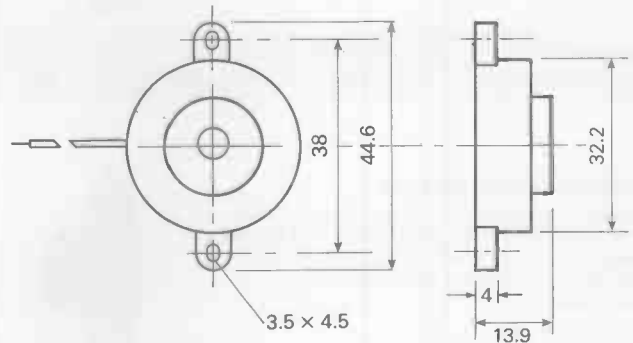
Technical specification

Operating voltage	4-30V pp
Sound output	75dB at 30cm
Frequency	3.8KHz
Capacitance	20,000pF
Impedance	2K5

	Order code	1+	25+	100+	500+
Piezo transducer (leads)	35-0110	0.45	0.40	0.35	0.30

Miniature piezo buzzer

A miniature piezo buzzer available with flying leads. Offers a high output with low power consumption.



Technical specification

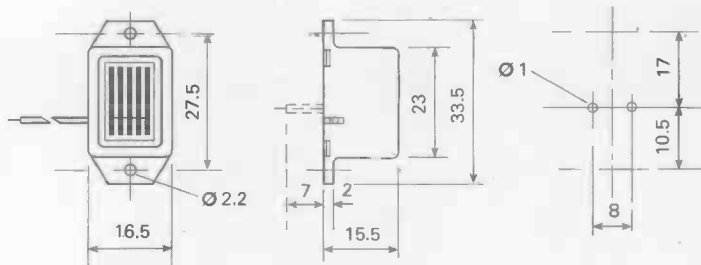
Operating voltage	3-30V DC
Sound output at 12V	90dB at 50cm
Current consumption at 12V	10mA
Frequency - lead type	2.7KHz

	Order code	1+	25+	100+	500+
Piezo buzzer	35-0115	0.50	0.45	0.40	0.35

HARDWARE

Transistor oscillator buzzer

Miniature transistor oscillator buzzer available with flying leads or PCB mounting options. These buzzers offer long life and maximum efficiency with minimum current dissipation.



Technical specification

Operating voltage 6 V type	4-9V DC
12 V type	9-20V DC
Current consumption	25mA
Sound output	75dB at 30cm
Frequency	400HZ

Type	Order code	1+	25+	100+	500+
6V buzzer (leads)	35-0100	0.50	0.45	0.40	0.34
12V buzzer (leads)	35-0105	0.50	0.45	0.40	0.34
6V buzzer (PCB)	35-0250	0.55	0.50	0.45	0.38
12V buzzer (PCB)	35-0255	0.55	0.50	0.45	0.38

Miniature loudspeaker

A miniature speaker measuring just 38mm in diameter for use in miniature portable equipment. Fitted with paper cone and alnico magnet. Solder connection tags. Impedance 8 ohms. Handling capacity 100mW.



Type	Order code	1+	25+	100+	500+
8 ohm mini speaker	35-0125	0.50	0.45	0.40	0.35

Miniature loudspeakers

A miniature speaker for use in small portable equipment. Fitted with paper cone and ferrite magnets. Solder connection tags. Both types 66mm diameter, 21mm deep. Handling capacity 300mW.



Type	Order code	1+	25+	100+	500+
8 ohm speaker	35-0130	0.50	0.40	0.36	0.32
64 ohm speaker	35-0135	0.55	0.44	0.38	0.34

General purpose loudspeaker

A loudspeaker suitable for use in a wide range of applications in equipment. Nominal speaker size 6x4in. Fitted with paper cone and ferrite magnet. Solder connection tags. Overall size 105x160x44mm. Resonant frequency: 135Hz. Impedance 8 ohms. Handling capacity 3W.



Type	Order code	1+	25+	100+
6x4in speaker	35-0145	2.20	1.80	1.35

Earphones

Low and high impedance earphones fitted with 0.8 metres of twin cable and terminated with a 3.5mm jack plug. Available in either magnetic (low impedance 8 ohm) or crystal (high impedance 3 Megohm).



Type	Order code	1+	25+	100+
Magnetic	35-0160	0.15	0.12	0.09
Crystal	35-0165	0.50	0.44	0.40

Microphone insert

Miniature crystal microphone insert. 25mm diameter, 8mm high. High impedance typically 2 Megohm. Solder termination.



Type	Order code	1+	25+	100+
Crystal insert	35-0170	0.45	0.38	0.34

Ultrasonic transducers

An ultrasonic transmitter and high sensitivity receiver designed for sending and receiving continuous or modulated waves in the 40KHz region through air. Applications include remote control, data transmission, etc. These units are not watertight.



Technical specification

	Transmitter	Receiver
Sensitivity	106dB	-65dB
Resonant frequency	40KHz ±1KHz	
Direction angle	Approx. 20°	
Max. input voltage	20V rms	
Impedance	500 ohms	30K
Capacitance	1100pF ±20%	

Type	Order code	1+	25+	100+
Transmitter	35-0175	1.80	1.50	1.25
Receiver	35-0180	1.80	1.50	1.25

Control knobs

Black serrated knob available in two sizes. Aluminium inlay with marker line indication. Grub screw fixing for 0.25in spindles.



Type	Depth	Order code	1+	25+	100+	500+
25	18	32-0100	0.36	0.32	0.29	0.25
32	19	32-0105	0.40	0.36	0.32	0.28

Matched 23mm diameter black control knobs with spun aluminium skirt and inlay. Available calibrated 1 to 10 or with arrow indication. Depth 14mm. Grub screw for 0.25in diameter spindles.



Type	Order code	1+	25+	100+	500+
arrow	32-0250	0.32	0.29	0.26	0.23
calibrated	32-0255	0.32	0.29	0.26	0.23

Matched 30mm diameter black control knobs with spun aluminium skirt and inlay. Available either calibrated 1 to 10 or with arrow indication. Depth 18mm. Grub screw fixing for 0.25in spindles.



Type	Order code	1+	25+	100+	500+
Arrow	32-0110	0.34	0.31	0.27	0.24
Calibrated	32-0115	0.34	0.31	0.27	0.24

Matched 37mm diameter black control knobs with spun aluminium skirt and inlay. Available either calibrated 1 to 10 or with arrow indication. Depth 15mm. Grub screw fixing for 0.25in spindles.



Type	Order code	1+	25+	100+	500+
Arrow	32-0120	0.36	0.32	0.29	0.25
Calibrated	32-0125	0.36	0.32	0.29	0.25

A range of **multicoloured control knobs** with black bodies and a range of matching caps which clip into the top of the knob. Marker line on cap. Push on type. Ideally suited for mixers and audio equipment. 18mm diameter.



Type	Order code	1+	100+	500+
knob + red cap	32-0145	0.18	0.15	0.135
knob + yellow cap	32-0150	0.18	0.15	0.135
knob + green cap	32-0155	0.18	0.15	0.135
knob + grey cap	32-0160	0.18	0.15	0.135
knob + blue cap	32-0165	0.18	0.15	0.135
knob + black cap	32-0170	0.18	0.15	0.135

Black pointer knob with central indicator line in white. Made from phenolic plastic which is resistant to heat. Grub screw fixing for 0.25in spindles.



Type	Order code	1+	100+	500+
Pointer knob	32-0175	0.16	0.125	0.11

A range of **multicoloured slide control knobs** which suit our slide controls. 4mm fixing, marker line indication runs horizontally across knob. 9mm wide, 22mm long.



Type	Order code	1+	100+
red slide knob	32-0180	0.12	0.10
yellow slide knob	32-0185	0.12	0.10
green slide knob	32-0190	0.12	0.10
grey slide knob	32-0195	0.12	0.10
blue slide knob	32-0200	0.12	0.10
black slide knob	32-0205	0.12	0.10

Heatsinks

TO5/TO18 types

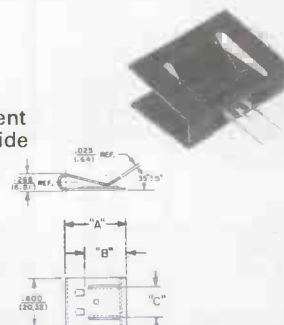
Black finish heatsinks to push-fit on TO5 and TO18 cases. Thermal resistance 50 deg C/W. TO5 12.7mm high, 14.3mm diameter. TO18 12.7mm high, 12.4mm diameter.



Type	Order code	1+	25+	100+
TO18 heatsink	36-0100	0.17	0.16	0.15
TO5 heatsink	36-0105	0.16	0.15	0.14

TO220 clip on type

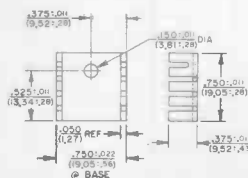
A low cost clip on type heatsink for TO220 packages. Can be easily installed before or after board assembly. One way locking tap protects the device from dislodgement by vibration or accidental contact. Side runners prevent misapplication and ensure proper alignment. Thermal resistance 30 deg C/W.



Type	Order code	1+	25+	100+
TO220 clip on sink	36-0110	0.16	0.13	0.11

TO220 bolt on type

Black anodised pre-drilled heatsink to accept a wide variety of TO220 packaged semiconductors, i.e. voltage regulators and power transistors. May be mounted horizontally or vertically. Thermal resistance 21 deg C/W.

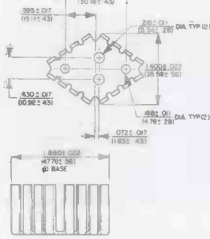


Type	Order code	1+	25+	100+	1000+
TO220 bolt on sink	36-0115	0.15	0.12	0.09	0.07

HARDWARE

TO3 type heatsink

Compact horizontal or vertical mounting heatsink for TO3 devices. Dimensions 48x40x25mm. Thermal resistance 6.9 deg C/W.



Type	Order code	1+	25+	100+
TO3 compact sink	36-0120	0.35	0.28	0.24

Heavy duty heatsink

Suitable for high power applications with integral tee-slots. Black anodised finish. 152mm long with cross section 130x32mm. Thermal resistance 1.1 deg C/W.



Type	Order code	1+	10+
Heavy duty sink	36-0125	4.90	4.30

Fuses

A range of 20mm quick blow and time delay fuses. BSI and SEMKO approved. Rated at 250V AC.



Quick blow				
Value	Order code	1+	100+	1000+
50mA	26-0090	0.18	0.155	0.03
100mA	26-0100	0.11	0.09	0.075
250mA	26-0110	0.05	0.036	0.03
500mA	26-0115	0.05	0.036	0.03
1A	26-0120	0.05	0.036	0.03
1.6A	26-0125	0.05	0.036	0.03
2A	26-0130	0.05	0.036	0.03
3.15A	26-0135	0.05	0.036	0.03
4A	26-0140	0.05	0.036	0.03
5A	26-0150	0.05	0.036	0.03
6.3A	26-0155	0.05	0.036	0.03
Time delay				
Value	Order code	1+	100+	1000+
50mA	26-0200	0.20	0.17	0.155
100mA	26-0205	0.13	0.105	0.085
250mA	26-0230	0.08	0.065	0.055
500mA	26-0250	0.08	0.065	0.055
1A	26-0260	0.08	0.065	0.055
1.6A	26-0270	0.08	0.065	0.055
2A	26-0275	0.08	0.065	0.055
2.5A	26-0280	0.08	0.065	0.055
3.15A	26-0285	0.08	0.065	0.055
4A	26-0290	0.08	0.065	0.055
5A	26-0295	0.08	0.065	0.055
6.3A	26-0300	0.08	0.065	0.055

See page 23 for our fuse kit.

Mains fuses

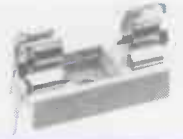
1 inch mains fuses for use in 13A plugs. Fully conform to BS1362.



Type	Order code	1+	100+	1000+
2A	26-0400	0.09	0.07	0.058
3A	26-0405	0.09	0.07	0.058
5A	26-0410	0.09	0.07	0.058
13A	26-0415	0.09	0.07	0.058

Chassis fuseholder

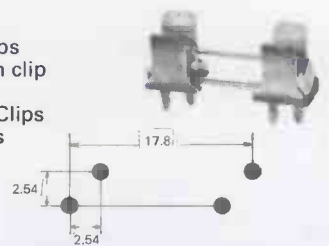
A PCB mounted chassis fuseholder for use with 20mm fuses. Rated max. 6.3A 250V AC. Pin pitch 22.6mm.



	Order code	1+	100+	1000+
Chassis fuseholder	26-0165	0.07	0.055	0.044

PCB fuse clips

Tin plated PCB mounting fuse clips for use with 20x5mm fuses. Each clip has two mounting legs to suit mounting on 0.1in pitch boards. Clips are rated at 5A. Supplied in packs of 100.



	Order code	1+	50+
Pack of fuse clips	26-0195	1.10	1.05

Low cost 20mm panel fuseholder

Low cost 20mm finger release type fuseholder. For use with fuses up to 7A rating. Panel cutout 12.7mm. Max. panel thickness 7mm.



	Order code	1+	100+	500+
20mm panel fuseholder	26-0160	0.20	0.15	0.13

Low profile 20mm fuseholder

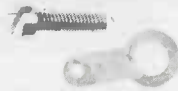
A high quality economical 20mm screwdriver release panel fuseholder. Fuse is retained in cap on removal. Rated 6.3A 250V AC. SEMKO approved. D hole cutout 12mm diameter.



	Order code	1+	100+	500+
Low profile fuseholder	26-0190	0.28	0.215	0.195

Nuts, bolts and solder tags

Steel zinc plated BA nuts and bolts. Bolts are cheese head type. Nuts are full size type. Supplied in packs of 100 pieces.



Pack	Order code	1+	25+
100 6BA 1/4in bolts	33-0200	0.55	
100 6BA 1/2in bolts	33-0205	0.50	
100 6BA nuts	33-0210	0.45	
100 6BA washers	33-0215	0.10	
100 6BA solder tags	33-0220	0.70	
100 4BA 1/4in bolts	33-0250	0.60	
100 4BA 1/2in bolts	33-0200	0.55	
100 4BA nuts	33-0260	0.50	
100 4BA washers	33-0265	0.12	
100 4BA solder tags	33-0270	0.60	

See page 23 for details of our complete kits of nuts and bolts.

Self-tapping screws

Packet of 100 slotted pan head self tapping screws. Finished in clear passivated zinc plate.

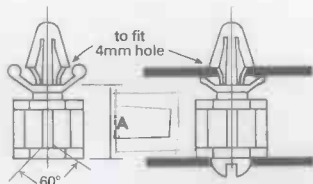


Pack	Order code	1+	25+
100 No. 4 6.4mm	33-0500	0.75	
100 No. 4 9.5mm	33-0505	0.65	
100 No. 4 12.7mm	33-0510	0.65	
100 No. 6 6.4mm	33-0515	0.75	
100 No. 6 9.5mm	33-0520	0.65	
100 No. 6 12.7mm	33-0525	0.70	
100 No. 6 19.1mm	33-0550	0.85	
100 No. 10 9.5mm	33-0530	1.20	
100 No. 10 12.7mm	33-0535	1.20	
100 No. 10 19.1mm	33-0540	1.30	
100 No. 10 25.4mm	33-0545	1.60	

See page 23 for details of our complete kits of self-tapping screws.

PCB pillars

Standard PCB pillars in nylon. Suitable self-tapping screws No. 6. Fixing hole for PCB 4mm.



Overall length	A	Order code	1+	100+	1000+
11.0	5.0	33-2020	0.02	0.014	0.012
15.6	9.6	33-2025	0.03	0.018	0.0135
17.7	12.7	33-2030	0.03	0.02	0.015

Cabinet feet

Moulded screw on cabinet feet for use on instrument cases, etc. Black finish. Mounting hole 3.5mm diameter.



Diameter	Height	Order code	1+	100+
15.5	10.0	31-0100	0.05	0.04
22	10.0	31-0105	0.06	0.05

Black square self-adhesive feet. Cabinet feet with a strong pressure sensitive adhesive backing.



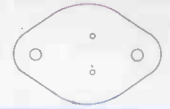
Size	Height	Order code	1+	100+	1000+	5000+
12.5mm square	6.0	31-0110	0.04	0.03	0.025	0.021
20.0mm square	9.0	31-0115	0.05	0.04	0.035	0.031

Semiconductor mounting kits

Mounting kits for semiconductors including mica washers and bushes.

TO3 kits

Kit contents 10 mica washers and 20 bushes. To suit 2N3055, etc.



Type	Order code	1+	25+
10 TO3 mounting kits	38-0200	0.60	0.51

TO66 kits

Kit contents 10 mica washers and 20 bushes. To suit AD161/2, etc.



Type	Order code	1+	25+
10 TO66 mounting kits	38-0205	0.60	0.51

TO220 kits

Kit contents 10 mica washers and 10 bushes. To suit TIP31A, 7805, etc.



Type	Order code	1+	25+
10 TO220 mounting kits	38-0210	0.45	0.37

MI3055 kits

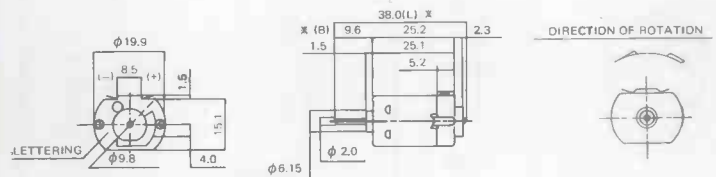
Kit contents 10 mica washers and 10 bushes. To suit TIP3055, etc.



Type	Order code	1+	25+
10 MI3055 kits	38-0215	0.45	0.37

Miniature DC motor

A low cost miniature DC motor with many applications including models, robotics and educational demonstration equipment. Operating voltage 1.5 to 3V DC. Anti-clockwise rotation. Ideally suited for mounting to PCBs with two flat surfaces. Solder tag termination.



Technical specification

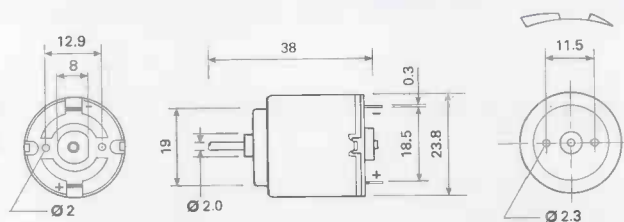
No load speed	1.5V	3.0V
current (A)	8700	14000
At maximum efficiency:	0.32	0.38
speed	5800	9400
current (A)	0.76	1.1
torque (g/cm)	5.3	8.6
efficiency (%)	32	30.5
Stall torque (g/cm)	16.0	26
Weight		17g

	Order code	1+	25+	100+	500+
Miniature DC motor	37-0100	0.30	0.25	0.20	0.16

HARDWARE

Medium torque miniature motor

A low cost miniature motor offering a higher stall torque than the above type. Applications include models, robotics, etc. Operating voltage 1.5 to 4.5V DC. Solder tag termination.



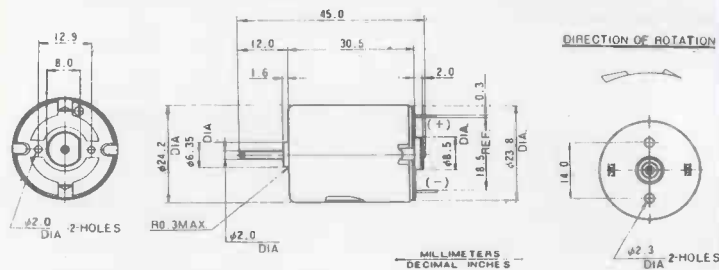
Technical specification

	1.5V	3.0V
No load speed	3000	6300
current (A)	0.083	0.11
At maximum efficiency:		
speed	2300	4900
current (A)	0.26	0.41
torque (g/cm)	5.2	9.0
efficiency (%)	38	46
Stall torque (g/cm)	21	44
Weight	28g	

	Order code	1+	25+	100+	500+
Medium torque DC motor	37-0110	0.40	0.30	0.24	0.20

High torque miniature motor

A high torque miniature DC motor for higher power requirements. Operating voltages 1.5 to 3V DC. Clockwise rotation. Solder by termination.



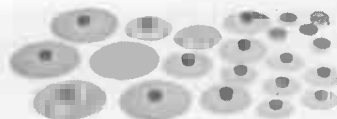
Technical specification

	1.5V	3.0V
No load speed	4200	8300
current (A)	0.14	0.17
At maximum efficiency:		
speed	2400	7020
current (A)	0.6	0.94
torque (g/cm)	10.4	18.0
efficiency (%)	50.6	56.1
Stall torque (g/cm)	56	117
Weight	42g	

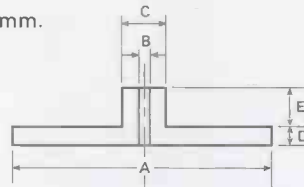
	Order code	1+	25+	100+	500+
High torque DC motor	37-0120	0.50	0.44	0.35	0.27

Miniature gears

A range of miniature gears for use with our motors. Bore size in all cases is 1.9mm which ensures correct tight fit for 2mm diameter shaft.



All dimensions are in mm.



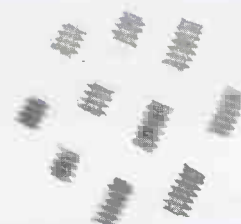
No. teeth outer dia.	No. teeth inner dia.	A	B	C	D	E	Order code
16	-	9.0	1.9	-	5.0	-	37-0200
30	-	16.0	1.9	6.0	1.5	1.5	37-0205
42	-	22.0	1.9	6.0	1.5	2.5	37-0210
60	-	31.0	1.9	6.0	1.5	1.5	37-0215
30	10	16.0	1.9	5.5	1.5	2.5	37-0220
42	10	22.0	1.9	5.5	1.5	2.5	37-0225

Supplied in packs of 50. Price per pack:

Order code	1+	10+	25+
37-0200	0.65	0.50	0.45
37-0205	0.85	0.65	0.58
37-0210	1.10	0.85	0.77
37-0215	1.50	1.20	1.08
37-0220	0.85	0.65	0.58
37-0225	1.10	0.85	0.77

Miniature worm gears

A range of miniature worm gears for use with our motors. Bore size in all cases is 1.9mm which ensures correct tight fit for 2mm diameter shaft.



Supplied in packs of 50. Price per pack:

Length	Diameter	Order code	1+	10+	25+
6	6	37-0300	0.70	0.57	0.50
10	6	37-0305	0.95	0.77	0.69

Steel shaft

Steel shaft for use with the above gears. This may easily be cut down to the required length with a hacksaw. 2mm diameter. Supplied in lengths of 75mm.



Supplied in packs of 50. Price per pack:

	Order code	1+	10+	25+
Steel shaft	37-0350	0.50	0.40	0.36

OPTOELECTRONICS

Miniature LED

A range of very small diodes suitable for PCB and panel mounting applications. 3mm diameter. Cathode identified by flat on body.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
Red	20mA	1.7V	2V	5V	2.0	45	655
Green	20mA	2.1V	2.8V	5V	3.5	45	565
Yellow	20mA	2.1V	2.8V	5V	3.5	45	585

Colour	Order code	1+	100+	1000+	5000+	10000+
3mm red	55-0100	0.06	0.05	0.04	0.036	0.029
3mm green	55-0105	0.08	0.06	0.045	0.039	0.034
3mm yellow	55-0110	0.08	0.06	0.05	0.044	0.038

Standard LED

A range of small diodes suitable for PCB and panel mounting applications. 5mm diameter. Cathode identified by flat on body.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
Red	20mA	1.7V	2V	5V	2.0	40	655
Green	20mA	2.1V	2.8V	5V	3.5	40	565
Yellow	20mA	2.1V	2.8V	5V	3.5	40	585

Colour	Order code	1+	100+	1000+	5000+	10000+
5mm red	55-0115	0.06	0.05	0.04	0.03	0.027
5mm green	55-0120	0.08	0.06	0.045	0.038	0.034
5mm yellow	55-0125	0.08	0.06	0.048	0.043	0.038

High intensity red LED

3mm and 5mm high intensity diffused lens red LEDs for PCB and panel mounting applications. A higher intensity LED than our standard range but still offered at a very competitive price.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Min. mcd.	Typ. mcd.	View angle	Wave length
	20mA	2.0V	2.8V	5V	1.5	5	45	635

Type	Order code	1+	100+	1000+
5mm high intensity red	55-0150	0.11	0.07	0.058
5mm high intensity red	55-0155	0.11	0.07	0.058

Superbright LED

Superbright LEDs offering a luminous intensity in excess of 250mcd, housed in a clear package. 5mm diameter. Anode identified by flat on body and shorter lead.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
Red	20mA	1.7V	2V	5V	250	15	650
Green	20mA	2.1V	2.8V	5V	250	15	565

Type	Order code	1+	100+	1000+
5mm superbright red	55-0130	0.14	0.11	0.085
5mm superbright green	55-0135	0.14	0.11	0.085

Tri-colour LED

A tri-colour 5mm LED consisting of red and green LEDs connected in common cathode configuration to provide red, green or yellow. Device is white diffused when not on and this therefore provides four states.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
Red	20mA	2.1V	2.8V	5V	4.0	35	697
Green	20mA	2.1V	2.8V	5V	3.5	35	565

Type	Order code	1+	100+	1000+
5mm tri-colour LED	55-0170	0.18	0.14	0.11

Flashing LED

A standard 5mm red LED with an inbuilt IC to produce a continuous flash at a frequency of 3Hz. Supply voltage 4.7 to 6.8V – no series resistor required.



	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
	20mA	1.7V	2V	5V	2.0	45	655

Type	Order code	1+	25+	100+	1000+
Flashing 5mm red LED	55-0140	0.30	0.26	0.23	0.21

Panel clips

3mm one part and 5mm two part panel clips to suit above LEDs.



Type	Order code	1+	100+	1000+	10000+
3mm clip	55-0160	0.03	0.02	0.015	0.014
5mm clip	55-0165	0.03	0.02	0.013	0.011

Bezel panel clip

An attractive single part 5mm panel clip which offers a professional appearance at low cost. The LED clips into position into the clip which itself is a push-fit in the panel. Mounting hole is 8mm. Black nylon.



Type	Order code	1+	100+	1000+
Bezel panel clip	55-0250	0.03	0.02	0.015

For quantities above price breaks listed in the catalogue contact Sales for an immediate competitive quotation.

OPTOELECTRONICS

Rectangular LED

Red, green and yellow rectangular stackable LEDs in a diffused epoxy package. Cathode identified by short lead. Applications include bar graph displays, panel indicators, legend backlighting, etc. Light area 2x5mm.

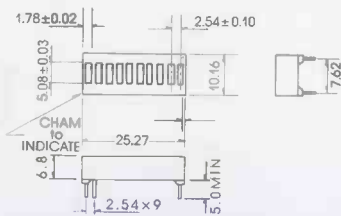
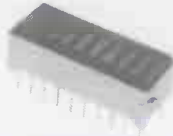


	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. mcd.	View angle	Wave length
Red	20mA	2.0V	2.8V	5V	2.0	60	635
Green	20mA	2.1V	2.8V	5V	3.5	60	565
Yellow	20mA	2.1V	2.8V	5V	3.5	60	585

Type	Order code	1+	100+	1000+
Rectangular red	55-0175	0.10	0.07	0.055
Rectangular green	55-0180	0.12	0.09	0.068
Rectangular yellow	55-0185	0.12	0.09	0.072

10 bar DIL LED array

Ten individual LED elements housed in a 20 pin DIL package to form a neat compact display, which may be end stacked to create bar graphs of various lengths. Applications include position indication, solid state meter movements, etc. The GaP (high efficiency red) and GaP (green) LEDs are intensity coded for display uniformity. Suitable driver ICs are LM3914 and LM3915. Notch indicates anode.



Colour	Order code	1+	25+	100+	1000+
High efficiency red	55-0190	0.95	0.76	0.65	0.57
Green	55-0195	1.00	0.80	0.68	0.60

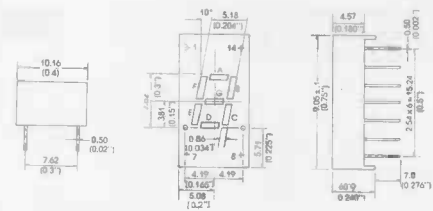
Telephone orders placed before 5pm ensure same day despatch via next day carrier.

0.3in LED display

Gallium phosphide high efficiency red seven-segment displays in 14 pin DIL packages. Displays 0-9, common anode version incorporates a left hand decimal point, common cathode a right hand. May be wired directly to the PCB or may be used in conjunction with a 14 pin IC socket. Selected luminous intensity categories for negligible luminous variation between displays. Suitable series resistor for 5V operation 270 ohms.



PIN CONNECTIONS (TOP VIEW)

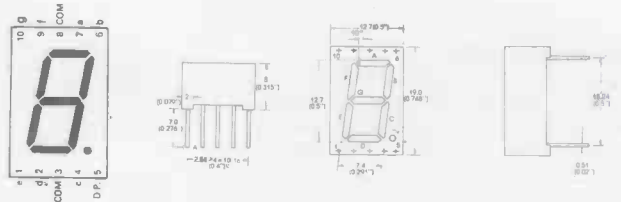


	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. μcd.	View angle	Wave length
Red 0.3in	20mA	2.0V	2.8V	5V	1300	50	697

Type	Order code	1+	25+	100+	500+
Common anode red	57-0100	0.80	0.65	0.50	0.42
Common cathode red	57-0105	0.80	0.65	0.50	0.42

0.5in LED display

High efficiency red 0.5in gallium phosphide displays in common anode and common cathode versions. Connections run along the top and bottom of the display simplifying wiring in multidigit applications. Both types incorporate right hand decimal points. Common anode type compatible with FND507, etc. Common cathode type compatible with FND500, etc. Suitable series resistor for 5V operation 180 ohms.



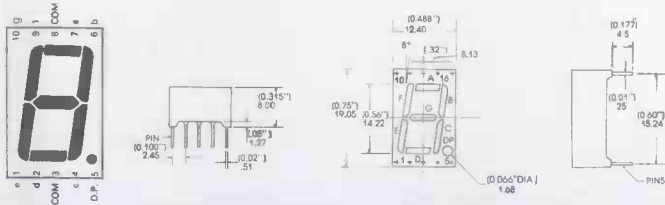
	I _F typ.	V _F typ.	V _F max.	V _R max.	Int. μcd.	View angle	Wave length
Red 0.5in	20mA	2.0V	2.8V	5V	1300	50	697

Type	Order code	1+	25+	100+	500+
Common anode red	57-0110	0.85	0.70	0.55	0.46
Common cathode red	57-0115	0.85	0.70	0.55	0.46

OPTOELECTRONICS

0.56in LED display

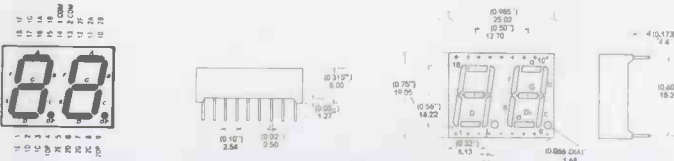
High efficiency red 0.56in gallium phosphide displays in common anode and common cathode versions. Connections run (on a 0.1in pitch) along the top and bottom of the display simplifying wiring in multidigit applications. Both types incorporate right hand decimal points. Suitable series resistor for 5V operation 180 ohms.



Type	Order code	1+	25+	100+	500+
Common anode red	57-0120	0.85	0.70	0.55	0.46
Common cathode red	57-0125	0.85	0.70	0.55	0.46

0.56in dual LED display

High efficiency red 0.56in dual gallium phosphide displays in common anode and common cathode versions. Connections run (on a 0.1in pitch) along the top and bottom of the display. Right hand decimal point. The dual display represents considerable cost saving over single digit display types. Suitable series resistor for 5V operation 180 ohms.



Type	Order code	1+	25+	100+	500+
Common anode red	57-0130	1.20	1.05	0.95	0.85
Common cathode red	57-0135	1.20	1.05	0.95	0.85

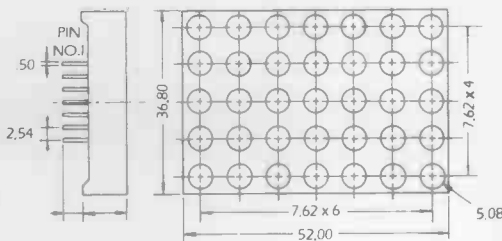
Alphanumeric display

A 2.0in 5x7 dot matrix display employing high efficiency red gallium phosphide LEDs. Leads are in 0.1in pitch. Cathode column. Display may be mounted either vertically or horizontally. LEDs are categorised for consistent luminous intensity. Ideally suited to display boards, etc.



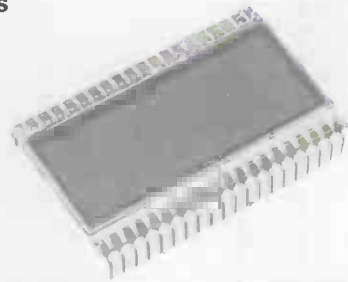
PIN NO. FUNCTION

- 1 Anode Row 5
- 2 Anode Row 7
- 3 Cathode Column 2
- 4 Cathode Column 3
- 5 Anode Row 4
- 6 Cathode Column 5
- 7 Anode Row 6
- 8 Anode Row 3
- 9 Anode Row 1
- 10 Cathode Column 4
- 11 Cathode Column 3
- 12 Anode Row 4
- 13 Cathode Column 1
- 14 Anode Row 2



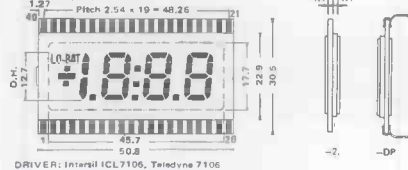
Type	Order code	1+	25+	100+
2in HE red alphanumeric	57-0155	3.20	2.60	2.20

LCD displays



Liquid crystal displays having the advantage of very low power consumption (typically 5mA). Standard seven segment format incorporating interdigit decimal points and alternate interdigit colors. Digit size 12.7mm. Displays are transfective type giving black opaque segments on a silvered background which can be back lit if required. Supplied with connectors on a 0.1in pitch. Supply voltage 3-12V rms.

VI-302-1, VI-302-2



DIGIT HEIGHT 12.7 mm (0.5")

Pin No.	Code	Pin No.	Code	Pin No.	Code
1	---	14	---	27	---
2	---	15	---	28	---
3	---	16	---	29	---
4	---	17	---	30	---
5	---	18	---	31	---
6	---	19	---	32	---
7	---	20	---	33	---
8	---	21	---	34	---
9	---	22	---	35	---
10	---	23	---	36	---
11	---	24	---	37	---
12	---	25	---	38	---
13	---	26	---	39	---
14	---	27	---	40	---

DRIVER: Intersil ICL7106, Teledyne 7106

Type	Length	Height	Depth	Order code	1+	5+
3½	50.8	30.5	3	57-0160	4.80	4.30
4	50.8	30.5	3	57-0165	4.80	4.30

LCD bezel

A low profile LCD bezel in matt black finish with mounting hardware and PCB. Two 20 way socket strips are incorporated to accept 3½ or 4 digit displays. Row spacing 33mm. The PCB will accept 20 way 0.1in edge connectors or ribbon cable, etc. The bezel and socket strips are also available as separate items to allow flexibility of design where the PCB is not required.



Type	Order code	1+	5+
Bezel complete with PCB	57-0170	5.20	5.10
Bezel only	57-0175	1.70	1.65

OPTOELECTRONICS

Infra-red source and sensor

A spectrally matched infra-red source and sensor moulded in similar epoxy housings. When used as a coupled pair separation up to 25mm can be achieved. Readily interfaced with logic. Cathode identified by flat on body.



Technical specification

Diode
 V_F max. at I_F 20mA, 1.6V
 Rise time 600 ns
 Radiant power 1.2mW typ.
Phototransistor
 V_{CE0} max. 50V
 Max. dissipation 50mW @ 25 deg C
 Light current at 20mW/cm², $V_{CE}=5V$ 7mA typ.
 Dark current at $V_{CE}=30V$, 25nA typ.
 Rise time 8 μ s. Fall time 6 μ s.

Type	Order code	1+	25+	100+	500+
Infra-red source	58-0100	0.25	0.20	0.16	0.13
Infra-red sensor	58-0105	0.25	0.20	0.16	0.13

High power infra-red source and sensor

A spectrally matched near infra-red emitter and sensor. The emitter has a high output power and is housed in a 5mm package. The sensor is a high speed pin photodiode with a high photosensitivity housed in a black infra-red transmissive moulding. Cathode is identified by flat on body.



Technical specification

Emitter
 Output power 12mW typ.
 V_F max. at I_F 100mA 1.75V.
 I_F max. at 25 deg C 150mA
Sensor
 Breakdown ($I_R=100\mu$ A) 30V min.
 Dark current ($V_R=10V$) 5nA typ.
 Light current ($V_R=10V$) 15nA typ.

Type	Order code	1+	25+	100+	500+
Infra-red emitter	58-0110	0.25	0.20	0.16	0.135
Infra-red sensor	58-0115	0.65	0.58	0.45	0.36

Light dependent resistor ORP12

A cadmium sulphide cell light dependent resistor in a sealed plastic case with clear end window. Resistance reduces as the light falling on the device increases.



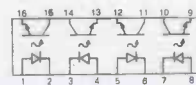
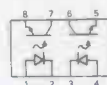
Technical specification

Dark resistance: 3M min.
 Resistance at 10 lux 1.3K
 100 lux 270 ohms
 1000 lux 120V DC or AC peak
 Max. voltage 200mW
 Max. dissipation

Type	Order code	1+	25+	100+	500+
ORP12	58-0130	0.60	0.55	0.49	0.45

Optoisolators

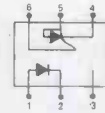
Single, dual and quad optoisolators. Industry standard types, the IS-74, ISD-74 and ISQ-74 and single, dual and quad isolators respectively. The IS-74 and ISD-74 are housed in 8 pin DIL packages and the ISQ-74 is housed in a 16 pin DIL package. Min. transfer ratio 13% typically 50%. Isolation voltage 1500V. All electrical parameters are 100% tested.



Type	Order code	1+	25+	100+	500+
IS-74 single	58-0140	0.35	0.30	0.24	0.20
ISD-74 dual	58-0145	0.80	0.70	0.60	0.53
ISQ-74 quad	58-0150	1.40	1.20	1.05	0.95

Optically isolated SCR

Optically isolated SCR type H11C4 consisting of a gallium arsenide infra-red emitting diode and light activated SCR housed in a plastic 6 pin DIL package. The SCR will switch 240V AC supplies.



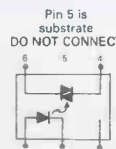
Technical specification

Diode
 I_F max. 60mA at 25 deg C
 V_R max. 6V
 V_F max. 1.5V at 10mA
SCR
 V_{RRM} 400V
 I_T (rms) max. 300mA
 On voltage 1.3V max. at $I_T=0.3A$
Coupled characteristics
 Input current to trigger SCR ($V_{AK}=50V$, $R_{gk}=10\Omega$) 20mA max. at 25 deg C
 Iso voltage 1500V

Type	Order code	1+	25+	100+
H11C4 opto SCR	58-0180	1.50	1.20	1.00

Optically isolated triac

Optically isolated triac type MOC3020 consisting of a gallium arsenide infra-red emitting diode and light activated triac housed in a 6 pin DIL package. Output will switch 240V AC supplies.



Technical specification

Diode
 I_F max. 50mA at 25 deg C
 V_R max. 3V
 V_F max. 1.5V at I_F 10mA
Triac
 V_{DRM} 400V
 I_T (rms) max. 100mA
 V_{TM} max. 3V at I_T 10mA
Coupled characteristics
 Input current to trigger triac 15mA typ. 30mA max.
 (main terminal voltage 3V)
 Iso voltage 7500V AC for 5 s

Type	Order code	1+	25+	100+
MOC3020 opto triac	58-0185	0.90	0.80	0.65

OPTOELECTRONICS

MES lampholders

An attractive range of MES lampholders in the same styling as the LES type featured on p.59. Modern styling with flat domed polycarbonate lens. Solder tag termination. Chromed bezel. Overall length 48mm. Panel cutout 16mm. Available in four colours.



Type	Order code	1+	25+	100+
Red MES lampholder	41-0160	0.42	0.36	0.30
Orange MES lampholder	41-0165	0.42	0.36	0.30
Green MES lampholder	41-0170	0.42	0.36	0.30
Blue MES lampholder	41-0175	0.42	0.36	0.30

MES lamps

Miniature MES lamps in a wide range of voltages. 11mm diameter, 23mm overall length.



Type	Order code	1+	25+	100+	500+
2.5V, 0.2A MES lamp	41-0120	0.09	0.08	0.055	0.044
3.5V, 0.3A MES lamp	41-0125	0.09	0.08	0.055	0.044
6.0V, 0.06A MES lamp	41-0105	0.09	0.08	0.06	0.046
12.0V, 2.2W MES lamp	41-0110	0.09	0.08	0.06	0.046

Miniature lamps

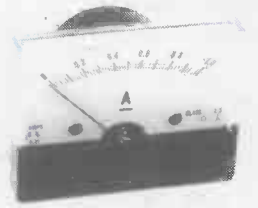
Miniature lamps of 3mm diameter for use in miniature equipment and circuits with leads 150mm in length for easy connection to circuits. Rated 6V 60mA.



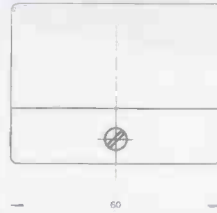
Type	Order code	1+	25+	100+	500+
Wire ended lamp	41-0150	0.15	0.13	0.11	0.095

Panel meters

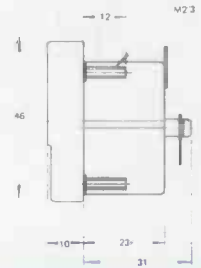
A wide range of cost effective panel meters with a modern uncluttered appearance. Cutout size 38mm. A wide range of sensitivities is offered.



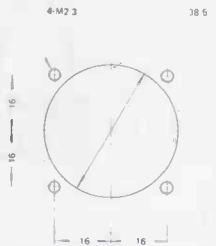
FRONT VIEW



SIDE VIEW



PANEL CUT OUT



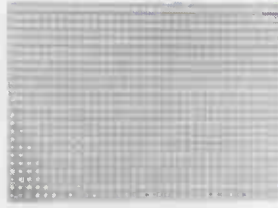
Type	Int. res.	Order code	1+	10+
0-50 μ A	2K3	48-0100	4.50	3.90
0-100 μ A	1K2	48-0105	4.50	3.90
0-500 μ A	360 ohms	48-0110	4.50	3.90
0-1mA	100 ohms	48-0115	4.50	3.90
0-10mA	6 ohms	48-0120	4.50	3.90
0-50mA	1.2 ohms	48-0125	4.50	3.90
0-100mA	0.6 ohms	48-0130	4.50	3.90
0-500mA	0.12 ohms	48-0135	4.50	3.90
0-1A	—	48-0140	4.50	3.90
VU	7K5	48-0145	4.50	3.90
300V AC	30K	48-0150	4.50	3.90
50V AC	50K	48-0155	4.50	3.90
25V DC	25K	48-0160	4.50	3.90
30V DC	30K	48-0165	4.50	3.90

Our new 7020 oscilloscope represents a true breakthrough in price and performance – see page 121.

PCB EQUIPMENT

Stripboard

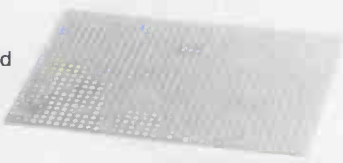
Full pierced Stripboard is used for prototype and development work and may be readily cut to the size of the finished circuit. Provides a simple form of printed circuit with the copper strips forming the interconnections which may be cut where necessary. Manufactured from copper clad laminated board. All boards are punched on a 0.1in pitch.



Board size (mm)	Tracks No.	Holes	Order code	1+	10+	50+	100+
25x64	9	25	34-0500	0.16	0.14	0.12	0.10
64x95	24	37	34-0505	0.50	0.45	0.38	0.30
95x127	36	50	34-0515	0.95	0.85	0.70	0.60
95x432	36	170	34-0535	3.75	3.20	2.50	2.25
119x455	46	179	34-0540	4.50	3.80	3.00	2.70

Matrix Board **NEW**

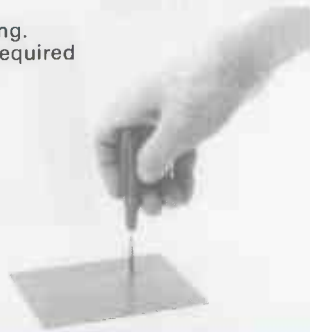
Similar to stripboard above but without copper strips. Manufactured in SRBP punched on a 0.1in grid to accept terminal pins detailed. May be readily cut to the size of the finished circuit.



Board size (mm)	Holes	Order code	1+	10+	50+	100+
95x127	36x50	34-0585	0.70	0.64	0.50	0.42
95x432	36x170	34-0590	2.60	2.40	1.85	1.60
119x455	46x179	34-0595	3.25	3.00	2.30	2.00

Stripboard tools

Stripboard cutter for simple track cutting. Insert tool at the point where break is required and twist clockwise.



Type	Order code	1+	10+	50+
Stripboard cutter	34-0600	1.30	1.15	1.05

Terminal pins

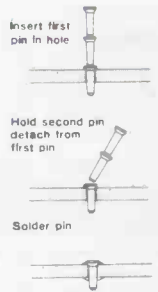
Press fit terminal pins for use with stripboard. Supplied in packs of 100.



Type	Order code	1+	10+
Single sided pins	34-0610	0.35	0.30
Double sided pins	34-0615	0.65	0.65

Track pins

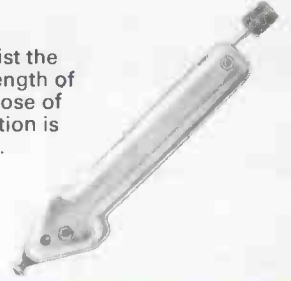
Track pins provide an economical alternative to through hole planting and may be used to connect tracks on either side of the board or as a terminal for components. Pins are 3.48mm long to suit 1mm holes. Pins are supplied in continuous strip form in boxes of 500 or 2500 with approx. 60 pins per strip. Manufactured from brass and finished in lead/tin plate over nickel.



Type	Order code	1+
Box of 500 track pins	34-0630	3.90
Box of 2500 track pins	34-0635	15.80

Track pin insertion tool

A small lightweight insertion tool to assist the insertion of track pins. Will accept any length of pin by simple screw adjustment to the nose of the tool. Positive indexing with 'click' action is very easily achieved using thumb/finger.

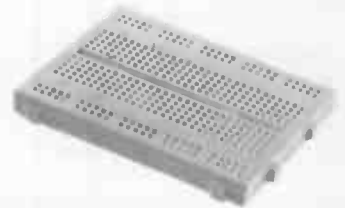
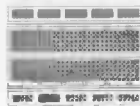


Type	Order code	1+
Pin insertion tool	34-0640	17.70

Protobloc prototyping boards

Protobloc is a prototyping system offering a fast and economical method for circuit construction and development. The system is completely solderless in concept thus allowing components to be used time and time again. Components are plugged into the board and are retained by double leaf spring contacts. By spacing sockets on a 2.54mm matrix all dual-in-line integrated circuits, plus many other components such as resistors, capacitors, switches and LEDs can simply be plugged into the board. An ideal system for the teaching of electronic systems and circuit design.

Protobloc 1

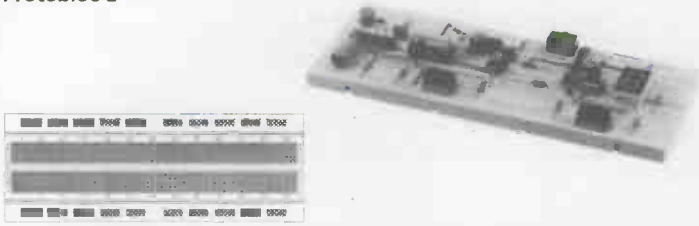


Protobloc 1 has a total of 400 tie points consisting of two sets of 30 rows of 5 interconnected contact sockets plus 4 rows of 25 interconnected sockets running alongside, suitable for use as power supply rails. All contact positions are clearly defined on an alphanumeric grid. ABS polymer board mounted on an adhesive foam base. Will accommodate up to three 16 pin devices. An ideal introduction to solderless circuit development systems.

	Order code	1+	10+	50+	100+
Protobloc 1	34-0650	1.90	1.70	1.50	1.40

PCB EQUIPMENT

Protobloc 2



Protobloc 2 has a total of 840 tie points consisting of two sets of 64 rows of 5 interconnected contact sockets plus 4 rows of 50 interconnected sockets running alongside, suitable for use as power supply rails. All contact positions are clearly defined on an alphanumeric grid. ABS polymer board mounted on an adhesive foam base. Will accommodate up to seven 16 pin devices. Additional clip-together contact socket sets are available – see below.

	Order code	1+	10+	50+	100+
Protobloc 2	34-0655	3.15	2.80	2.50	2.35

2T and 2D socket sets



Additional socket sets which clip into Protobloc 2 (above). 2T consists of two sets of 64 rows of 5 interconnected contact sockets accommodating up to seven 16 pin integrated circuits. 2D consists of 2 rows of 50 interconnected sockets suitable as supply rails, etc. ABS polymer board mounted on an adhesive foam base.

	Order code	1+	10+	50+	100+
2T socket set	34-0670	2.10	1.85	1.65	1.55
2D socket set	34-0675	0.60	0.50	0.45	0.40

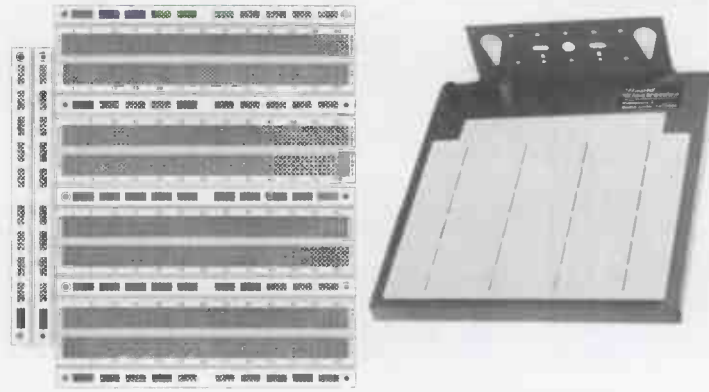
Protobloc 2A



Protobloc 2A has a total of 840 tie points consisting of two sets of 64 rows of 5 interconnected contact sockets plus 4 rows of 50 interconnected sockets running alongside, suitable for use as power supply rails. All positions are clearly defined on an alphanumeric grid. The ABS polymer board is mounted onto a rigid base plate complete with three 4mm terminals in red, black and green for power connections. A mounting bracket which clips into the base is also provided to accept a variety of components including switches and potentiometers, etc.

	Order code	1+	10+	50+	100+
Protobloc 2A	34-0660	5.50	4.80	4.20	3.90

Protobloc 3



Protobloc 3 has a total of 3260 tie points consisting of four sets of 64 rows of 5 interconnected contact sockets plus 14 rows of 50 interconnected sockets running alongside, suitable for use as power supply rails. All positions are clearly defined on an alphanumeric grid. The ABS polymer board is mounted onto a rigid base plate complete with four 4mm terminals for power connections. A mounting bracket which clips into the base is also provided to accept a variety of components including switches and potentiometers, etc.

	Order code	1+	10+	50+	100+
Protobloc 3	34-0665	18.20	16.50	14.30	13.40

Protobloc 4 **NEW**



Protobloc 4 has a total of 2320 tie points consisting of three sets of 64 rows of 5 interconnected contact sockets plus 8 rows of 50 interconnected sockets running alongside, suitable for use as power supply rails. Incorporated into the base plate are male and female RS232 connectors terminated to contact sockets to enable easy interface with computer systems, etc. The base plate also includes four 4mm terminals and a mounting bracket which clips into the base to accept a wide variety of components including switches and potentiometers, etc.

	Order code	1+	10+	50+	100+
Protobloc 4	34-0680	23.90	22.00	19.80	18.50

PCB EQUIPMENT

Protobloc 5 **NEW**



Protobloc 5 has a total of 4640 tie points consisting of six sets of 64 rows of 5 interconnected contact sockets plus 16 rows of 50 interconnected contact sockets running alongside, suitable for use as power supply rails. Incorporated into the base plate are male and female RS232 connectors terminated to contact sockets to enable easy interface with computer systems, etc. The base plate also includes four 4mm terminals and a mounting bracket which clips into the base to accept a wide variety of components including switches and potentiometers, etc.

	Order code	1+	10+	50+	100+
Protobloc 5	34-0682	33.50	31.00	27.90	26.00

RS232 Connector **NEW**

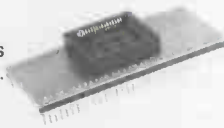
A stand alone RS232 connector for use with any of the above Protoblocs comprising 25 way male and female D connectors terminated to contact sockets for easy interconnection to components mounted on a Protobloc board. Pin numbers are clearly marked on the contact sockets.



	Order code	1+	10+	50+	100+
RS232 connector	34-0642	6.80	6.30	5.60	5.20

PLCC test boards **NEW**

A new range of test boards designed to accommodate chip carriers to enable solderless prototyping with the Protobloc range of boards. This range of test boards permits fast access to SMD components and eliminates the time consuming and expensive building of permanent connections to test, evaluate and improve circuits being designed. Each chip carrier is mounted onto a fibre glass PCB, each contact is terminated to a clearly identified pin, and the entire PCB plugs into the Protobloc board. Available for 28, 44 and 68 pin devices.



	Order code	1+	10+	50+	100+
28 pin board	34-0645	5.30	5.00	4.50	4.20
44 pin board	34-0646	7.20	6.70	5.90	5.50
68 pin board	34-0647	10.70	9.90	8.80	8.25

Jumper links for Protoblocs

A range of jumper links for use with Protobloc prototyping boards. Specially designed plugs are employed which significantly extends the life of the connector. Available in a range of sizes which are also colour coded for easy identification. Supplied in packs of 10.



Type	Order code	1+	10+
50mm jumper link	34-0450	1.20	1.10
70mm jumper link	34-0455	1.40	1.25
100mm jumper link	34-0460	1.50	1.35
150mm jumper link	34-0465	1.70	1.50
200mm jumper link	34-0470	1.90	1.60

Jumper wires for Protoblocs

A range of jumper wires and jumper wire kits for use with the Protobloc range of boards. Available in packs of individual sizes or supplied as a kit in an attractive hinged case. Different sizes are colour coded for easy identification. Wires are stripped and bent at 90° at both ends. Pack contents 50 jumper wires.



Type	Order code	1+	10+	50+
Pack 0.1in (uninsulated)	34-0400	0.28	0.22	0.18
Pack 0.2in red	34-0401	0.40	0.35	0.30
Pack 0.3in orange	34-0402	0.40	0.35	0.30
Pack 0.4in yellow	34-0403	0.40	0.35	0.29
Pack 0.5in green	34-0404	0.45	0.36	0.30
Pack 0.6in blue	34-0405	0.48	0.38	0.34
Pack 0.7in violet	34-0406	0.48	0.38	0.34
Pack 0.8in grey	34-0407	0.50	0.40	0.35
Pack 0.9in white	34-0408	0.50	0.40	0.35
Pack 1.0in brown	34-0409	0.65	0.51	0.46
Pack 2.0in red	34-0410	0.68	0.55	0.49
Pack 3.0in orange	34-0411	1.00	0.80	0.72
Pack 4.0in yellow	34-0412	1.05	0.84	0.75
Pack 5.0in green	34-0413	1.10	0.87	0.79

Jumper wire kit

A kit of pre-stripped jumper wires for use with Protobloc prototyping boards. Housed in an attractive hinged plastic case. Total contents 350 jumper wires. A wide range of sizes are offered in a variety of colours for easy identification. All preformed to suit boards. Kit contents: 25 pieces each 0.1in, 0.2in, 0.3in, 0.4in, 0.5in, 0.6in, 0.7in, 0.8in, 0.9in, 1in, 2in, 3in, 4in and 5in.



	Order code	1+	10+	50+
Jumper wire kit	34-0495	4.55	3.80	3.30

Plain copper clad board

High quality 305g/m copper clad boards in epoxy glass material. Thickness 1.6mm. Suitable etchant ferric chloride solution - see below.



Eurocard size	Order code	1+	20+	50+
Single sided				
100x160	34-0800	0.70	0.60	0.48
233.4x160	34-0805	1.20	1.10	0.90
100x220	34-0810	0.85	0.75	0.60
233.4x220	34-0815	1.60	1.40	1.15
Double sided				
100x160	34-0820	0.75	0.65	0.53
233.4x160	34-0825	1.30	1.15	0.96
100x220	34-0830	0.95	0.80	0.65
233.4x220	34-0835	1.75	1.55	1.28
Other sizes				
Single sided	Order code	1+	20+	50+
203x95	34-0360	0.80	0.72	0.60
203x305	34-0365	2.00	1.80	1.45
Double sided				
203x95	34-0840	0.90	0.82	0.68
203x305	34-0845	2.20	1.90	1.58

PCB EQUIPMENT

Photo etch PCB

Photo resist boards in FR4 epoxy glass coated with positive working UV sensitive resist. Boards are supplied with a protective black plastic film. See below for suitable developer and etchant.



Single sided				
Size (mm)	Order code	1+	10+	50+
100x160	34-0305	1.80	1.68	1.44
100x220	34-0310	2.60	2.30	2.08
203x114	34-0315	2.60	2.35	2.08
233.4x220	34-0320	5.60	5.10	4.50
305x457	34-0345	11.80	10.70	9.45
Double sided				
Size (mm)	Order code	1+	10+	50+
100x160	34-0325	2.00	1.90	1.60
100x220	34-0330	2.90	2.65	2.35
203x114	34-0335	3.02	2.70	2.42
233.4x220	34-0340	6.40	5.85	5.12
305x457	34-0350	13.20	11.70	10.60

Economy photo etch PCB

A lower cost alternative to the FR4 material above, manufactured in FRG-50 laminate with positive working UV sensitive resist. Boards are protected by a black plastic film. Particularly suited to educational users.

Not recommended for professional use. See below for suitable developer and etchant.



Single sided				
Size (mm)	Order code	1+	10+	50+
100x160	34-0205	1.45	1.30	1.05
100x220	34-0210	1.80	1.60	1.35
203x114	34-0215	1.85	1.65	1.35
233.4x220	34-0220	4.00	3.60	2.95
305x457	34-0245	9.80	8.80	7.20
Double sided				
Size (mm)	Order code	1+	10+	50+
100x160	34-0225	1.75	1.55	1.30
100x220	34-0230	2.15	1.95	1.60
203x114	34-0235	2.20	1.95	1.60
233.4x220	34-0240	4.90	4.35	3.60
305x457	34-0250	12.00	10.75	8.85

Polifix block

The polifix block is a specially formulated, ultra-fine non metallic polishing compound carried in an elastic bonding material which cleans, degreases and polishes in one simple procedure. To use simply polish back and forth in straight lines and wipe clean with a clean cloth to remove traces of the abrasive. Size 30x40x20mm.



	Order code	1+	10+
Polifix block	34-0295	1.10	0.98

Brass wire brush

A general purpose brass wire brush ideal for cleaning terminals and printed circuit boards prior to soldering.



	Order code	1+	10+
Brass wire brush	34-0290	0.60	0.50

Seno GS etching system



The Seno GS etching system offers a new level of safety, convenience, cleanliness and efficiency to the etching of one-off PCBs. Offered as a complete kit the GS system comprises of a sealable etching sleeve, measuring tube, etch chemicals in pellet form, leakproof storage box and neutraliser – sufficient to etch at least twelve 100x160mm Eurocards. The system is unique in allowing etching to take place in a sealed system, thus protecting the user from the obvious dangers and mess associated with common etchants. It allows a constant visual check to be maintained on the rate of etching, a process which is simply accelerated by heating under a warm tap. Between applications the etching solution is stored in a totally safe leakproof box. When the etching solution is exhausted simply add the neutraliser, seal and mix. Two hours later the pack is a hard, neutral mass ready for disposal straight into the dustbin.

	Order code	1+	10+
Seno etching system	34-0385	5.70	5.20

Polypropylene tray



A simple easily handled polypropylene tray suitable for developing and etching printed circuit boards. Overall size 325x225x50mm with carrying lips.

Type	Order code	1+
Polypropylene tray	34-0745	1.10

PCB chemicals

Ferric chloride etchant in crystalline form. Pack sufficient to produce 500ml of concentrated solution.

	Order code	1+	25+
Etchant	34-0390	1.10	0.95

Developer crystals for use with our photo resist board. Pack sufficient to produce 500ml solution.

	Order code	1+	25+
Developer	34-0395	0.50	0.44

Schools, colleges, Government departments and public-quoted companies have automatic account facilities. Orders may be placed for immediate despatch.

PCB EQUIPMENT

PCB chemicals

The following chemicals have been especially formulated and recommended for use with our processing tanks and the Tri-Tank system. It is recommended that care is taken when mixing or handling the chemicals and that protective clothing including goggles be worn. In the case of eye contact or swallowing, a doctor should be consulted.

Developer solution concentrate

A new formulated developer solution useable with all alkaline developed, positive photo resists and fully aqueous dry film photo resists. Solution not only gives a long tank life and fast developing times but also offers an extremely high safety margin against over development of at least 1:50, i.e. the board can remain in the solution for 50 times as long as is necessary for development without affecting the result. Supplied as 1.0 litre liquid concentrate to make 5 litres of working solution. Contains no NaOH making it safer to use.

Etchant crystals

2.5Kg pack of etchant crystals in container to make 5 litres of working solution.

New immersion powder

A new specially developed product for depositing resistant tin surfaces. This unique tin powder is mixed with warm 50 deg C water, allowed to cool and used at room temperature, no heated tanks are required. This low operating temperature allows very small tin molecules to be deposited giving a very smooth hard surface. This is also the only immerse tin in the world to plate tin on tin. The longer the board is left immersed the thicker the deposit, 1.5 to 2.0 microns in first half an hour and 4.5 microns in up to two hours. Working solution will last up to 6 months, unmixed powder has unlimited shelf life. Supplied in powder form to make 1 litre of immerse tin solution. Typical coverage for 1.5 to 2.0 micron thickness of tin would be 5 to 6 sq. feet of board.

Universal solvent

A general purpose non-toxic water miscible solvent. May be used for cleaning glass, PVC, ABS, perspex, etc. Solvent removes unwanted solder flux from PCBs and strips photo resist from etched boards. May also be used to remove protective seal from Gedakop anodised aluminium sheets. Supplied in a 50ml bottle.

Type	Order code	1+
Developer solution	34-0790	7.50
Etchant crystals	34-0785	8.50
Resist strip solution	34-0780	13.05
Immerse tin powder	34-0775	8.90
Universal solvent	34-0778	1.30

PCB production kits

A range of kits for the production of printed circuit boards using ultra-violet techniques. Three options are offered: a basic kit comprising drafting transfers, etching tray, etching kit and printed circuit boards; a kit comprising all materials plus UV exposure unit, and a complete kit comprising all materials plus UV exposure unit and PCB drill, stand and power supply. The kits are intended as an introduction to photo etch PCB production and include comprehensive instructions enabling the complete novice to obtain excellent quality PCBs with minimum effort.



Kit A contents:

1	Artwork drafting pack	34-0795
6	Assorted sheet transfers	—
1	Artwork spatula	34-0285
3	100x160mm single sided photo PCB	34-0305
1	203x114mm single sided photo PCB	34-0315
1	Pollifix block	34-0295
1	Polypropylene chemical trays	34-0745
2	Developer crystals	34-0395
1	Seno GS etching kit	34-0385

Kit B contents:

1	Kit A as above	
1	UV exposure unit	34-0700

Kit C contents:

1	Kit B as above	
1	Precision PCB drill	85-0354
1	Precision PCB drill stand	85-0360
1	Power supply/speed control for drill	85-0365
2	0.8mm drill	85-0450
2	1.0mm drill	85-0455
1	1.4mm drill	85-0460

	Order code	1+	5+
Kit A	34-0685	21.30	20.50
Kit B	34-0690	82.50	79.00
Kit C	34-0695	145.00	135.50

PCB EQUIPMENT

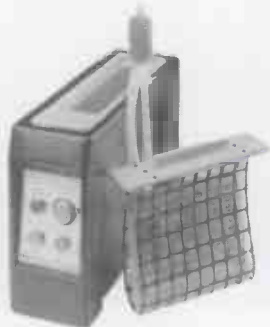
Bubble etch tank **NEW**



A new economically designed and manufactured bubble etch tank employing features generally found on more expensive units. The tank is manufactured in glass which permits visual inspection of boards whilst etching is taking place. The unit is completely free standing and is supplied with a tray to catch any spillage of etchant of the PCB. A 100W heater is fitted into the tank to improve etch efficiency. A lid to the tank with two adjustable PCB guides enables a variety of PCB sizes to be accommodated to a maximum of 200x250mm. A thermometer is also provided to check optimum etching temperature (40 to 45 deg C for ferric chloride). This unit is supplied in unassembled form complete with comprehensive fixing instructions. Assembly time is approximately 10 minutes.

	Order code	1+	5+	10+
Bubble etch tank	34-0755	69.50	63.50	58.50

Individual PCB processing tanks



A new series of PCB process tanks featuring many sensible updates and improvements over a proven and successful design. Tanks have been designed for the rapid production of PCBs from photo resist coated, copper-clad boards. Each process unit is self contained, free standing and will accept boards up to 320x260mm (12.6in x 10.23in). Each unit is formed in two parts, the high density inside tank is moulded as a single piece thus eliminating the risk of leaks or splits from any welds. The inside tank has an integral top surround which secures over the rigid outer moulded protected case and a splash-proof lid with board holder mesh, covers the working area of 5 litre capacity. For added safety the inside tank is bolted to outer case at the bottom of the unit which must be removed before any access to electrical components may be achieved. Where applicable the specially developed 500W heater with protective silica sheath is externally mounted in the tank, as is the thermostat sensor, and all splash-proof electrical controls including variable thermostat setting are located in a recessed panel on the case front.

Bubble etch tank

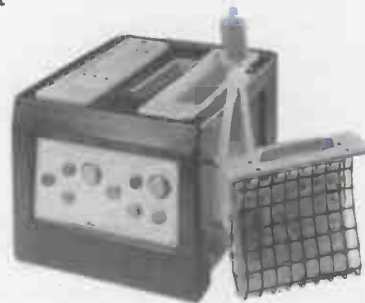
This tank includes the heater and thermostat sensor as described above and has a fitted pump which forces air through two bubble bars to provide efficient and even etching. Separate illuminated switches control mains power and the pump, and a neon indicates heater operative. The switches and neon have splash-proof covers. The temperature is set by adjusting the variable thermostat control knobs. (Optimum for ferric chloride 40-45 deg C.) Supplied with syphon and 2 metres of mains lead with IEC plug and sleeved pin 13A mains plug fused at 5A.

Bubble etch/spray wash tank

A sensible and cost effective improvement on a bubble tank. This unit is the same as the above except that it includes an integral spray wash tank. The spray wash is solenoid operated and all electrical controls are on the front panel. Connections are provided at the rear for drain and cold water requirements. The integral spray wash tank offers safer and cleaner etching of boards than single bubble etch tanks, and being wider gives greater stability.

Type	Order code	1+	3+
Bubble etch tank	34-0760	162.00	155.00
Bubble etch/spray wash	34-0764	202.00	193.00
Universal tank	34-0770	132.00	127.00
Replacement heater	34-0761	23.50	22.50
Replacement lid/basket	34-0762	5.00	4.50

Tri-tank unit

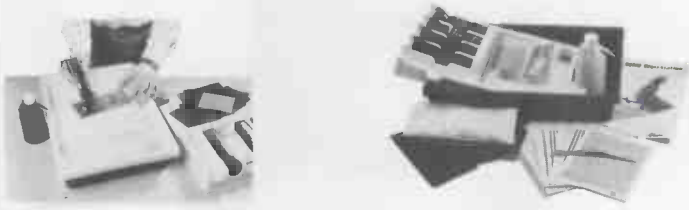


A completely self-contained three-tank system for the production of printed circuit boards. The unit provides a heated develop tank and an integral spray wash tank and bubble etch and wash unit as above. The control switches, neons and variable thermostat controls for the develop (20-25 deg C) and etch (40-45 deg C) tanks are mounted on a recessed front panel in the moulded outer case. Connections are provided at the rear for drain and cold water requirements as well as mains input fused IEC socket. Supplied complete with 2 syphons and 2 metres of mains cable with IEC plug and sleeved pin 13A mains plug fused at 5A.

	Order code	1+	3+
Tri-tank system	34-0765	330.00	310.00

PCB EQUIPMENT

Seno workstation



The Seno workstation represents a totally new and unique concept for the production of prototype printed circuit boards employing photo etch techniques. It is the ultimate in simplicity, yet embodies all of the components necessary for the design and production of high quality printed circuit boards. Moreover, it utilises chemicals which are completely safe, and which may be disposed of by conventional means.

The workstation comprises:

- Combined storage/processing trays
- 5 assorted etch resist transfer sheets
- Drafting material and spatula
- 5 assorted sizes of photo resist board
- Seno applicators – develop, photo resist strip, de-ox, flux
- Etching bag complete with neutraliser
- Polifix block
- Spray wash bottle
- Disposable gloves
- Tissues

Cleverly designed processing trays obviate the need for a mains water supply, and provide an effective, economical and convenient substitute for the processing tanks conventionally used in PCB production environments. All chemicals are contained in simple to use disposable applicators. The chemicals are themselves non-hazardous and non-toxic, and do not require special disposal procedures or precautions to simplify the use of chemicals and to remove problems associated with their disposal. The system is packed in an enclosed tray, designed to conform to the current school racking systems, for easy storage. Supplied with comprehensive processing instructions.

	Order code	1+	5+	10+
Seno PCB workstation	34-0090	45.00	43.00	41.00

Seno applicators



The complete new range of Seno chemical applicators are available separately to those found in the Seno workstation. The range of applicators contain ready to use, room temperature chemicals, completely sealed in a container terminated by a sponge with valve mechanism which dispenses precisely the right quantity of chemicals on each board. When not in use the sponge is protected by a cap. All applicators are waste-free and completely safe, when exhausted they can be thrown away just like any other refuse. There is no need for special precautions to be taken when using these applicators since each mixture is non-hazardous – for instance, the developers are totally free from sodium hydroxide. Each applicator has a shelf life of two years.

The range of applicators available, which offer a real alternative to mixing hazardous chemicals in trays and tanks, are:

SN110 Normal developer applicator – develops all alkaline positive working photo resists.

SN111 Soft developer – as the normal developer but for the spray-on photo resists or very freshly applied photo resist.

SN100 Photo resist applicator – easily applied, very quick drying, positive working photo resist.

SN120 Resist strip – removes photo resist after etching.

SN130 De-Ox applicator – provides protective flux to copper surfaces as well as giving good solderability.

Type	Order code	1+	5+
SN110 Developer	34-0050	4.65	4.35
SN111 Soft developer	34-0055	4.65	4.35
SN100 Photo resist	34-0060	5.85	5.45
SN120 Resist strip	34-0065	4.65	4.35
SN130 De-Ox	34-0070	4.65	4.35

Ultraviolet exposure unit with timer



An ultraviolet exposure unit for use in the preparation of photo resist circuit boards. 1:1 artwork, consisting of Alfaco opaque transfers on translucent drafting film, is placed on the glass screen and the photo-sensitive material is placed on top. The exposure unit lid incorporates a foam pad which exerts an even pressure to hold the artwork and photo board in close contact when closed. Exposure automatically commences when the six minute mechanical timer is rotated to the correct expose time. Exposure area is 240x165mm. Incorporates two 8W actinic UV tubes, mains on/off switch and indicator, mains cable and sleeved 13A plug. Full instructions for developing and etching photo resist PCBs are included.

Type	Order code	1+	5+
UV exposure unit	34-0700	61.50	58.50

PCB EQUIPMENT

Medium UV exposure unit

A large ultraviolet exposure unit for use in the preparation of photo resist circuit boards and front panels and labels. Exposure area is 330x260mm (13x10in) making the unit suitable for most PCBs. Complete with solid state timer set to 7½ minutes. Controls include mains on/off switch and indicator, UV light start switch and indicator which goes off when exposure complete and calibrated timer set knob. Incorporates 4x15W actinic UV tubes and is complete with 2 metres of mains lead and full instructions.



Type	Order code	1+	5+
Medium UV exposure unit	34-0705	152.00	145.00

Tubes in lid UV unit

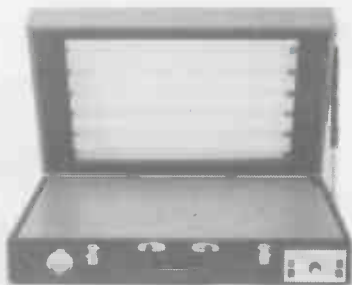
A large area ultraviolet exposure unit recently developed to satisfy those situations where positioning of artwork overlays is critical and is more easily achieved by placing them on top of the photo-sensitive material. Thus the tubes are contained behind a glass plate in the lid and the pressure pad is supported in the base. Working area 381x349mm (15x13¾in). Unit contains six 15W UV tubes. Air vents in lid and base and a carrying handle are fitted as standard. Complete with 7½ minute timer, 2 metres of mains lead and full instructions.



Type	Order code	1+	5+
Tubes in lid UV unit	34-0730	198.00	188.00

Vacuum UV unit

When using large areas to be exposed or sub-standard artworks, and/or very fine line definition is required, the positive contact provided by a vacuum sucking the artwork firmly onto the photo-sensitive material, is essential. The basic concept is similar to 34-0730 unit with tubes in the lid, except the glass has been replaced by a slide-in-frame across which a strong, embossed mylar film is stretched. A rectangular open cell rubber gasket 4mm thick is then attached over the film which when the lid is closed, presses firmly onto a solid red formica shelf in the base – thus making an air-tight working area which can be exhausted by the diaphragm vacuum pump. This action tends to suck the mylar film on and around the artwork/material ensuring a perfect contact over its whole area and a bleed valve provides for a 'softer' vacuum when demanded, and an instant vacuum release. Working area 512x364mm (20¼x14½in) including the vacuum pip which reduces each dimension by 12mm. Unit contains 6x40W tubes, a solid state 7½ minute timer and 2 metres of mains lead.



Type	Order code	1+	3+
Vacuum UV unit	34-0735	380.00	350.00

Double sided vacuum UV unit

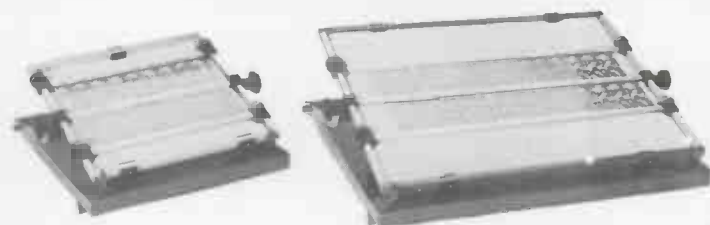


Basically combines tubes in base with a vacuum lid, so that closing the lid seals two working areas, which when exhausted by the vacuum pump, act to suck – 1) the material down onto lower artwork and 2) the mylar film on and around the upper artwork/material, so that the material is positively sandwiched.

The front panel mounted controls consist of: ON/OFF button with integral indicator, fuse holder, pump ON/OFF button with integral indicator, vacuum dial, ON/OFF button with integral indicator for when both sets of tubes are required, calibrated timer set knob UV start button with separate indicator button which shows when set expose starts and timing is finished. Thus the unit can be varied from single to double sided exposures by pressing one control button. Air venting inserts are provided in both base and the gas hinged lid and non-critical areas of the clear perspex shelf in the base are blacked out. There are 6x20W instant start tubes in base and lid and the solid state timer is graduated to 7½ minutes. Working area is 512x364mm (20¼x14½ in) and overall dimensions 605x675x175mm. Weight 23Kg.

Type	Order code	1+	3+
Double sided vacuum unit	34-0740	495.00	465.00

PCB assembly jigs



A range of PCB assembly jigs for holding printed circuit boards during assembly, ideal for prototyping or small batch production. The jigs are supplied complete with centre and two sliding rails which can be adjusted to accommodate a wide range of PCB sizes. The board retention bars are spring-loaded to facilitate easy insertion and removal of PCBs – essential in a busy production environment. A hinged lid coated with 25mm thick non-conductive anti-static foam with adjustable height controls accepts a wide range of component sizes and shapes. Upon closing the lid all components are held firmly in position allowing the workframe to be inverted, component leads can be cut (see hand tool 85-0295, page 125), and then soldered.

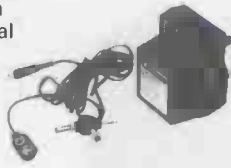
Type	Max. capacity	Max. capacity with centre rail	Order code
PCSS-1	270x220mm	270x110+270x100mm	34-3500
PCSS-4	500x350mm	500x175+500x165mm	34-3505

Type	Order code	1+	5+
PCSS-1	34-3500	49.50	47.50
PCSS-4	34-3505	69.50	66.50

POWER SUPPLIES

Miniature 300mA regulated power supply

A mains powered fully regulated power supply housed in a moulded case which plugs directly into a 13A mains socket. The stabilised output may be switched between 6, 7.5, 9 and 12V at up to 300mA. An internal thermal fuse is incorporated for overload protection. Ideal for replacing batteries in many instruments. Reversible polarity output lead fitted with a four-way spider connector and PP3 battery connector.



Technical specification

Supply voltage	240V AC 50Hz
Output voltage	6, 7.5, 9, 12V DC
Output current	300mA
Stability	2%
Ripple	10mV
Dimensions	82x58x60mm

	Order code	1+	10+	50+
Miniature 300mA supply	85-1680	4.80	3.90	3.50

Power supply modules 5V 1A

With the introduction of electronics into most GCSE Physics and Science syllabuses, the need for cost effective electronics power supplies is clear. This unit can be easily fitted inside most standard school lab. packs (e.g. Linstead, Unilab, etc.) to supply a short circuit proof stabilised output adjustable over the range 4.5–8.5V via an on-board preset. Two units may be linked to provide a split rail supply for op. amp. work. Full lab. pack facilities are retained and the unit, when fitted, is tamperproof and independent of the lab. pack settings. Fixing is via the output jack socket (output jack supplied). Fitting entails two solder joints and the drilling of one 12mm hole (full fitting instructions supplied). Supplied fully tested.



	Order code	1+	10+
Power supply modules	85-1670	7.50	6.50

Regulated power supply

A high quality regulated power supply capable of supplying up to 30V at a maximum of 3A, ideally suited to laboratory, test and educational environments. Both voltage and current settings are displayed on large, clear analogue meters. Output voltage is set by adjustment of 'coarse' and 'fine' controls. Output current limiting is fully adjustable up to 600mA and up to 3A by control and slide switch selecting range. Output is via colour coded 4mm terminals; an earth terminal is also included. The sturdy steel case includes a carrying handle. Supplied complete with mains lead, and 4mm power lead terminated by crocodile clips. Dimensions 216x155x260mm.



Technical specification

Output voltage	0 to 30V DC
Output current	0 to 3A
Regulation Line	0.01% ±2mV max.
Load	0.01% ±3mV max.
Ripple	0.5mV max.

	Order code	1+	2+
30V 3A power supply	85-1700	66.00	59.80

Digitally metered power supplies



A range of professional digitally metered power supplies offered as single or dual output providing 30V at up to 2A output. The supplies will operate in constant voltage modes which are continually displayed on twin LCD displays. An output switch isolates the output and permits the voltage and current limits to be set before connecting the load. Output is via 4mm terminals on 19mm spacing. The dual supply has two identical and independent 30V 2A supplies in the same case. Supplied complete with full instructions. A comprehensive service manual is also available.

Supplied to Rapid by Thandar Electronics

Technical specification

Supply voltage	110V, 120V, 220V or 240V 50/60Hz
Voltage range	0V to 30V
Current range	0A to 2A
Load regulation	<0.01% of max. output for 50% load change
Line regulation	<0.01% of max. output for 10% line voltage change
Ripple and noise	Typically <1mV rms
Meter accuracy	0.2% of reading +1 digit
Meter resolution voltage	10mV up to 20V
	100mV up to 20V
Current	1mA up to 2A
Dimensions Single:	160x160x238mm
Dual:	308x160x238mm
Weight Single:	4.9Kg
Dual:	9.6Kg

	Order code	1+	2+	5+
Single 2A 30V supply	85-1750	159.00	150.00	145.00
Dual 2A 30V supply	85-1755	299.00	280.00	270.00
Comprehensive service manual	85-1760	7.50	7.50	7.50

We offer customers an unbeatable service:

- ★ Ex-stock delivery
- ★ Immediate shipment of all orders
- ★ Lowest prices in the market
- ★ Over 4000 product lines

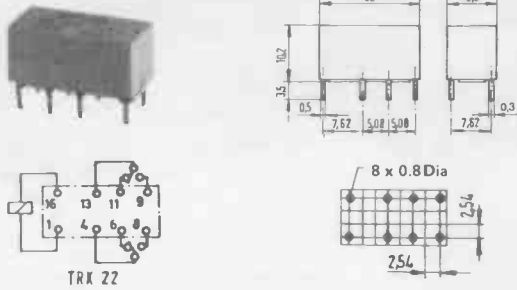
Contact us now with your requirements

● Subject to design change.

RELAYS

Ultraminiature relay DPDT 1.25A

An ultraminiature two pole changeover relay for signal switching with gold/silver overlaid palladium crossbar contacts and dual in-line pin configuration enabling the relay to be mounted in a 16 pin DIL socket. Fully sealed construction.



TRX 22

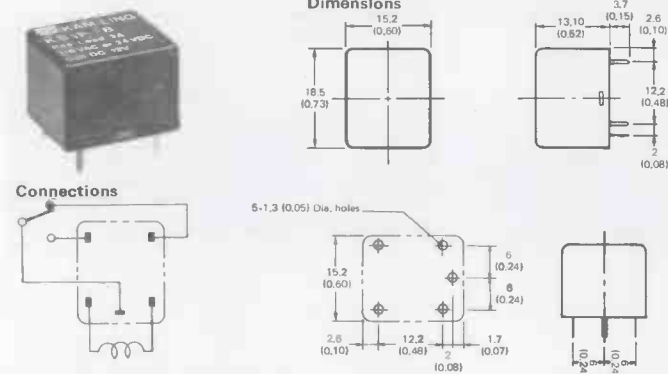
Technical specification

Contact rating	1.25A or 125V (50VA) (Silver palladium/gold clad)
Contact arrangement	2 DPDT changeover contacts
Coil voltages	5V and 12V DC
Operating life	10,000,000 no load or 500,000 max. load

Coil	Resistance	Order code	1+	25+	100+	500+
5V	45 ohms	60-0120	1.20	1.05	0.90	0.82
12V	270 ohms	60-0125	1.20	1.05	0.90	0.82

Ultraminiature relay SPDT 3A

A very low price, single pole changeover relay for low power use on printed circuit boards. Power consumption is typically 360mW.



Connections

5-1.3 (0.05) Dia. holes

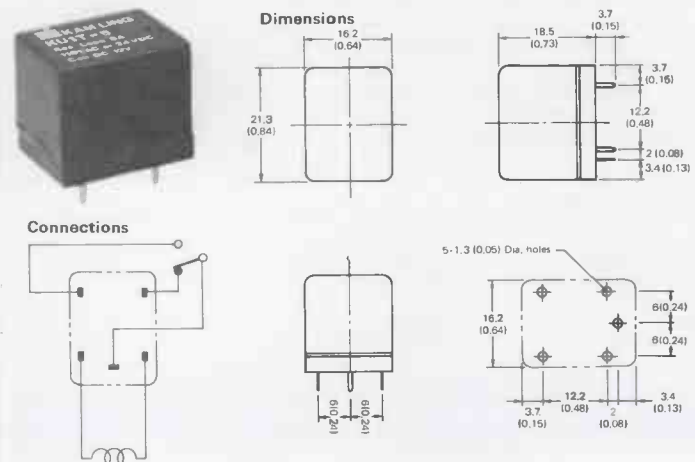
Technical specification

Contact rating	3A at 24V DC or 110V AC (80W) (AgCdO)
Contact arrangement	Single pole changeover
Coil voltages	6V and 12V DC
Pickup voltage	80% of rated voltage
Operating life	Mechanical: 1×10^7 operations min. Electrical: 1×10^5 operations (at max. load)

Coil	Resistance	Order code	1+	25+	100+	500+
6V	100 ohms	60-0300	0.50	0.40	0.33	0.28
12V	400 ohms	60-0310	0.50	0.40	0.33	0.28

Miniature relay SPDT 5A

A very low cost single pole relay for direct mounting to printed circuit boards. Very low power consumption typically 360mW. Flux tight construction. Equivalent to Fujitsu FBR111 and Omron LC1N.



Connections

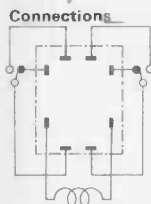
Technical specification

Contact rating	5A at 24V DC or 110V AC (80W)
Contact arrangement	Single pole changeover
Coil voltages	6V and 12V DC
Pickup voltage	80% of rated voltage
Operating life	Mechanical: 1×10^7 operations min. Electrical: 1×10^5 operations min.

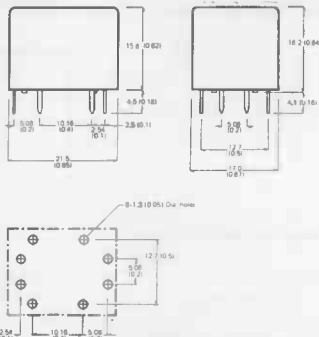
Coil	Resistance	Order code	1+	25+	100+	500+
6V	100 ohms	60-0350	0.55	0.48	0.40	0.34
12V	400 ohms	60-0360	0.55	0.48	0.40	0.34

Miniature relay DPDT 5A

A very low cost double pole changeover relay in a low profile package for mounting to printed circuit boards. Low power consumption typically 510mW. Flux tight construction.



Dimensions



Technical specification

Contact rating	5A at 24V DC or 110V AC (120W) (AgCdO)
Contact arrangement	Double pole changeover
Coil voltages	6V and 12V DC
Pickup voltage	75% of rated voltage
Operating life	Mechanical: 1×10^7 operations Electrical: 1×10^5 operations

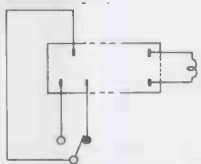
Coil	Resistance	Order code	1+	25+	100+	500+
6V	70 ohms	60-0400	0.90	0.80	0.65	0.56
12V	280 ohms	60-0410	0.90	0.80	0.65	0.56

Miniature relay SPDT 10A

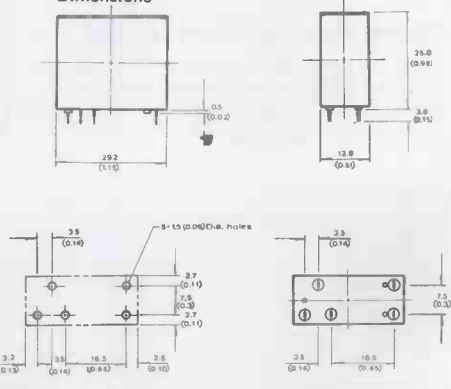
Vertical style miniature power relay with one changeover contact for PCB mounting. This relay conforms to VDE, SEV, UL and CSA and is pin for pin compatible with similiar European models. Flux tight construction. Equivalent to Fujitsu FBR611 and Omron G2R117PV.



Connections



Dimensions



Technical specification

Contact rating	10A at 24V DC or 240V AC (AgCdO)
Contact arrangement	Single pole changeover
Coil voltages	6V and 12V DC
Pickup voltage	75% of rated voltage
Operating life	Mechanical: 5×10^6 operations min. Electrical: 1×10^5 operations

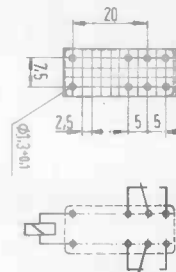
Coil	Resistance	Order code	1+	25+	100+	500+
6V	68 ohms	60-0160	1.10	0.95	0.80	0.68
12V	270 ohms	60-0165	1.10	0.95	0.80	0.68

Miniature relay DPDT 5A

Vertical style miniature power relay with two changeover contacts for PCB mounting. This relay conforms to VDE, SEV, UL and CSA and is fully compatible in pin configuration to similiar European models.



H: 25.5mm
W: 13mm
D: 29mm



Connections

Technical specification

Contact rating	5A at 240V AC or 240V DC
Contact arrangement	2 DPDT changeover contacts
Coil voltages	6V and 12V DC
Operating life	20,000,000 at no load or 100,000 at max. load

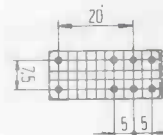
Coil	Order code	1+	25+	100+	500+
6V	60-0170	1.30	1.18	1.00	0.95
12V	60-0175	1.30	1.18	1.00	0.95

Miniature relay SPDT 16A

High power version of the above relays with a single set of changeover contacts.



H: 25.5mm
W: 13mm
D: 29mm



Connections

Technical specification

Contact rating	16A at 240V AC or 24V DC (AgCdO)
Contact arrangement	Single pole changeover
Coil voltages	6V and 12V DC
Operating life	100,000 operations at full 16A resistive or 8A inductive loads or 20,000,000 mech. operations

Coil	Order code	1+	25+	100+	500+
6V	60-0250	1.40	1.25	1.10	1.00
12V	60-0255	1.40	1.25	1.10	1.00

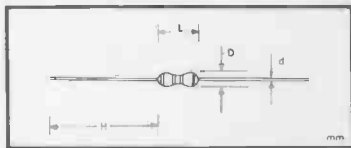
RESISTORS

CR25 carbon film resistors

High stability carbon film resistors type CR25 for industrial and consumer applications with greater stability than carbon composition types.



CR25
L max. 6.5
D max. 2.3
H nom. 30
d nom. 0.6



Technical specification

Wattage	0.25W at 70 deg C
Resistance range	4.7 ohms – 10M E12 Series*
Tolerance	5%
Max. working voltage	300V
Max. overload voltage	600V
Typ. temp. coeff. (ppm/deg C)	-400
Temperature range	-25 to +70 deg C

Supplied bandoliered on a 5mm spacing

Tin plated wires

Conformal multicoating

EIA Standard colour coding

Meets or exceeds EIA-RS-196A, JIS-C-6402 and IEC-115

Ordering information – order as CR25 + value

	1+	25+	1000+	5000+	1000+	25000+
CR25 0.25W	0.02	0.01	0.005	0.0035	0.0025	0.0022
			multiples of 100 per value		multiples of 1000 per value	

*E12 Series

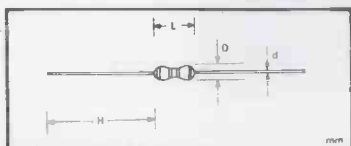
10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82 and decades thereafter.

CR50 carbon film resistors

High stability carbon film resistors type CR50 for industrial and consumer applications with greater stability than carbon composition types.



CR50
L max. 8.8
D max. 2.8
H nom. 27
d nom. 0.6



Technical specification

Wattage	0.5W at 70 deg C
Resistance range	4.7 ohms – 4M E12 Series*
Tolerance	5%
Max. working voltage	350V
Max. overload voltage	700V
Typ. temp. coeff. (ppm/deg C)	-400
Temperature range	-25 to +70 deg C

Supplied bandoliered on a 5mm spacing

Tin plated wires

Conformal multicoating

EIA Standard colour coding

Meets or exceeds EIA-RS-196A, JIS-C-6402 and IEC-115

Ordering information – order as CR50 + value

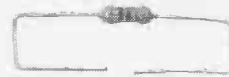
	1+	25+	1000+	5000+	1000+	25000+
CR50 0.5W	0.03	0.02	0.01	0.006	0.0045	0.0035
			multiples of 100 per value		multiples of 1000 per value	

*E12 Series

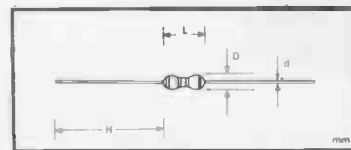
10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82 and decades thereafter.

MR25 carbon film resistors

A highly stable miniature metal film resistor type MR25 protected against adverse environmental conditions by multiple epoxy coatings. These resistors are recommended for use in sophisticated electronics equipment.



MR25
L max. 6.3
D max. 2.3
H nom. 28
d nom. 0.6



Technical specification

Wattage	0.25W at 70 deg C
Resistance range	10 ohms – 1M E24 Series*
Tolerance	1%
Max. working voltage	300V
Max. overload voltage	600V
Max. temp. coefficient	50 ppm per deg C
Typical noise	0.01 μV/V
Temperature range	-25 to +70 deg C

Supplied bandoliered on a 5mm spacing

Tin plated wires

Conformal multicoating

EIA Standard colour coding

Meets or exceeds EIA-RS-196A, JIS-C-6402 and IEC-115

Ordering Information – order as MR25 + value

	1+	100+	1000+	5000+	1000+	25000+
MR25 0.25W 1%	0.03	0.02	0.012	0.008	0.006	0.0045
			multiples of 100 per value		multiples of 1000 per value	

*E24 Series

10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91 and decades thereafter.

Wirewound resistors **NEW**

2.5W wirewound resistors wound on a ceramic former with flame retardant silicone resin coating. Equivalent to Welwyn W21 and Erg 74ER.



L 12 Dia. 5
Lead dia. 0.7

Value	Order code	1+	50+	500+
0.22 ohms	62-0100	0.12	0.09	0.077
0.33 ohms	62-0105	0.12	0.09	0.077
0.47 ohms	62-0110	0.12	0.09	0.077
1 ohm	62-0115	0.12	0.09	0.077
2.2 ohms	62-0120	0.12	0.09	0.077
4.7 ohms	62-0125	0.12	0.09	0.077
10 ohms	62-0130	0.12	0.09	0.077
22 ohms	62-0135	0.12	0.09	0.077
47 ohms	62-0140	0.12	0.09	0.077
100 ohms	62-0145	0.18	0.155	0.145
150 ohms	62-0150	0.18	0.155	0.145
220 ohms	62-0155	0.18	0.155	0.145

Schedule your order to obtain a better price break based on overall quantity ordered.

RESISTORS

SIL resistors **NEW**

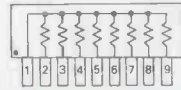
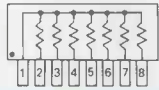
Thick film resistor networks mounted in a low profile resin-dipped package. Requires no preforming. Ideal for high density circuit design. Tolerance 5%. Max. working voltage 200V.



L 21 H 5.1 D 2.8
lead pitch 0.1 in.



L 23 H 5.1 D 2.8
lead pitch 0.1 in.



7-lead resistors

Value	Order code	1+	100+	1000+	5000+
100 ohms	63-0100	0.10	0.07	0.046	0.043
680 ohms	63-0105	0.10	0.07	0.046	0.043
1K	63-0110	0.10	0.07	0.046	0.043
2K2	63-0115	0.10	0.07	0.046	0.043
4K7	63-0120	0.10	0.07	0.046	0.043
10K	63-0125	0.10	0.07	0.046	0.043

8-lead resistors

Value	Order code	1+	100+	1000+	5000+
150 ohms	63-0200	0.11	0.075	0.05	0.047
330 ohms	63-0210	0.11	0.075	0.05	0.047
1K	63-0215	0.11	0.075	0.05	0.047
2K2	63-0220	0.11	0.075	0.05	0.047
4K7	63-0225	0.11	0.075	0.05	0.047
10K	63-0230	0.11	0.075	0.05	0.047
22K	63-0235	0.11	0.075	0.05	0.047
47K	63-0240	0.11	0.075	0.05	0.047
100K	63-0245	0.11	0.075	0.05	0.047

NTC thermistors

A range of miniature disc thermistors for general purpose applications including temperature measurement and circuit compensation. Tolerance 10% maximum, dissipation 450mW.



R at 25 deg C	R at 100 deg C	Max. current	Temp. coeff.	Order code
300 ohms	40 ohms	146mA	-3.5%/C	61-0220
1K	80 ohms	105mA	-4.3%/C	61-0225
5K	380 ohms	49mA	-4.4%/C	61-0200
30K	1K8	17mA	-4.7%/C	61-0205
100K	5K1	15mA	-5.1%/C	61-0210

Order code	1+	100+	500+
61-0200	0.12	0.09	0.065
61-0205	0.12	0.09	0.065
61-0210	0.12	0.09	0.065
61-0220	0.12	0.09	0.065
61-0225	0.12	0.09	0.065

Miniature bead type thermistors

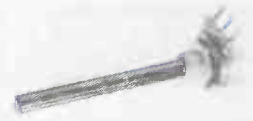
Housed in an evacuated glass bulb. Designed for operation at very low power levels. NTC type. Tolerance $\pm 20\%$.



Type	R at 20 deg C	Min. res.	Order code	1+
GL16	1M	170 ohms	61-0170	3.90
RA53	5K	80 ohms	61-0175	4.30

Potentiometers

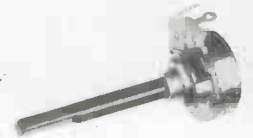
Small rotary carbon track single potentiometers. Log or Lin law. Standard round 0.25in diameter spindles. Solder tag termination. Shaft length 55mm. Body dia. 20mm.



Value	Order code	1+	100+
470 ohms lin	65-0400	0.38	0.30
1K lin	65-0100	0.38	0.30
4K7 lin	65-0105	0.38	0.30
10K lin	65-0110	0.38	0.30
22K lin	65-0115	0.38	0.30
47K lin	65-0120	0.38	0.30
100K lin	65-0125	0.38	0.30
220K lin	65-0130	0.38	0.30
470K lin	65-0135	0.38	0.30
1M lin	65-0140	0.38	0.30
2M2 log	65-0145	0.38	0.30
470 ohms log	65-0405	0.38	0.30
1K log	65-0150	0.38	0.30
4K7 log	65-0155	0.38	0.30
10K log	65-0160	0.38	0.30
22K log	65-0165	0.38	0.30
47K log	65-0170	0.38	0.30
100K log	65-0175	0.38	0.30
220K log	65-0180	0.38	0.30
470K log	65-0185	0.38	0.30
1M log	65-0190	0.38	0.30
2M2 log	65-0195	0.38	0.30

Commercial potentiometers

A low cost carbon track single potentiometer offered in a range of popular values. Standard 0.25in diameter spindles in nylon. Shaft length 50mm. Body diam. 24mm. Solder tag termination.



Value	Order code	1+	50+	500+
470 ohms lin	65-0500	0.30	0.22	0.19
1K lin	65-0505	0.30	0.22	0.19
4K7 lin	65-0510	0.30	0.22	0.19
10K lin	65-0515	0.30	0.22	0.19
22K lin	65-0520	0.30	0.22	0.19
47K lin	65-0525	0.30	0.22	0.19
100K lin	65-0530	0.30	0.22	0.19
220K lin	65-0535	0.30	0.22	0.19
470K lin	65-0540	0.30	0.22	0.19
1M lin	65-0545	0.30	0.22	0.19
2M2 lin	65-0550	0.30	0.22	0.19
4K7 log	65-0610	0.30	0.22	0.19
10K log	65-0615	0.30	0.22	0.19
47K log	65-0625	0.30	0.22	0.19
100K log	65-0630	0.30	0.22	0.19
1M log	65-0645	0.30	0.22	0.19
2M2 log	65-0650	0.30	0.22	0.19

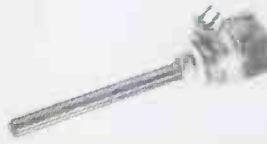
RESISTORS

Stereo potentiometers. Dual version of above. Log or Lin law. Tracks are matched to better than 2dB. 20mm diameter. Spindle length 55mm.



Value	Order code	1+	Value	Order code	1+
1K lin	65-0200	1.10	1K log	65-0250	1.10
4K7 lin	65-0205	1.10	4K7 log	65-0255	1.10
10K lin	65-0210	1.10	10K log	65-0260	1.10
22K lin	65-0215	1.10	22K log	65-0265	1.10
47K lin	65-0220	1.10	47K log	65-0270	1.10
100K lin	65-0225	1.10	100K log	65-0275	1.10
220K lin	65-0230	1.10	220K log	65-0280	1.10
470K lin	65-0235	1.10	470K log	65-0285	1.10
1M lin	65-0240	1.10	1M log	65-0290	1.10
2M2 lin	65-0245	1.10	2M2 log	65-0295	1.10

Switched potentiometers. Switched single potentiometers. 20mm diameter. 55mm spindle. Lin or Log law. Switch at 1.5A at 250V AC.



Value	Order code	1+	Value	Order code	1+
1K lin	65-0300	1.05	1K log	65-0350	1.05
4K7 lin	65-0305	1.05	4K7 log	65-0355	1.05
10K lin	65-0310	1.05	10K log	65-0360	1.05
22K lin	65-0315	1.05	22K log	65-0365	1.05
47K lin	65-0320	1.05	47K log	65-0370	1.05
100K lin	65-0325	1.05	100K log	65-0375	1.05
220K lin	65-0330	1.05	220K log	65-0380	1.05
470K lin	65-0335	1.05	470K log	65-0385	1.05
1M lin	65-0340	1.05	1M log	65-0390	1.05
2M2 lin	65-0345	1.05	2M2 log	65-0395	1.05

Slide potentiometers

A range of good quality 60mm travel slide potentiometers with standard 80mm fixing centres, available in both Lin and Log scales. Ranges available from 5K to 500K. Suitable knobs available.

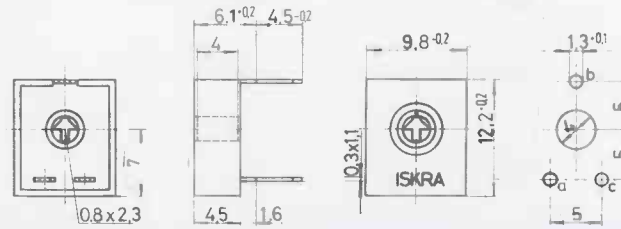
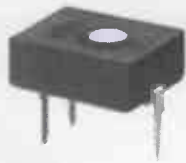


L 88 H 11
D 12.4 F.C. 80

Value	Order code	1+	Value	Order code	1+
5K lin	66-0100	0.80	5K log	66-0135	0.80
10K lin	66-0105	0.80	10K log	66-0140	0.80
25K lin	66-0110	0.80	25K log	66-0145	0.80
50K lin	66-0115	0.80	50K log	66-0150	0.80
100K lin	66-0120	0.80	100K log	66-0155	0.80
250K lin	66-0125	0.80	250K log	66-0160	0.80
500K lin	66-0130	0.80	500K log	66-0165	0.80

Enclosed preset potentiometers

A range of fully enclosed miniature single turn preset potentiometers. Suitable for use in unfavourable environments. The regular outline facilitates use in automatic insertion machines. Adjustment may be made from both sides. Pin compatible with Piher PT10 and CITEC CT10 series.



Technical specification

Tolerance	20%
End resistance	2%
Power rating	0.2W at 40 deg C
Maximum voltage	200V DC
Temperature coefficient	1000ppm deg C
Temperature range	-25 to +70 deg C
Electrical rotation	245° ± 10%

Value	Order code	1+	100+	500+
100 ohms	67-0200	0.08	0.06	0.045
220 ohms	67-0205	0.08	0.06	0.045
470 ohms	67-0210	0.08	0.06	0.045
1K	67-0215	0.08	0.06	0.045
2K2	67-0220	0.08	0.06	0.045
4K7	67-0225	0.08	0.06	0.045
10K	67-0230	0.08	0.06	0.045
22K	67-0235	0.08	0.06	0.045
47K	67-0240	0.08	0.06	0.045
100K	67-0245	0.08	0.06	0.045
220K	67-0250	0.08	0.06	0.045
470K	67-0255	0.08	0.06	0.045
1M	67-0260	0.08	0.06	0.045

Carbon preset potentiometers

Miniature open single turn presets. Rated at 0.1W. Suitable for 0.1in matrix boards. Linear law. Horizontal mounting style only.



W 8
L 11

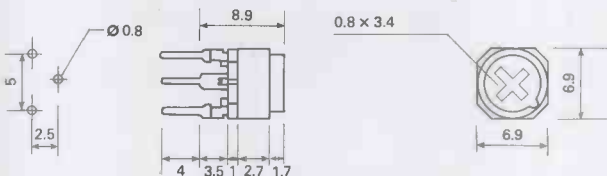
Value	Order code	1+	100+	500+
100 ohms	67-0100	0.06	0.04	0.028
220 ohms	67-0105	0.06	0.04	0.028
470 ohms	67-0110	0.06	0.04	0.028
1K	67-0115	0.06	0.04	0.028
2K2	67-0120	0.06	0.04	0.028
4K7	67-0125	0.06	0.04	0.028
10K	67-0130	0.06	0.04	0.028
22K	67-0135	0.06	0.04	0.028
47K	67-0140	0.06	0.04	0.028
100K	67-0145	0.06	0.04	0.028
220K	67-0150	0.06	0.04	0.028
470K	67-0155	0.06	0.04	0.028
1M	67-0160	0.06	0.04	0.028

For DIL sockets at the most competitive price in the UK – see page 32.

RESISTORS

Single turn cermet potentiometers

Cermet element potentiometers offering a compact design in a dust proof encapsulation. PCB standoffs fitted as standard.



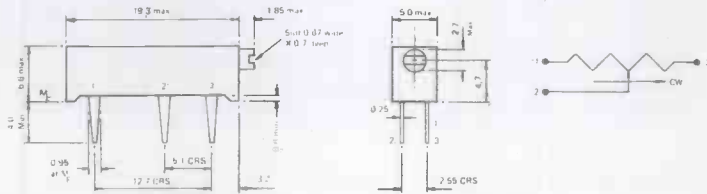
Technical specification

Tolerance	20%
End resistance	1% nominal
Power rating	0.3W at 70 deg C
Input voltage	100V DC
Temperature coefficient	200ppm deg C
Temperature range	-25 to +100 deg C
Electrical rotation	200

Value	Order code	1+	100+	500+
100 ohms	67-0300	0.18	0.14	0.115
220 ohms	67-0305	0.18	0.14	0.115
470 ohms	67-0310	0.18	0.14	0.115
1K	67-0315	0.18	0.14	0.115
2K2	67-0320	0.18	0.14	0.115
4K7	67-0325	0.18	0.14	0.115
10K	67-0330	0.18	0.14	0.115
22K	67-0335	0.18	0.14	0.115
47K	67-0340	0.18	0.14	0.115
100K	67-0345	0.18	0.14	0.115
220K	67-0350	0.18	0.14	0.115
470K	67-0355	0.18	0.14	0.115
1M	67-0360	0.18	0.14	0.115

Multiturn cermet potentiometers

A quality multiturn cermet trimmer of robust construction, fully sealed for board washing. Excellent setability. $\frac{1}{4}$ in type. A high performance component offered at low cost.



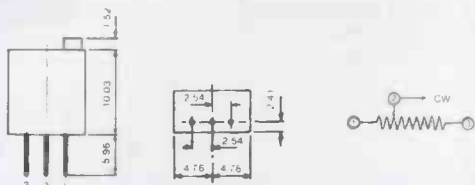
Technical specification

Tolerance	10%
End resistance	2 ohms max.
Power rating	0.75W at 70 deg C
Dielectric strength	315V DC or AC rms
Temperature coefficient	100 ohms 150 ppm/100 ohms + 100ppm deg C
Temperature range	-55 to +125 deg C
Electrical rotation	18 turns

Value	Order code	1+	25+	100+
10 ohms	68-0160	0.48	0.38	0.33
20 ohms	68-0165	0.48	0.38	0.33
50 ohms	68-0170	0.48	0.38	0.33
100 ohms	68-0100	0.48	0.38	0.33
200 ohms	68-0105	0.48	0.38	0.33
500 ohms	68-0110	0.48	0.38	0.33
1K	68-0115	0.48	0.38	0.33
2K	68-0120	0.48	0.38	0.33
5K	68-0125	0.48	0.38	0.33
10K	68-0130	0.48	0.38	0.33
20K	68-0135	0.48	0.38	0.33
50K	68-0140	0.48	0.38	0.33
100K	68-0145	0.48	0.38	0.33
200K	68-0150	0.48	0.38	0.33
500K	68-0155	0.48	0.38	0.33

Multiturn cermet potentiometers

A high quality $\frac{3}{16}$ in square 22 turn cermet potentiometer of robust construction, fully sealed for board washing. Top screw adjustment. May be mounted directly onto PCBs either vertically or horizontally.



Technical specification

Tolerance	10%
End resistance	2 ohms or 2%
Power rating	0.5W at 70 deg C
Dielectric strength	1000V AC
Temperature coefficient	100ppm deg C
Temperature range	-55 to +125 deg C
Electrical rotation	22 turns

Value	Order code	1+	25+	100+
100 ohms	68-0300	0.80	0.65	0.57
220 ohms	68-0305	0.80	0.65	0.57
470 ohms	68-0310	0.80	0.65	0.57
1K	68-0315	0.80	0.65	0.57
2K	68-0320	0.80	0.65	0.57
5K	68-0325	0.80	0.65	0.57
10K	68-0330	0.80	0.65	0.57
20K	68-0335	0.80	0.65	0.57
50K	68-0340	0.80	0.65	0.57
100K	68-0345	0.80	0.65	0.57
200K	68-0350	0.80	0.65	0.57
500K	68-0355	0.80	0.65	0.57
1M	68-0360	0.80	0.65	0.57

All prices quoted in this catalogue are valid to 30th September 1989.

SEMICONDUCTORS

Silicon rectifier diodes

1N4000 Series.
Miniature 1A plastic diodes.



Type/order code	V _{RRM}	1+	100+	1000+	5000+
1N4001	50V	0.03	0.02	0.012	0.0105
1N4002	100V	0.04	0.022	0.014	0.0115
1N4003	200V	0.04	0.025	0.015	0.012
1N4004	400V	0.05	0.027	0.016	0.0125
1N4006	800V	0.05	0.03	0.017	0.0135
1N4007	1000V	0.06	0.032	0.018	0.014

1N5400 Series.
Miniature 3A plastic diodes.



Type/order code	V _{RRM}	1+	100+	1000+	5000+
1N5401	100V	0.06	0.05	0.038	0.031
1N5402	200V	0.07	0.055	0.042	0.033
1N5404	400V	0.08	0.06	0.046	0.035
1N5406	600V	0.09	0.065	0.05	0.038
1N5408	1000V	0.10	0.075	0.057	0.041

High voltage.

Type/order code	V _{RRM}	I _F	1+	100+	1000+
BY127	1250V	1.5A	0.08	0.065	0.055

Signal diodes

A range of general purpose signal diodes.



Type/order code	V _{RRM}	I _F	1+	100+	1000+	10000+
OA47	30V	48mA	0.14	0.12	0.11	0.10
OA90	30V	24mA	0.08	0.06	0.05	0.039
OA91	100V	20mA	0.08	0.07	0.06	0.053
OA200	150V	80mA	0.08	0.06	0.05	0.044
OA202	150V	80mA	0.08	0.06	0.05	0.044
1N914	75V	75mA	0.04	0.03	0.018	0.013
1N4148	75V	75mA	0.03	0.012	0.009	0.007

Zener diodes

BZY88 Series. subminiature 400mW glass encapsulated zener diodes

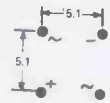
Type/order code	Voltage	1+	100+	1000+
BZYC2V7	2V7	0.06	0.03	0.02
BZYC3V0	3V0	0.06	0.03	0.02
BZYC3V3	3V3	0.06	0.03	0.02
BZYC3V6	3V6	0.06	0.03	0.02
BZYC3V9	3V9	0.06	0.03	0.02
BZYC4V3	4V3	0.06	0.03	0.02
BZYC4V7	4V7	0.06	0.03	0.02
BZYC5V1	5V1	0.06	0.03	0.02
BZYC5V6	5V6	0.06	0.03	0.02
BZYC6V2	6V2	0.06	0.03	0.02
BZYC6V8	6V8	0.06	0.03	0.02
BZYC7V5	7V5	0.06	0.03	0.02
BZYC8V2	8V2	0.06	0.03	0.02
BZYC9V1	9V1	0.06	0.03	0.02
BZYC10	10V	0.06	0.03	0.02
BZYC11	11V	0.06	0.03	0.02
BZYC12	12V	0.06	0.03	0.02
BZYC13	13V	0.06	0.03	0.02
BZYC15	15V	0.06	0.03	0.02
BZYC16	16V	0.06	0.03	0.02
BZYC18	18V	0.06	0.03	0.02
BZYC20	20V	0.06	0.03	0.02
BZYC22	22V	0.06	0.03	0.02
BZYC24	24V	0.06	0.03	0.02
BZYC27	27V	0.06	0.03	0.02
BZYC30	30V	0.06	0.03	0.02
BZYC33	33V	0.06	0.03	0.02

BZX Series. Rated at 1.3W.

Type/order code	Voltage	1+	100+	1000+
BZX4V7	4V7	0.08	0.055	0.043
BZX5V1	5V1	0.08	0.055	0.043
BZX5V6	5V6	0.08	0.055	0.043
BZX6V2	6V2	0.08	0.055	0.043
BZX6V8	6V8	0.08	0.055	0.043
BZX7V5	7V5	0.08	0.055	0.043
BZX8V2	8V2	0.08	0.055	0.043
BZX9V1	9V1	0.08	0.055	0.043
BZX10	10V	0.08	0.055	0.043
BZX11	11V	0.08	0.055	0.043
BZX12	12V	0.08	0.055	0.043
BZX13	13V	0.08	0.055	0.043
BZX15	15V	0.08	0.055	0.043
BZX16	16V	0.08	0.055	0.043
BZX18	18V	0.08	0.055	0.043
BZX20	20V	0.08	0.055	0.043
BZX22	22V	0.08	0.055	0.043
BZX24	24V	0.08	0.055	0.043
BZX27	27V	0.08	0.055	0.043
BZX30	30V	0.08	0.055	0.043
BZX33	33V	0.08	0.055	0.043
BZX36	36V	0.08	0.055	0.043
BZX39	39V	0.08	0.055	0.043

1A bridge rectifiers

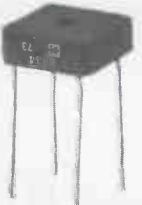
Miniature 1A plastic encapsulated W00 Series rectifiers for direct mounting to printed circuit boards.



Type/order code	V _{RRM}	1+	25+	100+	500+
W005	50V	0.15	0.13	0.11	0.095
W02	200V	0.16	0.14	0.12	0.10
W04	400V	0.17	0.15	0.13	0.11
W06	600V	0.18	0.16	0.14	0.125
W08	800V	0.22	0.19	0.16	0.135

3A bridge rectifiers

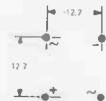
Miniature 3A plastic encapsulated bridge rectifiers for direct mounting to printed circuit boards.



Type/order code	Equiv.	V _{RRM}	1+	25+	100+	500+
BR32	KBPC102	200V	0.30	0.25	0.19	0.17
BR34	KBPC104	400V	0.35	0.30	0.22	0.19

6A bridge rectifiers

Miniature 6A plastic encapsulated bridge rectifiers for direct mounting to printed circuit boards.

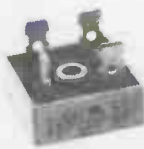


Type/order code	Equiv.	V _{RRM}	1+	25+	100+	500+
DB602	KBPC602	200	0.50	0.45	0.38	0.34
DB608	KBPC608	800	0.60	0.53	0.44	0.39

SEMICONDUCTORS

25A bridge rectifiers

Metal clad bridge rectifiers. Single hole fixing. 28mm square, 11mm high.



Type/order code	V_{RRM}	1+	25+	100+
DB2502	200V	1.30	1.15	1.00
DB2506	600V	1.40	1.25	1.08

Triacs

Texas Instruments triacs in plastic case. Ideal for use in lamp, motor and heater control, etc.



Type/order code	$I_{T(RMS)}$	V_{DRM}	V_{GT}	1+	25+	100+	500+
TIC206D	3A	400V	2V	0.45	0.40	0.36	0.33
TIC226D	8A	400V	2.5V	0.55	0.50	0.44	0.39
TIC246D	16A	400V	2.5V	0.75	0.65	0.57	0.53

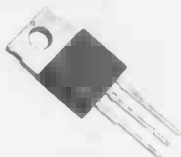
Diac

Silicon bi-directional trigger diode for use in triac firing circuits. D014 glass case.

Type/order code	1+	25+	100+	500+
BR100	0.20	0.18	0.15	0.13

Thyristors

Texas Instruments thyristors in plastic case. Ideal for use in light and heater control, power supplies, etc.



Type/order code	V_{RRM}	I_T	V_{GT}	I_{GT}	1+	25+	100+	500+
TIC106D	400V	4A	0.8V	0.2mA	0.30	0.25	0.22	0.20
TIC116D	400V	8A	1.5V	20mA	0.65	0.55	0.45	0.40
TIC126D	400V	12A	1.5V	20mA	0.70	0.60	0.52	0.45

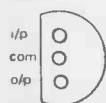
Voltage regulators

100mA fixed voltage

Miniature fixed voltage regulators with internal overload, thermal and short circuit protection. T092 plastic case.



78L



79L

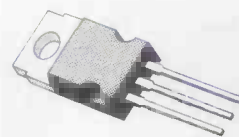


Type/order code	Voltage	1+	25+	100+	500+
78L05	+5V	0.20	0.17	0.15	0.12
78L12	+12V	0.20	0.17	0.15	0.12
78L15	+15V	0.20	0.17	0.15	0.12
79L05	-5V	0.25	0.20	0.17	0.145
79L12	-12V	0.25	0.20	0.17	0.145
79L15	-15V	0.25	0.20	0.17	0.145

Voltage regulators

1A fixed voltage

1A regulators in a T0220 plastic package. Internal overload, thermal and short circuit protection.



79



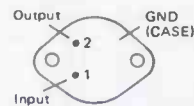
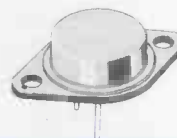
78



Type/order code	Voltage	1+	25+	100+	500+
7805	+5V	0.28	0.24	0.18	0.155
7812	+12V	0.28	0.24	0.18	0.155
7815	+15V	0.28	0.24	0.18	0.155
7905	-5V	0.30	0.26	0.22	0.185
7912	-12V	0.30	0.26	0.22	0.185
7915	-15V	0.30	0.26	0.22	0.185

3A fixed voltage

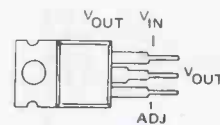
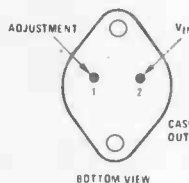
Fixed voltage 3A regulator in T03 package. Features thermal overload, short circuit and safe operating area protection.



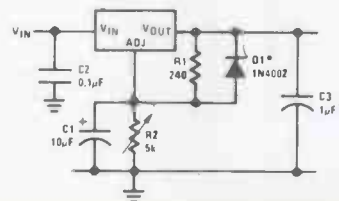
Type/order code	o/p	Voltage	1+	25+	100+
LM323K	3A	+5V	2.40	2.10	1.80

Variable voltage regulators

Three terminal positive variable voltage regulators; output current limiting in addition to thermal protection.



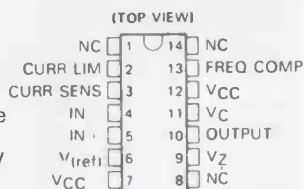
Adjustable Regulator with Improved Ripple Rejection



Type/order code	o/p	Voltage	1+	25+	100+	500+
LM317T	1.2A	+1.2-37	0.45	0.38	0.33	0.29
LM317K	1.5A	+1.2-37	1.45	1.15	0.97	0.80
LM338K	5A	+1.2-37	6.80	6.30	5.70	5.20

Adjustable voltage regulator

Monolithic voltage regulator incorporating overcurrent protection housed in a 14-pin DIL package. With the minimum of external components will provide a positive supply of 2-6V or 6-8V or 8-37V at up to 150mA.



Type/order code	1+	25+	100+	500+
LM723	0.30	0.25	0.19	0.17

TRANSISTORS

Type	Price			Pol/Mat	Case	Vcb (max.) V	Vce (max.) V	Veb (max.) V	Ic (max.) mA	Ptot (max.) mW	hFE (min.) @ Ic (mA)	fT (min.) MHz	Application
	1+	100+	500+										
AC125	0.35	0.27	0.23	PG	T01	32	12	10	100	500	50@2	1	Audio amplifier
AC126	0.35	0.27	0.23	PG	T01	32	12	10	100	500	100@2	1	General purpose audio
AC127	0.25	0.21	0.185	NG	T01	32	12	10	500	340	50@500	1.5	General purpose audio
AC128	0.25	0.21	0.185	PG	T01	32	16	10	1A	267	45@1A	1	General purpose audio
AC176	0.35	0.27	0.23	NG	T01	32	20	10	1A	220	52@500	1	General purpose audio
AC187	0.35	0.27	0.23	NG	T01	25	15	10	2A	225	100@300	1	General purpose audio
AC188	0.35	0.27	0.23	PG	T01	25	15	10	2A	225	100@300	1	General purpose audio
AD142	1.20	0.85	0.70	PG	T03	80	50	10	10A	30W	20@1A	0.45	Audio high voltage
AD161	0.45	0.37	0.34	NG	X03	32	20	10	1A	4W	80@500	1	General purpose audio
AD162	0.45	0.37	0.34	PG	X03	32	20	10	1A	6W	50@500	1	General purpose audio
AF124	0.60	0.48	0.39	PG	T072A	32	15	2	10	75	50@1	75	General purpose RF
AF126	0.45	0.32	0.26	PG	T072A	32	15	2	10	75	50@1	75	General purpose RF
BC107	0.10	0.08	0.075	NS	T018	50	45	6	100	300	125@2	300	General purpose
BC107B	0.12	0.10	0.09	NS	T018	50	45	6	100	300	330@2	300	General purpose
BC108	0.10	0.08	0.075	NS	T018	30	20	5	100	300	125@2	300	General purpose
BC108B	0.12	0.10	0.09	NS	T018	30	20	5	100	300	330@2	300	General purpose
BC108C	0.12	0.10	0.09	NS	T018	30	20	5	100	300	600@2	300	General purpose
BC109	0.10	0.085	0.08	NS	T018	30	20	5	100	300	180@2	150	Audio low noise
BC109C	0.12	0.10	0.09	NS	T018	30	20	5	100	300	420@2	150	Audio low noise
BC140	0.26	0.20	0.17	NS	T039	80	40	7	1A	3.7W	40@100	50	General purpose audio
BC141	0.26	0.20	0.17	NS	T039	100	60	7	1A	3.7W	40@100	50	General purpose audio
BC142	0.26	0.20	0.17	NS	T039	80	60	5	1A	800	20@200	40	General purpose audio
BC143	0.26	0.20	0.17	PS	T039	60	60	4	1A	800	20@300	100	General purpose audio
BC147	0.10	0.07	0.06	NS	X09	50	45	6	100	350	125@2	300	General purpose
BC148	0.10	0.07	0.06	NS	X09	50	45	5	100	350	125@2	300	General purpose
BC149	0.10	0.07	0.06	NS	X09	30	20	5	200	250	200@2	150	Audio low noise
BC157	0.10	0.07	0.06	PS	X09	50	45	5	100	300	70@2	130	Audio amplifier
BC158	0.10	0.07	0.06	PS	X09	30	25	5	100	300	70@2	100	Audio amplifier
BC159	0.10	0.07	0.06	PS	X09	25	20	5	100	300	120@2	100	Audio low noise
BC160	0.40	0.28	0.23	PS	T039	40	40	5	1A	3.2W	40@100	50	General purpose audio
BC168C	0.08	0.06	0.045	NS	T092	30	20	5	100	300	520@2	250	General purpose
BC169C	0.08	0.06	0.045	NS	T092	30	20	5	100	300	520@2	300	General purpose
BC171	0.08	0.06	0.045	NS	X10	45	45	6	100	300	125@2	100	Audio low noise
BC177	0.14	0.11	0.095	PS	T018	45	45	5	100	300	70@2	130	General purpose audio
BC178	0.14	0.11	0.095	PS	T018	20	20	5	100	300	240@2	200	General purpose
BC179	0.14	0.11	0.095	PS	T018	20	20	5	100	300	240@2	200	General purpose
BC182	0.06	0.035	0.025	NS	X10	60	50	5	200	300	500@2	150	General purpose
BC182L	0.07	0.04	0.028	NS	T092	60	50	5	200	300	500@2	150	General purpose
BC183	0.06	0.035	0.025	NS	X10	45	30	5	200	300	900@2	150	General purpose
BC183L	0.07	0.04	0.028	NS	T092	45	30	5	200	300	900@2	150	General purpose
BC184	0.06	0.035	0.025	NS	X10	45	30	5	200	300	900@2	150	General purpose
BC184L	0.07	0.04	0.028	NS	T092	45	30	5	200	300	900@2	150	General purpose
BC212	0.06	0.035	0.025	PS	X10	60	50	5	200	300	100@2	200	General purpose
BC212L	0.07	0.04	0.028	PS	T092	60	50	5	200	300	100@2	200	General purpose
BC213	0.06	0.035	0.025	PS	X10	45	30	5	200	300	100@2	200	General purpose
BC213L	0.07	0.04	0.028	PS	T092	45	30	5	200	300	100@2	200	General purpose
BC214	0.06	0.035	0.025	PS	X10	45	30	5	200	300	140@2	200	General purpose
BC214L	0.07	0.04	0.028	PS	T092	45	30	5	200	300	140@2	200	General purpose
BC237	0.06	0.035	0.024	NS	R210	50	45	5	100	350	120@2	200	General purpose
BC238	0.06	0.035	0.024	NS	R210	30	20	5	100	350	120@2	240	General purpose
BC308	0.07	0.04	0.028	PS	X10	30	25	5	100	300	75@2	100	General purpose audio
BC327	0.07	0.04	0.029	PS	X10	50	45	5	800	500	63@100	60	General purpose audio
BC328	0.07	0.04	0.029	PS	X10	30	25	5	800	500	63@100	60	General purpose audio
BC337	0.07	0.04	0.029	NS	X10	50	45	5	800	360	100@100	60	General purpose audio
BC338	0.07	0.04	0.029	NS	X10	30	20	5	800	360	100@100	60	General purpose audio
BC477	0.20	0.17	0.15	PS	T018	80	80	6	150	360	125@2	150	General purpose
BC478	0.20	0.17	0.15	PS	T018	40	40	5	150	360	125@2	150	General purpose
BC479	0.20	0.17	0.15	PS	T018	40	40	5	150	360	180@2	150	General purpose
BC517	0.20	0.145	0.12	NS	X10	40	30	10	400	625	30K@2	120	Darlington audio
BC547	0.05	0.03	0.023	NS	R210	50	45	5	100	500	125@2	300	General purpose
BC548	0.06	0.034	0.025	NS	R210	30	30	5	100	500	125@2	300	General purpose
BC549	0.06	0.034	0.025	NS	R210	30	30	5	100	500	240@2	200	General purpose
BC557	0.06	0.034	0.025	PS	R210	50	45	5	100	500	140@2	150	General purpose
BC558	0.06	0.034	0.025	PS	R210	30	30	5	100	500	75@2	150	General purpose
BCY70	0.14	0.11	0.095	PS	T018	50	40	5	200	350	50@2	250	General purpose audio
BCY71	0.14	0.11	0.095	PS	T018	45	45	5	200	350	100@10	300	Audio low noise
BCY72	0.14	0.11	0.095	PS	T018	25	25	5	200	350	50@10	200	General purpose audio
BD115	0.55	0.48	0.39	NS	T039	245	180	5	150	6W	22@50	80	RF high voltage
BD131	0.30	0.26	0.23	NS	T0126	70	45	6	3A	11W	40@500	60	General purpose audio
BD132	0.30	0.26	0.23	PS	T0126	45	45	4	3A	11W	40@500	60	General purpose audio

TRANSISTORS

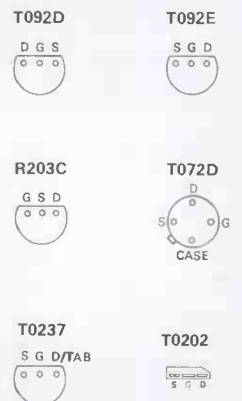
Type	Price			Pol/Mat	Case	Vcb (max.) V	Vce (max.) V	Veb (max.) V	Ic (max.) mA	Ptot (max.) mW	hFE (min.) @ Ic (mA)	fT (min.) MHz	Application
	1+	100+	500+										
BD135	0.20	0.16	0.135	NS	T0126	45	45	5	1A	12W	40@150	50	General purpose audio
BD136	0.20	0.16	0.135	PS	T0126	45	45	5	1A	12W	40@150	50	General purpose audio
BD137	0.20	0.16	0.135	NS	T0126	60	60	5	1A	12W	40@150	50	General purpose audio
BD138	0.20	0.16	0.135	PS	T0126	60	60	5	1A	12W	40@150	50	General purpose audio
BD139	0.20	0.16	0.135	NS	T0126	80	80	5	1A	12W	40@150	50	Audio high voltage
BD140	0.20	0.16	0.135	PS	T0126	80	80	5	1A	12W	40@150	50	Audio high voltage
BF180	0.25	0.17	0.14	NS	T072	30	20	3	20	150	13@2	325	TV UHF amplifier
BF182	0.25	0.17	0.14	NS	T072	25	20	3	15	150	10@2	325	TV UHF mixer
BF185	0.28	0.20	0.17	NS	T072A	30	20	3	20	145	34@1	110	FM/AM general purpose
BF194	0.12	0.09	0.08	NS	X09A	30	20	5	30	250	67@1	130	FM/AM general purpose
BF195	0.12	0.09	0.08	NS	X09A	30	20	5	30	250	36@1	100	FM/AM general purpose
BF196	0.12	0.09	0.08	NS	X09A	40	30	4	25	250	27@4	200	TV IF amplifier
BF197	0.12	0.09	0.08	NS	X09A	40	20	4	25	250	38@7	275	TV IF amplifier
BF198	0.12	0.09	0.08	NS	X10B	40	30	4	25	250	27@4	200	TV IF amplifier
BF199	0.18	0.14	0.11	NS	T10B	40	20	4	25	250	38@7	275	TV IF amplifier
BF257	0.25	0.18	0.16	NS	T039	160	160	5	100	500	25@30	55	TV video output
BF258	0.25	0.18	0.16	NS	T039	250	250	5	100	800	25@30	55	TV video output
BF259	0.25	0.18	0.16	NS	T039	300	300	5	100	500	25@30	90	Extra high voltage
BF337	0.25	0.18	0.16	NS	T039	300	225	—	100	800	20@30	80	TV video output
BFR40	0.25	0.21	0.175	NS	T092	70	60	—	2A	800	75@100	100	General purpose audio
BFR80	0.25	0.21	0.175	PS	T092F	70	50	—	2A	800	75@100	100	General purpose audio
BFR81	0.25	0.21	0.175	PS	T092	60	50	—	2A	800	100@100	100	General purpose audio
BFX29	0.25	0.21	0.175	PS	T059	60	60	5	600	800	50@10	100	General purpose RF
BFX84	0.25	0.21	0.175	NS	T05	100	60	6	1A	800	30@150	50	General purpose audio
BFX85	0.25	0.21	0.175	NS	T05	100	60	6	1A	800	70@150	50	Audio high voltage
BFX87	0.25	0.21	0.175	PS	T05	50	50	5	600	600	40@10	100	General purpose audio
BFX88	0.25	0.21	0.175	PS	T05	40	40	5	600	600	40@10	100	General purpose audio
BFY50	0.20	0.16	0.145	NS	T05	80	35	6	1A	800	30@150	60	General purpose audio
BFY51	0.18	0.15	0.135	NS	T05	60	30	6	1A	800	40@150	50	General purpose audio
BFY52	0.20	0.16	0.145	NS	T05	40	20	6	1A	800	60@150	50	General purpose audio
BFY53	0.30	0.23	0.195	NS	T05	40	20	6	1A	800	30@150	50	General purpose audio
BFY55	0.30	0.23	0.195	NS	T05	80	35	7	1A	800	40@35	60	General purpose audio
BFY56	0.30	0.23	0.195	NS	T039	80	55	7	1A	800	30@150	40	General purpose audio
BSX20	0.18	0.15	0.135	NS	T018	40	15	5	500	360	40@10	500	UHF switch
BSX29	0.35	0.28	0.25	PS	T018	12	12	4	200	260	30@30	—	VHF switch
BSY95A	0.30	0.25	0.22	NS	T018	20	15	5	200	300	50@10	200	VHF switch
BU205	1.10	0.85	0.75	NS	T03	1500	700	—	3A	10W	2@2A	4	TV line output
BU206	1.10	0.85	0.75	NS	T03	1700	800	—	3A	10W	2@2A	4	TV line output
BU208	1.10	0.85	0.75	NS	T03	1500	700	—	7.5A	12W	2@4.5A	3	TV line output
MJ2955	0.90	0.72	0.59	PS	T03	100	60	7	15A	150W	5@10A	4	General purpose audio
MJE340	0.35	0.30	0.27	NS	T0126	300	300	3	500	20W	30@50	10	Audio high voltage
MJE520	0.35	0.30	0.28	NS	T0126	30	30	4	3A	25W	25@1A	—	General purpose audio
MJE521	0.50	0.42	0.37	NS	T0126	40	40	4	4A	40W	40@1A	—	General purpose audio
MJE3055	0.70	0.60	0.52	NS	TOP66	70	60	5	10A	90W	20@4A	2	Audio high voltage
MPSA05	0.20	0.17	0.14	NS	T092B	60	60	4	500	500	50@10	100	General purpose audio
MPSA06	0.20	0.17	0.14	NS	T092B	80	80	4	500	500	50@10	100	General purpose audio
MPSA12	0.25	0.21	0.175	MS	T092B	20	20	10	300	310	2000@10	125	Darlington low noise
MPSA56	0.25	0.21	0.175	PS	T092B	80	80	4	500	625	50@10	50	General purpose audio
MPSU05	0.50	0.36	0.295	NS	X17	60	60	4	2A	10W	80@50	75	General purpose audio
MPSU06	0.50	0.36	0.295	NS	X17	80	80	4	2A	10W	80@50	75	General purpose audio
TIP29A	0.25	0.18	0.155	NS	TOP66	60	60	5	1A	30W	40@200	3	Audio high voltage
TIP29B	0.26	0.19	0.165	NS	TOP66	80	80	5	1A	30W	40@200	3	Audio high voltage
TIP29C	0.27	0.20	0.18	NS	TOP66	100	100	5	1A	30W	40@200	3	Audio high voltage
TIP30	0.25	0.18	0.155	PS	TOP66	40	40	5	1A	30W	40@200	3	General purpose audio
TIP30A	0.25	0.18	0.155	PS	TOP66	60	60	5	1A	30W	40@200	3	Audio high voltage
TIP30B	0.26	0.19	0.165	PS	TOP66	80	80	5	1A	30W	40@200	3	Audio high voltage
TIP30C	0.27	0.20	0.18	PS	TOP66	100	100	5	1A	30W	40@200	3	Audio high voltage
TIP31A	0.25	0.18	0.155	NS	TOP66	60	60	5	3A	40W	20@1A	3	General purpose audio
TIP31B	0.26	0.19	0.165	NS	TOP66	80	80	5	3A	40W	20@1A	3	Audio high voltage
TIP31C	0.27	0.20	0.18	NS	TOP66	100	100	5	3A	40W	20@1A	3	Audio high voltage
TIP32A	0.25	0.18	0.155	PS	TOP66	60	60	5	3A	40W	20@1A	3	General purpose audio
TIP32B	0.26	0.19	0.165	PS	TOP66	80	80	5	3A	40W	20@1A	3	Audio high voltage
TIP32C	0.27	0.20	0.18	PS	TOP66	100	100	5	3A	40W	20@1A	3	Audio high voltage
TIP33A	0.65	0.45	0.37	NS	TOP3	60	60	5	10A	80W	20@3A	3	General purpose audio
TIP33C	0.70	0.50	0.42	NS	TOP3	100	100	5	10A	80W	20@3A	3	Audio high voltage
TIP34A	0.65	0.45	0.37	PS	TOP3	60	60	5	10A	80W	20@3A	3	General purpose audio
TIP34C	0.70	0.50	0.42	PS	TOP3	100	100	5	10A	80W	20@3A	3	Audio high voltage
TIP35A	0.90	0.70	0.59	NS	TOP3	60	60	5	25A	90W	10@15A	3	General purpose audio
TIP35C	0.95	0.75	0.64	NS	TOP3	100	100	5	25A	90W	10@15A	3	Audio high voltage
TIP36A	0.90	0.70	0.59	PS	TOP3	60	60	5	25A	90W	10@15A	3	General purpose audio

TRANSISTORS

Type	Price			Pol/Mat	Case	Vcb (max.) V	Vce (max.) V	Veb (max.) V	Ic (max.) mA	Ptot (max.) mW	hFE (min.) @ Ic (mA)	fT (min.) MHz	Application
	1+	100+	500+										
TIP36C	0.90	0.70	0.59	PS	TOP3	100	100	5	25A	90W	10@15A	3	Audio high voltage
TIP41A	0.30	0.23	0.195	NS	TOP66	60	60	5	6A	2W	15@3A	3	General purpose audio
TIP42A	0.30	0.23	0.195	PS	TOP66	60	60	5	6A	2W	15@3A	3	General purpose audio
TIP120	0.30	0.24	0.215	NS	TOP66	60	60	5	5A	60W	1000@3A	—	Darlington audio
TIP121	0.32	0.26	0.22	NS	TOP66	80	80	5	5A	60W	1000@3A	—	Darlington audio
TIP122	0.32	0.27	0.23	NS	TOP66	100	100	5	5A	60W	1000@3A	—	Darlington audio
TIP141	1.00	0.75	0.62	NS	TOP3	80	80	5	10A	125W	500@10A	—	Darlington audio
TIP142	1.05	0.80	0.66	NS	TOP3	100	100	5	10A	125W	500@10A	—	Darlington audio
TIP147	1.10	0.85	0.70	PS	TOP3	100	100	5	10A	125W	500@10A	—	Darlington audio
TIP2955	0.55	0.45	0.37	PS	TOP3	100	60	7	15A	90W	20@4A	3	Audio high voltage
TIP3055	0.55	0.45	0.37	NS	TOP3	100	70	7	15A	90W	20@4A	3	Audio high voltage
ZTX107	0.11	0.10	0.095	NS	X11	60	45	5	100	300	125@2	150	General purpose audio
ZTX108	0.11	0.10	0.095	NS	X11	45	30	5	100	300	125@2	150	General purpose audio
ZTX109	0.11	0.10	0.095	NS	X11	45	30	5	100	300	240@2	150	Audio low noise
ZTX300	0.12	0.10	0.09	NS	X11	25	25	5	500	300	50@10	150	General purpose audio
ZTX302	0.15	0.12	0.105	NS	X11	35	35	5	500	300	100@10	150	General purpose audio
ZTX341	0.20	0.16	0.14	NS	X11	100	100	5	100	300	30@2	50	Audio high voltage
ZTX500	0.12	0.10	0.09	PS	X11	25	25	5	500	300	50@10	150	General purpose audio
ZTX501	0.15	0.12	0.105	PS	X11	35	35	5	500	300	50@10	150	General purpose audio
ZTX502	0.15	0.12	0.105	PS	X11	35	35	5	500	300	100@10	150	General purpose audio
ZTX504	0.15	0.12	0.105	PS	X11	70	70	5	500	300	50@10	150	Audio high voltage
2N697	0.20	0.16	0.145	NS	T05	60	40	5	500	600	40@150	50	General purpose audio
2N698	0.40	0.32	0.28	NS	T05	120	60	7	500	800	20@150	40	General purpose audio
2N706A	0.20	0.16	0.145	NS	T018	25	15	5	200	300	20@10	200	RF switch
2N918	0.35	0.27	0.23	NS	T072	30	15	3	50	200	20@3	600	VHF amplifier
2N1613	0.30	0.24	0.215	NS	T05	75	50	7	600	800	40@150	80	General purpose audio
2N2219A	0.30	0.24	0.215	NS	T05	75	40	6	800	800	50@1	300	General purpose
2N2222A	0.15	0.13	0.115	NS	T018	75	40	6	800	500	100@150	300	General purpose RF
2N2369	0.15	0.13	0.115	NS	T018	40	15	4	500	360	40@10	500	General purpose RF
2N2484	0.15	0.13	0.115	NS	T018	60	60	6	50	360	100@10µA	50	Audio low noise
2N2904	0.25	0.20	0.175	PS	T05	60	40	5	600	600	40@150	200	General purpose audio
2N2904A	0.25	0.20	0.175	PS	T05	60	60	5	600	600	40@150	200	General purpose audio
2N2905	0.25	0.20	0.175	PS	T05	60	40	5	600	600	100@150	200	General purpose audio
2N2905A	0.25	0.20	0.175	PS	T05	60	60	5	600	600	100@150	200	General purpose audio
2N2906A	0.15	0.12	0.10	PS	T018	60	40	5	600	400	40@150	200	General purpose audio
2N2907	0.15	0.12	0.10	PS	T018	60	40	5	600	400	100@150	200	General purpose audio
2N2907A	0.15	0.12	0.10	PS	T018	60	60	5	600	400	100@150	200	General purpose audio
2N2926	0.10	0.08	0.07	NS	T092	18	18	5	100	200	35@2	—	General
2N3053	0.23	0.18	0.15	NS	T05	60	40	5	700	1W	50@150	100	General purpose
2N3054	0.55	0.45	0.39	NS	T066	90	60	7	4A	25W	25@500	0.75	General purpose audio
2N3055	0.45	0.34	0.31	NS	T03	100	70	7	15A	115W	20@4A	10K	Audio power
2N3442	1.00	0.85	0.75	NS	T03	160	140	7	10A	117W	20@3A	0.5	Audio high voltage
2N3702	0.07	0.05	0.036	PS	T092	40	25	5	200	360	60@50	100	General purpose audio
2N3703	0.07	0.05	0.036	PS	T092	50	30	5	200	360	30@50	100	General purpose audio
2N3704	0.07	0.05	0.036	NS	T092	50	30	5	800	360	300@50	100	General purpose audio
2N3705	0.07	0.05	0.036	NS	T092	50	30	5	800	625	150@50	100	General purpose audio
2N3706	0.07	0.05	0.036	NS	T092	40	20	5	800	625	600@50	100	General purpose audio
2N3773	1.90	1.50	1.25	NS	T03	160	140	7	30A	150W	15@8A	0.2	Audio high voltage
2N3866	0.90	0.65	0.53	NS	T039	55	30	3.5	400	5W	10@50	500	UHF power amplifier
2N3903	0.07	0.05	0.036	NS	T092B	60	40	6	200	310	50@10	250	General purpose audio
2N3904	0.07	0.05	0.036	NS	T092B	60	40	6	200	310	100@10	250	Audio low noise
2N3905	0.07	0.05	0.036	PS	T092B	40	40	5	200	310	50@10	200	General purpose audio
2N3906	0.07	0.05	0.036	PS	T092B	40	40	5	200	310	100@10	250	General purpose audio
2N4062	0.10	0.08	0.07	PS	T092	30	30	6	30	360	180@1	—	Audio low noise

Field effect transistors

Type	Price			Pol/Mod	Case	Vds (max.) V	Vgs (max.) V	Vp (max.) V	Id (max.) mA	Ptot (max.) mW	gM (min.)	Cis (max.)	Application
	1+	100+	500+										
BF244B	0.35	0.27	0.23	ND	T092D	30	30	8	25	300	3	4	T092D
BF256B	0.45	0.32	0.27	ND	R203C	30	30	7.5	—	300	4.5	—	T092E
VN10KM	0.50	0.42	0.37	ND	T0237	60	60	2.5	0.5A	1W	—	—	
VN46AF	0.85	0.80	0.75	ND	T0202	—	—	—	1A	15W	—	50	R203C
VN66AF	1.20	1.05	1.00	ND	T0202	—	—	—	1A	15W	—	50	T072D
VN88AF	1.30	1.18	1.15	ND	T0202	—	—	—	1A	15W	—	50	
MPF102	0.40	0.35	0.32	N	T092D	25	25	8	—	200	2	7	
2N3819	0.32	0.25	0.225	ND	T092E	25	25	8	—	360	2	8	
2N3820	0.45	0.38	0.34	PD	T092E	20	20	8	—	360	0.8	32	
2N5457	0.35	0.28	0.25	N	T092D	—	25	6	—	310	1	7	
2N5458	0.35	0.28	0.25	N	T092D	—	25	7	—	310	1.5	7	
2N5459	0.35	0.28	0.25	N	T092D	—	25	8	—	310	2	7	
2N5485	0.35	0.28	0.25	N	T092D	—	25	6	10	310	4	5	



TRANSISTORS

Silicon controlled switch BRY39

A four layer device that may be used as a programmable unijunction transistor or as a silicon controlled switch. 4 lead T018 case. Maximum ratings:

$V_d = V_r = 70V$
 $I_t(\text{max.}) = 250mA$

$V_{drm} = V_{rrm} = 70V$
 $I_{tsm} = 3A$



Order code	1+	100+	500+
BRY39	0.50	0.40	0.36

Unijunction transistor

Unijunction transistor for use in SCR and Triac firing circuits. Also suitable for general purpose timer and oscillator applications. T018 case.

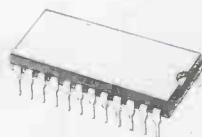
$V_{b_2} - V_{b_1}$ 35V
 P_t 300mW
 I_e 50mA
 I_e (peak) 2A



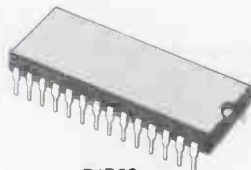
Order code	1+	100+	500+
2N2646	0.65	0.58	0.50

T01 	T03 	T05 	T018 	T066
T072 	T072A 	T092 	T092B 	T092F
T092G 	T0105 	T0106 	T0126 	T0P3
T0P66 	R189A 	R210 	X03 	X09
X09A 	X10 	X10B 	X11 	X17

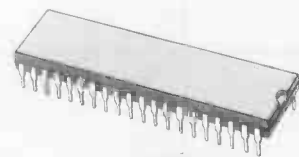
Order code	1+	25+	100+	500+	Function	Package	Page
555 CMOS	0.45	0.40	0.34	0.30	CMOS low power timer	DIL 8	90
556 CMOS	1.10	1.00	0.88	0.77	CMOS low power dual timer	DIL 14	91
709	0.30	0.25	0.21	0.18	Operational amplifier	DIL 8	—
741	0.16	0.14	0.12	0.10	Compensated operational amplifier	DIL 8	88
747	0.45	0.40	0.34	0.28	Dual operational amplifier	DIL 14	88
748	0.30	0.27	0.24	0.20	Operational amplifier	DIL 8	88
AY-3-8910	4.80	4.50	4.20	3.90	Programmable sound generator	DIL 40	93
AY-3-8912	4.80	4.50	4.20	3.90	Programmable sound generator	DIL 28	93
CA3046	0.45	0.35	0.30	0.25	5 transistor array	DIL 14	84
CA3080	0.48	0.41	0.36	0.32	Operational transconductance amplifier	DIL 8	88
CA3130E	0.60	0.50	0.435	0.38	Mos/Fet operational amplifier	DIL 8	89
CA3140E	0.35	0.29	0.26	0.225	Mos/Fet operational amplifier	DIL 8	89
CA3240E	0.80	0.70	0.62	0.54	Dual version of CA3140E	DIL 8	89
DAC0800LCN	2.50	2.30	2.15	1.95	8-bit digital to analogue converter	DIL 16	92
ICL7106	6.80	6.80	6.00	5.60	CMOS 3½ digit A to D converter	DIL 40	90
ICL7611	0.90	0.85	0.80	0.75	CMOS low power operational amplifier	DIL 8	89
ICL7621	1.40	1.30	1.20	1.10	CMOS low power dual operational amplifier	DIL 8	89
ICL7622	1.40	1.30	1.20	1.10	CMOS dual operational amp (compensated)	DIL 8	89
ICL8038	3.80	3.30	2.90	2.50	Function generator	DIL 14	92
ICL8211A	1.60	1.50	1.40	1.35	Micropower voltage detector	DIL 8	—
ICM7555	0.45	0.40	0.34	0.30	CMOS low power timer	DIL 8	90
ICM7556	1.10	1.00	0.88	0.77	CMOS low power dual timer	DIL 14	91
LF347	0.90	0.80	0.65	0.55	BI-FET operational amplifier	DIL 14	—
LF351	0.35	0.29	0.26	0.22	BI-FET operational amplifier	DIL 8	87
LF353	0.45	0.37	0.315	0.26	BI-FET wide band operational amplifier	DIL 8	87
LF356	0.58	0.45	0.39	0.33	BI-FET general purpose operational amplifier	DIL 8	87
LM301A	0.25	0.21	0.18	0.16	Operational amplifier	DIL 8	87
LM311	0.28	0.23	0.19	0.16	High speed comparator	DIL 8	86
LM318N	1.20	1.10	1.00	0.95	High slew rate operational amplifier	DIL 8	87
LM324	0.22	0.19	0.16	0.14	Quad operational amplifier	DIL 14	87
LM334Z	0.65	0.50	0.42	0.35	3 terminal adjustable current source	TO92	84
LM335Z	0.70	0.55	0.47	0.38	Temperature 0-100 deg C	TO92	84
LM339	0.25	0.20	0.17	0.155	Quad comparator	DIL 14	86
LM348	0.45	0.36	0.31	0.26	Quad 741 operational amplifier	DIL 14	87
LM358	0.25	0.20	0.17	0.155	Low power operational amplifier	DIL 8	88
LM377	2.10	1.90	1.70	1.50	Dual 2W audio amplifier	DIL 14	84
LM380	0.80	0.76	0.70	0.68	2W audio amplifier	DIL 14	84
LM381	2.00	1.90	1.70	1.60	Low noise dual preamplifier	DIL 14	85
LM382	1.50	1.40	1.35	1.30	Low noise dual preamplifier	DIL 14	85
LM384	2.20	2.05	1.70	1.60	5W audio amplifier	DIL 14	85
LM386	0.36	0.29	0.24	0.21	Low voltage preamplifier	DIL 8	—
LM387	1.60	1.45	1.30	1.23	Low noise dual preamplifier	DIL 8	85
LM393	0.25	0.20	0.17	0.155	Dual comparator	DIL 8	86
LM710	0.50	0.42	0.38	0.35	Differential comparator	DIL 14	86
LM711	0.48	0.42	0.38	0.35	Differential comparator	DIL 14	86
LM725	2.70	2.45	2.10	1.90	Video amplifier	DIL 8	88
LM741	0.16	0.14	0.12	0.10	Compensated operational amplifier	DIL 8	88
LM747	0.45	0.40	0.34	0.28	Dual operational amplifier	DIL 14	88
LM748	0.30	0.27	0.24	0.20	Operational amplifier	DIL 8	88
LM1458	0.25	0.20	0.17	0.155	Dual operational amplifier	DIL 8	88
LM2917N8	1.70	1.60	1.50	1.45	Frequency to voltage converter	DIL 8	90
LM3900	0.50	0.45	0.40	0.37	Quad operational amplifier	DIL 14	89
LM3909	0.85	0.80	0.75	0.75	LED flasher oscillator	DIL 8	84
LM3911	1.80	1.60	1.30	1.20	Temperature sensor	DIL 8	—
LM3914	1.90	1.80	1.75	1.70	LED bar/dot display driver linear	DIL 18	92
LM3915	1.90	1.80	1.75	1.70	LED bar/dot display driver log	DIL 18	92
LM13600	1.00	0.90	0.78	0.74	Dual transconductance amplifier	DIL 16	89
MC1458	0.25	0.20	0.17	0.155	Dual operational amplifier	DIL 8	88
MC3302	0.75	0.65	0.60	0.54	Quad comparator	DIL 14	86



DIP24 (Plastic)



DIP28 (Plastic)

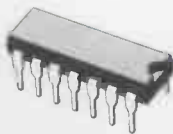


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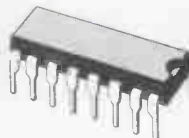
Order code	1+	25+	100+	500+	Function	Package	Page
MC3340	1.30	1.20	1.10	1.05	Electronic attenuator	DIL 8	80
MC4558	0.45	0.39	0.35	0.30	Dual high performance operational amplifier	DIL 8	89
MF10CN	3.20	3.00	2.90	2.70	Monolithic filter	DIL 20	90
ML922	3.95	3.50	3.30	3.30	Remote control 4-bit BCD	DIL 18	91
ML924	3.50	3.30	3.00	3.00	Remote control 5-bit binary	DIL 18	91
ML926	3.00	2.70	2.55	2.55	Receiver 16 unlatched 4-bit binary	DIL 8	92
MC927	3.00	2.80	2.55	2.55	Receiver 16 unlatched 4-bit binary	DIL 8	92
MC928	3.00	2.70	2.55	2.55	Receiver 16 unlatched 4-bit binary	DIL 8	92
ML929	3.00	2.80	2.55	2.55	Receiver 16 unlatched 4-bit binary	DIL 8	92
NE531	1.20	1.05	0.90	0.85	High slew rate operational amplifier	DIL 8	88
NE544	1.70	1.50	1.20	1.10	Servo amplifier	DIL 14	90
NE555	0.16	0.14	0.12	0.10	Single timer	DIL 8	90
NE556	0.30	0.25	0.22	0.18	Dual timer	DIL 14	91
NE565	0.90	0.77	0.68	0.63	Precision phase locked loop	DIL 14	93
NE566	0.90	0.77	0.68	0.63	Voltage controlled oscillator	DIL 8	91
NE567	0.60	0.45	0.33	0.29	Tone decoder	DIL 8	91
NE570	2.00	1.75	1.45	1.35	Telephone compandor	DIL 16	90
NE571	2.00	1.75	1.45	1.35	Telephone compandor	DIL 16	90
NE5532	1.10	0.90	0.70	0.65	Dual low noise operational amplifier	DIL 8	89
NE5534	0.75	0.60	0.45	0.39	Single low noise operational amplifier	DIL 8	89
RC4136	0.65	0.60	0.55	0.52	Quad amplifier	DIL 14	89
RC4558	0.45	0.39	0.35	0.30	Dual high performance operational amplifier	DIL 8	89
SAA1027	2.20	1.95	1.55	1.50	Stepper motor driver	DIL 16	93
SL486	2.10	1.90	1.75	1.70	Infra red preamplifier	DIL 14	91
SL490	2.10	1.90	1.75	1.70	Remote control transmitter	DIL 18	91
SP8629	1.50	1.45	1.40	1.35	Prescaler	DIL 8	91
SPO256AL2	7.20	6.80	6.50	6.20	Speech synthesiser	DIL 28	93
TBA120S	0.55	0.50	0.45	0.42	Limiting IF amplifier	DIL 14	-
TBA810	0.60	0.53	0.46	0.41	7W audio amplifier	DIL 14	85
TBA820M	0.40	0.32	0.285	0.265	Audio amplifier	DIL 8	85
TDA1024	1.10	0.95	0.85	0.80	Triac controller	DIL 8	90
TDA2030H	1.00	0.88	0.78	0.69	14W Hi-Fi power amplifier	TAB	85
TLO61	0.28	0.24	0.21	0.185	BI-FET low power operational amplifier	DIL 8	86
TLO62	0.35	0.28	0.245	0.215	BI-FET dual operational amplifier	DIL 8	86
TLO64	0.45	0.38	0.32	0.29	BI-FET quad operational amplifier	DIL 14	86
TLO71	0.28	0.24	0.21	0.185	BI-FET low noise operational amplifier	DIL 8	86
TLO72	0.32	0.26	0.23	0.21	BI-FET dual operational amplifier	DIL 8	87
TLO74	0.42	0.35	0.30	0.275	BI-FET quad operational amplifier	DIL 14	87
TLO81	0.28	0.24	0.21	0.185	BI-FET single operational amplifier	DIL 8	87
TLO82	0.35	0.28	0.245	0.215	BI-FET dual operational amplifier	DIL 8	87
TLO84	0.42	0.35	0.30	0.275	BI-FET quad operational amplifier	DIL 14	87
UA2240	1.50	1.40	1.40	1.40	Programmable timer	DIL 14	91
ULN2003	0.45	0.38	0.34	0.30	Transistor array 7 matched	DIL 16	84
ULN2004	0.45	0.38	0.34	0.30	Transistor array 7 matched	DIL 16	84
ULN2803	0.65	0.60	0.48	0.41	Octal darlington driver	DIL 18	84
XR2206	3.95	3.80	3.55	3.35	Waveform generator	DIL 16	-
ZN414Z	0.80	0.75	0.65	0.60	AM receiver	TO92	85
ZN416E	1.25	1.15	0.90	0.90	AM receiver	DIL 8	86
ZN423	1.00	0.90	0.70	0.70	Precision voltage reference	TO18	84
ZN424P	0.70	0.60	0.50	0.50	Gated linear amplifier	DIL 8	88
ZN425E	3.40	2.90	2.50	2.30	8-bit D to A converter	DIL 16	92
ZN426E	2.00	1.75	1.45	1.40	8-bit D to A converter	DIL 16	93
ZN427E	5.70	5.30	4.70	4.70	8-bit successive approximation A to D converter	DIL 18	92
ZN428E	4.50	4.20	3.60	3.60	8-bit D to A complementary to ZN427E	DIL 16	93
ZN435E	3.95	3.50	2.95	2.95	Multifunction D to A and A to D converter	DIL 18	92
ZN448E	5.50	5.20	4.50	4.50	8-bit successive approximation A to D converter	DIL 8	92
ZN459	1.90	1.60	1.50	1.40	Low noise preamplifier	DIL 8	88
ZN1034E	1.90	1.50	1.30	1.25	Precision timer	DIL 14	91



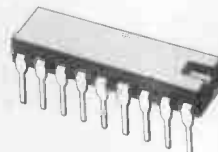
DIP8



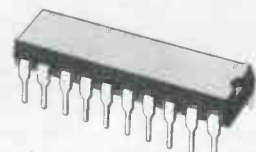
DIP14 (Plastic)



DIP16 (Plastic)



DIP18



DIP20

Precision voltage reference ZN423

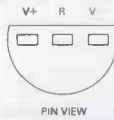
The ZN423 is a band gap precision voltage reference IC housed in a T018 style package producing a very stable voltage of 1.26V. Low temperature coefficient. Low RMS noise and very good long term stability. Ideal for use as a precision reference in voltage sensitive applications.



Order code	1+	25+	100+	500+
ZN423	1.00	0.90	0.70	0.70

3 terminal adjustable current source LM334Z

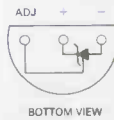
The LM334Z is a 3 terminal adjustable current source, offering a 10,000:1 operating current range housed in a plastic T092 style package. Dynamic voltage range 1 to 30V. Max. output current 10mA, power 20mW. Data sheet available.



Order code	1+	25+	100+	500+
LM334Z	0.65	0.50	0.42	0.35
Data sheet	99-0130	0.25		

Temperature sensor LM335Z

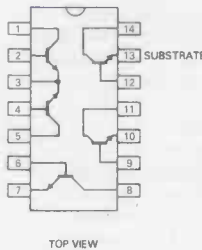
The LM335Z is a temperature sensor which produces an output current (1 μ A per degree Kelvin) proportional to absolute temperature. Ideal for remote sensing applications due to its high impedance current output.



Order code	1+	25+	100+	500+
LM335Z	0.70	0.55	0.47	0.38

Transistor array CA3046

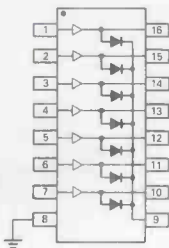
The CA3046 consists of 5 silicon NPN transistors on a common monolithic substrate in a 14 pin DIL package. Two transistors are internally connected to form a differential amplifier. Ideal for use where close electrical and thermal matching are an important consideration. Max. dissipation 300mW per transistor. V_{CEO} 15V, V_{CBO} 20V.



Order code	1+	25+	100+	500+
CA3046	0.45	0.35	0.30	0.25

Darlington drivers ULN2003/U LN2004

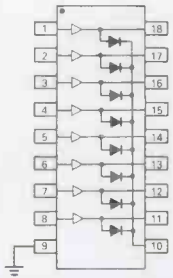
The ULN2003 and ULN2004 are monolithic high voltage, high current darlington transistor arrays. Each comprises 7 NPN darlington pairs. They feature high-voltage outputs with common-cathode clamp diodes for switching inductive loads. Collector-current rating of each darlington is 550mA. The ULN2003 has a series base resistor to each darlington pair which allows operation directly with TTL or CMOS. The ULN2004 has an appropriate series input resistor to allow operation directly from CMOS of supply voltages from 6 to 15V.



Order code	1+	25+	100+	500+
ULN2003	0.45	0.38	0.34	0.30
ULN2004	0.45	0.38	0.34	0.30

Octal darlington driver ULN2803

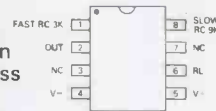
The ULN2803 is similar in configuration to the ULN2003 and ULN2004 but consists of 8 NPN darlington pairs. High voltage outputs with common cathode clamp diodes for switching inductive loads. Collector-current rating of each darlington is 550mA which may be paralleled to increase output current. Includes series base resistors which permits direct operation with TTL or CMOS. Applications include relay drivers, lamp drivers, display drivers, etc.



Order code	1+	25+	100+	500+
ULN2803	0.65	0.60	0.48	0.41

LED flasher/oscillator LM3909

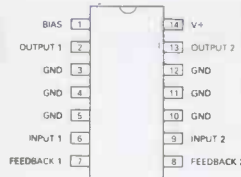
The LM3909 with the addition of a 1.5V battery and capacitor will deliver pulses of over 2V to an LED to flash it brightly with a current drain of less than 0.5mA. Output is sufficiently powerful to drive an 8 ohm speaker. Ideal for use in warning systems, trigger and sawtooth generators, etc.



Order code	1+	25+	100+	500+
LM3909	0.85	0.80	0.75	0.75

Dual 2W audio amplifier LM377

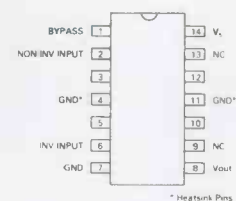
The LM377 will deliver 2W per channel into 8 or 16 ohm loads. The amplifier is designed to operate with a minimum of external components. Device overload protection consists of both internal current limit and thermal shutdown. Supply voltage 10 to 26V.



Order code	1+	25+	100+	500+
LM377	2.10	1.90	1.70	1.50

2W audio amplifier LM380

The LM380 is an audio amplifier housed in a 14 pin DIL package that requires only a few external components to construct a 2.5W power amplifier. Ideal speaker load 8 ohms. Supply voltage 20V.

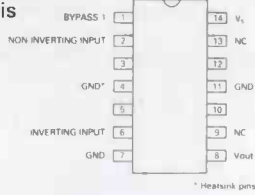
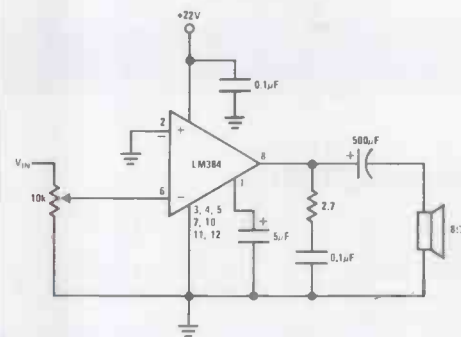


Order code	1+	25+	100+	500+
LM380	0.80	0.76	0.70	0.68

5W audio amplifier LM384

The LM384 is an audio amplifier housed in a 14 pin DIL package capable of producing 5W into an 8 ohm load. To keep cost to a minimum gain is internally fixed at 34dB. The output is short-circuit proof with internal thermal limiting. Supply voltage 28V. Harmonic distortion 1% max.

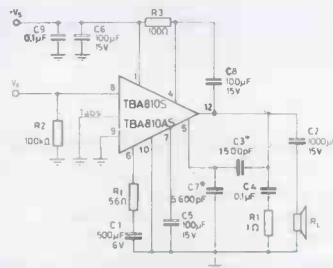
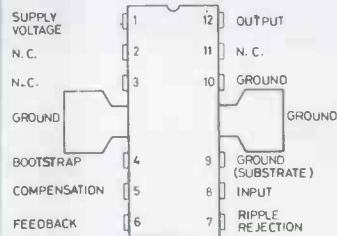
Typical 5W Amplifier



Order code	1+	25+	100+	500+
LM384	2.20	2.05	1.70	1.60

7W audio amplifier TBA810

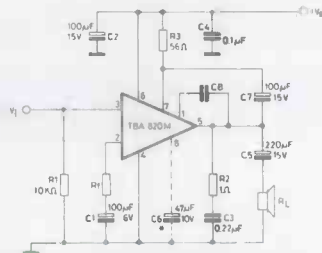
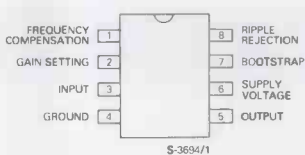
The TBA810 is an audio amplifier housed in a 12 lead quad-in-line package, intended for use as low frequency class B amplifier, capable of producing 7W into a 4 ohm load. Will work over a wide range of supply voltages from 4 to 20V. The device is also provided with a thermal protection circuit. Supply voltage typically 20V.



Order code	1+	25+	100+	500+
TBA810	0.60	0.53	0.46	0.41

1.2W audio amplifier TBA820M

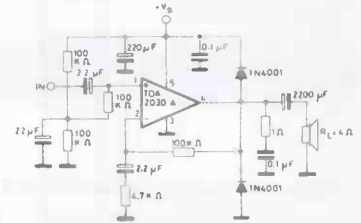
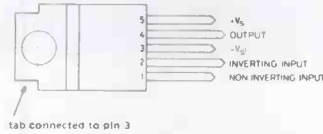
The TBA820M is an audio amplifier housed in an 8 pin DIL package capable of producing an output of 1.2W into an 8 ohm load. Supply voltage range 3 to 16V. Features include low quiescent current, good ripple rejection and low power dissipation. Ideal for use in many portable instruments.



Order code	1+	25+	100+	500+
TBA820M	0.40	0.32	0.285	0.265

14W audio amplifier TDA2030H

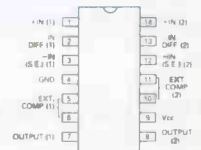
The TDA2030H is an audio amplifier housed in a TAB package capable of producing 12W into a 4 ohm load and 8W into an 8 ohm load. Features high output current and very low harmonic and cross-over distortion. The device is also short circuit protected. Thermal shutdown is also included. Supply voltage 18V. Designed to be mounted horizontally onto PCB.



Order code	1+	25+	100+	500+
TDA2030H	1.00	0.88	0.78	0.69

Low noise dual preamplifier LM381

The LM381 is a stereo preamplifier designed for single rail supplies from 8 to 40V. Features include low noise output, wide bandwidth, signal gain of approx. 120dB and channel separation of 60dB. Supply voltage range to 40V. Distortion 0.1%. Housed in a 14 pin DIL package.



Order code	1+	25+	100+	500+
LM381	2.00	1.90	1.70	1.60

Low noise dual preamplifier LM382

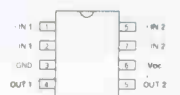
The LM382 is a stereo preamplifier designed for supplies from 8 to 40V. Device is similar to LM381 in design but with on-chip resistors to considerably reduce number of external components required.



Order code	1+	25+	100+	500+
LM382	1.50	1.40	1.35	1.30

Low noise preamplifier LM387

The LM387 is a stereo preamplifier housed in an 8 pin DIL package. Internal design similar to LM381. Supply voltage 9 to 30V.



Order code	1+	25+	100+	500+
LM387	1.60	1.45	1.30	1.23

AM radio receiver ZN414Z

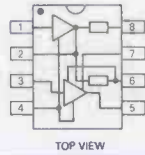
The ZN414Z consists of a 10-transistor TRF receiver housed in a TO92 package. The IC contains an RF amplifier, detector and AGC circuit and requires only a few components to form a high quality AM radio receiver. Features low current consumption and excellent stability. Supply voltage typically 1.3V. Supply current 300µA. 4kHz bandwidth.



Order code	1+	25+	100+	500+
ZN414Z	0.80	0.75	0.65	0.60

AM radio receiver ZN416E

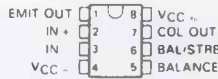
The ZN416E is a buffered output version of the ZN414Z and is housed in an 8 pin DIL package providing a typical output of 120mV into a 64 ohm load. Ideal for use as direction finder, frequency standard or radio receiver. Supply voltage typically 1.3V. Supply current 4mA. Typical gain 18dB.



Order code	1+	25+	100+	500+
ZN416E	1.25	1.15	0.90	0.90

Voltage comparator LM311

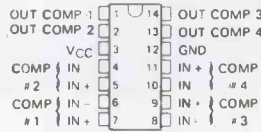
The LM311 is a high performance voltage comparator, featuring low input current, direct output interface with TTL loads. Also capable of driving lamp or relay loads at voltages up to 40V and 50mA. Supplied in an 8 pin DIL package.



Order code	1+	25+	100+	500+
LM311	0.28	0.23	0.19	0.16

Voltage comparator LM339

The LM339 is a quad comparator housed in a 14 pin DIL package. Features include a low offset voltage, single power supply over a wide range of voltages. Operation from split power supplies is also possible. Applications include square wave and time delay generators and voltage sensing close to 0V.



Order code	1+	25+	100+	500+
LM339	0.25	0.20	0.17	0.155

Dual voltage comparator LM393

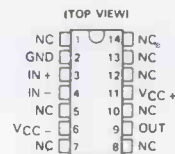
The LM393 is similar in internal design to the LM339 but consists of a dual comparator housed in an 8 pin DIL package.



Order code	1+	25+	100+	500+
LM393	0.25	0.20	0.17	0.155

High speed comparator LM710

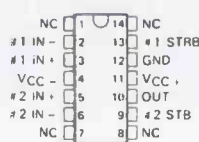
The LM710 is a high speed comparator housed in a 14 pin DIL package. Ideally suited to level detection. Care should be exercised when used to ensure maximum stability.



Order code	1+	25+	100+	500+
LM710	0.50	0.42	0.38	0.35

Dual high speed comparator LM711

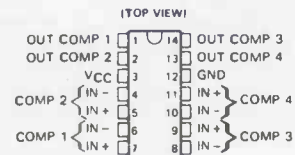
The LM711 consists of two high speed voltage comparators housing in a 14 pin DIL package. Similar in specification to the LM710 features low offset and thermal drift, a large input voltage range, low power consumption, fast recovery from large overloads and compatibility with most integrated logic circuits.



Order code	1+	25+	100+	500+
LM711	0.48	0.42	0.38	0.35

Quad comparator MC3302

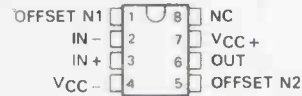
The MC3302 consists of four independent precision voltage comparators housed in a 14 DIL package designed to operate from a single power supply. A feature includes common-mode voltage range that can include zero even though operated from a single power source.



Order code	1+	25+	100+	500+
MC3302	0.75	0.65	0.60	0.54

Single operational amplifier TLO61

The TLO61 is a single BI-FET operational amplifier housed in an 8 pin DIL package. Features very low power consumption typically 200µA at 15V. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO61	0.28	0.24	0.21	0.185

Dual operational amplifier TLO62

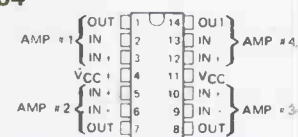
The TLO62 is a dual BI-FET operational amplifier housed in an 8 pin DIL package. Features low power consumption typically 200µA per amplifier at 15V. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO62	0.35	0.28	0.245	0.215

Quad operational amplifier TLO64

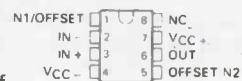
The TLO64 is a quad BI-FET operational amplifier housed in a 14 pin DIL package. Features low power consumption typically 200µA per amplifier. Channel separation typically 120dB. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO64	0.45	0.38	0.32	0.29

Single operational amplifier TLO71

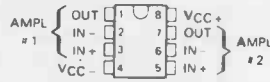
The TLO71 is a single BI-FET operational amplifier housed in an 8 pin DIL package. Features include very low noise, typically 18nV/Hz input noise at 1kHz and distortion of 0.01% at 10V rms at 1kHz. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO71	0.28	0.24	0.21	0.185

Dual operational amplifier TLO72

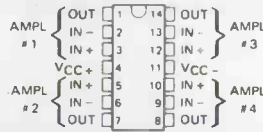
The TLO72 is a dual BI-FET operational amplifier housed in an 8 pin DIL package. Features include very low noise and very low distortion levels. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO72	0.32	0.26	0.23	0.21

Quad operational amplifier TLO74

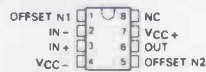
The TLO74 is a quad BI-FET operational amplifier housed in a 14 pin DIL package. Features include very low noise and very low distortion levels. Pin compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO74	0.42	0.35	0.30	0.275

Single operational amplifier TLO81

The TLO81 is a single BI-FET operational amplifier housed in an 8 pin DIL package. Ideal for use in general purpose applications including amplifiers and filters, etc. Compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO81	0.28	0.24	0.21	0.185

Dual operational amplifier TLO82

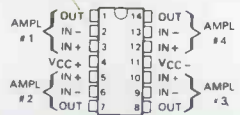
The TLO82 is a dual BI-FET operational amplifier housed in an 8 pin DIL package. Ideal for use in general purpose applications including amplifiers and filters, etc. Compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO82	0.35	0.28	0.245	0.215

Quad operational amplifier TLO84

The TLO84 is a quad BI-FET operational amplifier housed in a 14 pin DIL package. Ideal for general purpose application including amplifiers and filters, etc. Compatible with many other operational amplifier families.



Order code	1+	25+	100+	500+
TLO84	0.42	0.35	0.30	0.275

Single operational amplifier LM301A

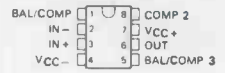
The LM301A is a general purpose bi-polar operational amplifier housed in an 8 pin DIL package. External compensation is provided.



Order code	1+	25+	100+	500+
LM301A	0.25	0.21	0.18	0.16

High performance operational amplifier LM318N

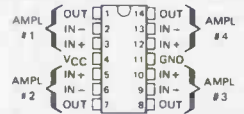
The LM318N is a precision high speed operational amplifier designed for applications requiring wide bandwidth and high slew rate. Slew rate of 50V/ μ s min. Bandwidth 15MHz typ. Internal frequency compensation. Supply voltage 5V to 20V.



Order code	1+	25+	100+	500+
LM318N	1.20	1.10	1.00	0.95

Quad operational amplifier LM324

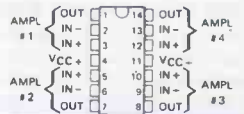
The LM324 consists of four operational amplifiers housed in a 14 pin DIL package. Ideally suited to single supply applications. All four amplifiers are internally compensated.



Order code	1+	25+	100+	500+
LM324	0.22	0.19	0.16	0.14

Quad operational amplifier LM348

The LM348 consists of four independent operational amplifiers housed in a 14 pin DIL package. Amplifiers used are equivalent to the 741 type.



Order code	1+	25+	100+	500+
LM348	0.45	0.36	0.31	0.26

Single operational amplifier LF351

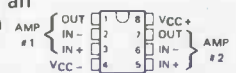
The LF351 consists of a high performance wide bandwidth BI-FET operational amplifier housed in an 8 pin DIL package. Features high slew rate, high gain bandwidth and low current requirement. Pin compatible with the 741.



Order code	1+	25+	100+	500+
LF351	0.35	0.29	0.26	0.22

Dual operational amplifier LF353

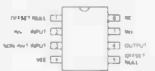
The LF353 consists of a high performance wide bandwidth dual operational amplifier housed in an 8 pin DIL package. Features high slew rate, high gain bandwidth and low current requirement. Similar to the TLO72.



Order code	1+	25+	100+	500+
LF353	0.45	0.37	0.315	0.26

Single operational amplifier LF356

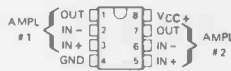
The LF356 consists of a high performance wide bandwidth single operational amplifier housed in an 8 pin DIL package. Features low input bias current, typically 30pA, low input offset voltage 1.0mV and high input impedance of 10^{12} ohms.



Order code	1+	25+	100+	500+
LF356	0.58	0.45	0.39	0.33

Dual operational amplifier LM358

The LM358 consists of two operational amplifiers housed in an 8 pin DIL package. Features include short circuit protected outputs, low inputs bias currents, internal compensation, single and split supply operation. Supply voltage 32V. Input voltage -0.3 to +32V.



Order code	1+	25+	100+	500+
LM358	0.25	0.20	0.17	0.155

Gated linear amplifier ZN424P

The ZN424P consists of a linear amplifier housed in an 8 pin DIL package. Features include typical gain of 86dB, input-output isolation gating facility, TTL compatibility and low noise and open-loop distortion levels.



Order code	1+	25+	100+	500+
ZN424P	0.70	0.60	0.50	0.50

Operational amplifier ZN459

The ZN459 consists of a high performance amplifier housed in an 8 pin DIL package. Features include low input noise resistance 45 ohms or 800pV/Hz, high bandwidth of 15MHz, gain of 60dB, low supply current of 3mA typ.



Order code	1+	25+	100+	500+
ZN459	1.90	1.60	1.50	1.40

Single operational amplifier NE531

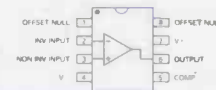
The NE531 consists of a single operation amplifier housed in an 8 pin DIL package. Features a very high slew rate capability yet keeps DC performance similar to that of the 741.



Order code	1+	25+	100+	500+
NE531	1.20	1.05	0.90	0.85

Instrumentation operational amplifier LM725

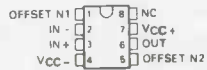
The LM725 is a high specification operational amplifier housed in an 8 pin DIL package. Features include low input noise current 0.15pA/Hz, high open loop gain of 3,000,000, low input offset current 2nA and high common mode rejection 120dB. Offset null capability.



Order code	1+	25+	100+	500+
LM725	2.70	2.45	2.10	1.90

Operational amplifier 741

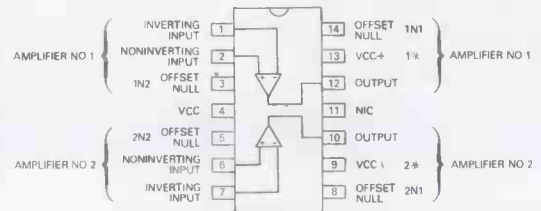
The 741 is the industry standard general purpose operational amplifier featuring internal frequency compensation. The amplifier is overload protected on input and output.



Order code	1+	25+	100+	500+
741	0.16	0.14	0.12	0.10

Dual operational amplifier 747

The 747 consists of two 741 operational amplifiers in one package. The two amplifiers share a common bias network and power supply leads. Channel separation is 98dB at 1kHz.



Order code	1+	25+	100+	500+
747	0.45	0.40	0.34	0.28

Operational amplifier 748

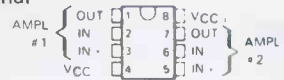
The 748 consists of a single operational amplifier housed in an 8 pin DIL package. Very similar to the 741 but requires external frequency compensation allowing best high frequency performance to be achieved for any given gain.



Order code	1+	25+	100+	500+
748	0.30	0.27	0.24	0.20

Dual operational amplifier LM1458

The LM1458 consists of two 741 operational amplifiers housed in an 8 pin DIL package. The two amplifiers share a common bias network and power supply leads. Channel separation 98dB at 1kHz.



Order code	1+	25+	100+	500+
LM1458	0.25	0.20	0.17	0.155

Operational transconductance amplifier CA3080

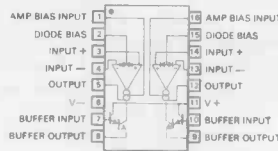
The CA3080 consists of an operational transconductance amplifier housed in an 8 pin DIL package. The output current of the operational amplifier is proportional to the voltage difference between the input pins. The device also has a bias input which may be used either for gating or for linear gain control. High slew rate of 50V/μs. Supply voltage +4 to +30V DC.

Order code	1+	25+	100+	500+
CA3080	0.48	0.41	0.36	0.32

For Stripboard at the most competitive price in the UK – see page 61.

Dual operational transconductance amplifier LM13600

The LM13600 consists of two operational transconductance amplifiers housed in a 16 pin DIL package. Each individual amplifier feature differential inputs and push-pull outputs but share a common power supply rail. Applications include multiplexer circuits, sample and hold circuits, oscillators, filters, etc. Supply voltage +4 to +36V.



Order code	1+	25+	100+	500+
LM13600	1.00	0.90	0.78	0.74

Single operational amplifier CA3130E

The CA3130E consists of a single MOS-FET CMOS output operational amplifier housed in an 8 pin DIL package. Features include dual power supply, and input terminals can be swung to 0.5V below negative rail potential.

Order code	1+	25+	100+	500+
CA3130E	0.60	0.50	0.435	0.38

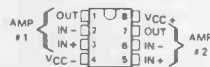
Single operational amplifier CA3140E

The CA3140E consists of a single MOS-FET output operational amplifier housed in an 8 pin DIL package. Features include single or dual supply rail and high input impedance. May be used in place of the 741 amplifier if high input impedance is required.

Order code	1+	25+	100+	500+
CA3140E	0.35	0.29	0.26	0.225

Dual operational amplifier CA3240

The CA3240 consists of two MOS-FET CMOS output operational amplifiers housed in an 8 pin DIL package. Equivalent to two CA3140E in one package. Channel separation 120dB.



Order code	1+	25+	100+	500+
CA3240E	0.80	0.70	0.62	0.54

Quad operational amplifier LM3900

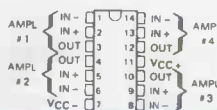
The LM3900 consists of four dual input, internally compensated amplifiers designed for single rail operation. Housed in a 14 pin DIL package. Amplifiers are current mirror types. Input voltage is limited to 0.6V approx. Output short circuit protected.



Order code	1+	25+	100+	500+
LM3900	0.50	0.45	0.40	0.37

Quad operational amplifier RC4136

The RC4136 consists of four high performance operation amplifiers housed in a 14 pin DIL package. Features include low noise input, low crossover distortion. THD less than 0.5%. Ideal for use in audio preamplifiers and general signal processing applications.



Order code	1+	25+	100+	500+
RC4136	0.65	0.60	0.55	0.52

Dual operational amplifier RC4558

The RC4558 consists of two high performance operational amplifiers housed in an 8 pin DIL package. Electrically similar to the 741. Offset null is not included.



Order code	1+	25+	100+	500+
RC4558	0.45	0.39	0.35	0.30

Dual operational amplifier NE5532

The NE5532 consists of two high performance low noise operational amplifiers housed in an 8 pin DIL package. Equivalent to dual version of the NE5534. Input noise very low at 5nV/Hz.



Order code	1+	25+	100+	500+
NE5532	1.10	0.90	0.70	0.65

Single operational amplifier NE5534

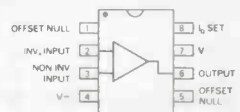
The NE5534 consists of a single high performance low noise operational amplifier housed in an 8 pin DIL package. External frequency compensation may be used to derive maximum performance from the device. Input noise very low at 3.5nV/Hz.



Order code	1+	25+	100+	500+
NE5534	0.75	0.60	0.45	0.39

Single operational amplifier ICL7611

The ICL7611 is a CMOS operational amplifier in which the quiescent current can be controlled providing low power consumption or wide bandwidth. Operating voltage range +0.5V to 8V. Output swing is excellent to within several millivolts of supply voltage. Housed in an 8 pin DIL package.



Order code	1+	25+	100+	500+
ICL7611	0.90	0.85	0.80	0.75

Dual operational amplifier ICL7621

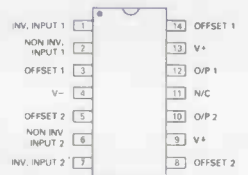
The ICL7621 is a dual version of the ICL7611 CMOS operational amplifier housed in an 8 pin DIL package. Channel separation typically 120dB.



Order code	1+	25+	100+	500+
ICL7621	1.40	1.30	1.20	1.10

Dual operational amplifier ICL7622

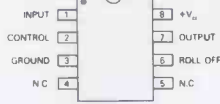
The ICL7622 is a dual version of the ICL7611 but will offset null adjustment housed in a 14 pin DIL package. Channel separation typically 120dB.



Order code	1+	25+	100+	500+
ICL7622	1.40	1.30	1.20	1.10

Electronic attenuator MC3340

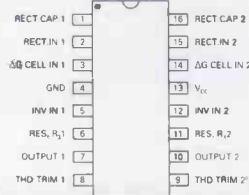
The MC3340 is an electronic attenuator designed for use in DC operated volume controls housed in an 8 pin DIL package. Control can be by external potentiometer or DC voltage. Supply voltage 9-18V. Gain typ. 13dB. Attenuation range 90dB. Max. input voltage 0.5V rms.



Order code	1+	25+	100+	500+
MC3340	1.30	1.20	1.10	1.05

Comparator NE570/NE571

The NE570 and NE571 are stereo gain control circuits in which either channel may be used as a dynamic range compressor or expander. Both channels have a full wave rectifier to detect the average value of a signal, a variable gain block and an operational amplifier.



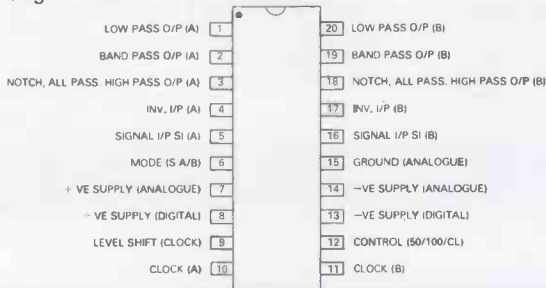
Technical specification

	NE570	NE571
Supply voltage range	6 to 24V	6 to 18V
Supply current	3.2mA	3.2mA
Output current	20mA	20mA
Slew rate	0.5V/μs	0.5V/μs
Internal ref. voltage	1.8V	1.8V
Output DC shift	20mV	30mV
Expander output noise	20μV	20μV

Order code	1+	25+	100+	500+
NE570	2.00	1.75	1.45	1.35
NE571	2.00	1.75	1.45	1.35

Monolithic filter MF10CN

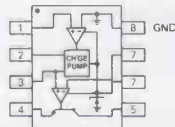
The MF10CN is a dual switched capacitor filter IC housed in a 20 pin DIL package. Upon addition of an external clock and a handful of resistors the device contains all the circuitry to construct two second order active filter networks. Each separate device has three outputs to enable either highpass, allpass or notch facilities to be selected. Centre or break frequency can be controlled externally to 20kHz. Devices can be cascaded to provide multiple filter networks. Supply voltage range ±4 to ±7V.



Order code	1+	25+	100+	500+
MC10CN	3.20	3.00	2.90	2.70

Frequency to voltage converter LM2917N8

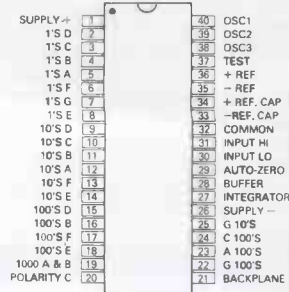
The LM2917N8 is a frequency to voltage converter housed in an 8 pin DIL package. Intended for use in tachometer circuits converting an input pulse into an analogue voltage or current.



Order code	1+	25+	100+	500+
LM2917N8	1.70	1.60	1.50	1.45

3½ digit CMOS A to D converter ICL7106

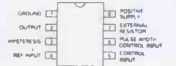
The ICL7106 when combined with a display, power supply and a few passive components will form a complete digital meter. Housed in a 40 pin DIL package. Full 3½ digit capacity providing full scales of 200mV or 2000V. Can be directly linked to our 3½ digit LCD displays. Supply voltage 9V typ.



Order code	1+	25+	100+	500+
ICL7106	6.80	6.80	6.00	5.60

Triac controller TDA1024

The TDA1024 is a triac control device which generates positive pulses to fire a triac or thyristor. Housed in an 8 pin DIL package. The trigger pulses coincide with the zero crossings of the mains voltage to minimise RF interference and transients on the supply. Supply voltage 6.5V. Supply current 10mA.



Order code	1+	25+	100+	500+
TDA1024	1.10	0.95	0.85	0.80

Servo amplifier NE544

The NE544 is a servo amplifier and pulse width modulator complete with internal motor drive transistors housed in a 14 pin DIL package. Primarily intended for remote control applications in digital proportional systems. Features 0.5A load current capability with bidirectional bridge output that requires only a single supply voltage, quiescent power drain of only 5mA and 20mA drive for two external power transistors. Supply voltage 3.2 to 6V.



Order code	1+	25+	100+	500+
NE544	1.70	1.50	1.20	1.10

Single timer NE555

The NE555 is a timing circuit housed in an 8 pin DIL package capable of producing accurate time delays or oscillation. In the time delay mode the timed interval is controlled by a single external resistor and capacitor network. In the astable mode of operation, the frequency and duty cycle may be independently controlled with two external resistors and a single capacitor. Supply voltage 18V.



Order code	1+	25+	100+	500+
NE555	0.16	0.14	0.12	0.10

Low power single timer ICM7555

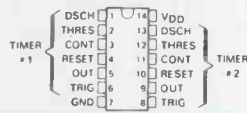
The ICM7555 is a low power CMOS version of the NE555 offering a much reduced power consumption (typically 1mW at V_{CC}=5V) over a wide range of supply voltages from 2V to 18V. The device will directly replace the NE555 in most standard applications. Housed in a standard 8 pin DIL package.



Order code	1+	25+	100+	500+
ICM7555	0.45	0.40	0.34	0.30

Dual timer NE556

A dual version of the standard NE555 timer. Housed in a standard 14 pin DIL package.



Order code	1+	25+	100+	500+
NE556	0.30	0.25	0.22	0.18

Low power dual timer ICM7556

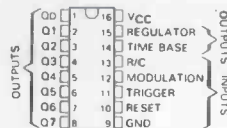
A dual version of the standard dual timer NE556. Housed in a standard 14 pin DIL package.



Order code	1+	25+	100+	500+
ICM7556	1.10	1.00	0.88	0.77

Programmable timer UA2240

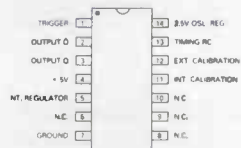
The UA2240 is a programmable timer capable of providing a time delay from a few microseconds to days. The circuit consists of a timebase oscillator, an eight bit counter, control flip-flop, and a voltage regulator. Supply voltage 18V. Dissipation 650mW. Using two circuits in cascade can provide precise time delays of up to three years. Outputs are compatible with TTL and CMOS.



Order code	1+	25+	100+	500+
UA2240	1.50	1.40	1.40	1.40

Precision timer ZN1034E

The ZN1034E is a precision timer housed in a 14 pin DIL package. Utilising digital techniques this device will provide time delays from 50ms to several days. Accuracy typically 0.01%. Fully TTL compatible. Supply voltage 5V.



Order code	1+	25+	100+	500+
ZN1034E	1.90	1.50	1.30	1.25

Prescaler SP8629

The SP8629 is a fixed scale (divide by 100) divider housed in an 8 pin DIL package. Toggle frequency guaranteed at 150MHz. The device has differential inputs which can be operated in the single-ended mode if so desired. An integral amplifier is also included on-chip. Fully TTL compatible. Supply voltage 5V.



Order code	1+	25+	100+	500+
SP8629	1.50	1.45	1.40	1.35

Function generator NE566

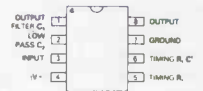
The NE566 is a versatile function generator housed in an 8 pin DIL package. Features include excellent linearity, very stable frequency. Frequency is determined by two external components. Applications include tone generators, clock generators and signal generators. Supply voltage 10 to 24V.



Order code	1+	25+	100+	500+
NE566	0.90	0.77	0.68	0.63

Tone decoder NE567

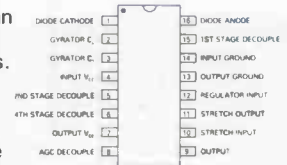
The NE567 consists of a highly stable PLL with synchronous AM lock detection and power output circuitry. Centre frequency and output delay are determined by four external components. Housed in an 8 pin DIL package. Applications include ultrasonic controls, precision oscillators, etc. Supply voltage 10V.



Order code	1+	25+	100+	500+
NE567	0.60	0.45	0.33	0.29

Infra-red amplifier SL486

The SL486 is high gain preamplifier designed to form an interface between an infra-red receiving diode and the digital input of remote control receiving circuits. The device contains two other circuit elements: one to provide a stretched output pulse facility and a voltage regulator to allow operation from a wide range of supplies. Supply voltage 10V.

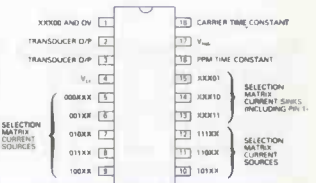


Order code	1+	25+	100+	500+
SL486	2.10	1.90	1.75	1.70
99-0185	0.21			

Data sheet

Remote control transmitter SL490

The SL490 is an easily extendable 32 command pulse position modulation transmitter drawing negligible standby current. Designed for use with the ML920 series of remote control receivers. Supply voltage 9V, standby current 6µA. Carrier frequency selectable from 0 to 200kHz. Housed in an 18 pin DIL package.

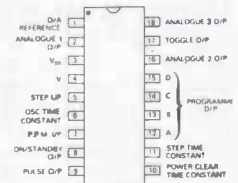


Order code	1+	25+	100+	500+
SL490	2.10	1.90	1.75	1.70
99-0190	0.21			

Data sheet

Remote control receiver ML922

The ML922 is a remote control receiver housed in an 18 pin DIL package. The device demodulates the PPM signal received from the SL490 transmitter. After error checking the received code may condition a 10 programme memory or one of three DACs. The receiver timing may be set by adjusting the oscillator time constant to give 40 periods at pin 6 equal to a 0 interval on the received PPM input. Power supply 16V 14mA.

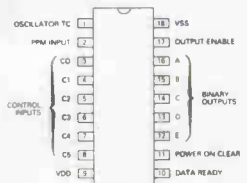


Order code	1+	25+	100+	500+
ML922	3.95	3.50	3.30	3.30
99-0160	0.15			

Data sheet

Remote control receiver ML924

The ML924 is a MOS/LSI device for use as a receiver of remote control signals operated by the SL490 transmitter circuit, using PPM encoding techniques housed in an 18 pin DIL package. The receiver has 5 digital outputs whose response to PPM codes may be programmed by six control lines. It has a handshake interface which provides communication with microprocessors and computers. Supply voltage 12 to 18V.

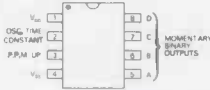


Order code	1+	25+	100+	500+
ML924	3.50	3.30	3.00	3.00
99-0165	0.30			

Data sheet

Remote control receivers ML926/ML927

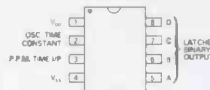
The ML926 and ML927 are MOS/LSI monolithic circuits for use as receivers of remote control signals for television control and many other applications. They are general purpose devices each receiving 16 of the 32 codes transmitted by the SL490 as PPM. Both devices are housed in an 8 pin DIL package.



	Order code	1+	25+	100+	500+
	ML926	3.00	2.70	2.55	2.55
	ML927	3.00	2.80	2.55	2.55
Data sheet	99-0175	0.15			

Remote control receivers ML928/ML929

The ML928 and ML929 are MOS/LSI general purpose remote control receivers each receiving and latching 16 of the 32 codes transmitted by the SL490 device in the PPM mode. The ML928 responds to codes 00000 to 01111 only, and the ML929 to codes 10000 to 11111. Both are housed in an 8-pin DIL package. The on-chip oscillator may be adjusted from 15Hz to 150kHz allowing different transmission rates.



	Order code	1+	25+	100+	500+
	ML928	3.00	2.70	2.55	2.55
	ML929	3.00	2.80	2.55	2.55
Data sheet	99-0180	0.15			

Function generator ICL8038

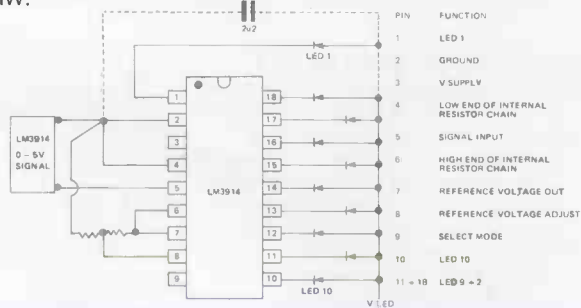
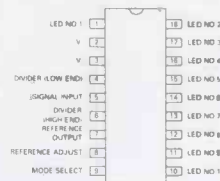
The ICL8038 is a waveform generator capable of producing a wide variety of waveforms housed in a 14 pin DIL package. The device will produce sine, square, triangular, sawtooth, ramp and pulse waveforms of high accuracy. Frequency is selected externally which can be adjusted from 0.001Hz to 100kHz. Supply voltage 18 to 36V. Supply current 20mA.



	Order code	1+	25+	100+	500+
	ICL8038	3.80	3.30	2.90	2.50

LED bar graph display drivers LM3914/LM3915

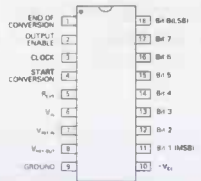
The LM3914 and LM3915 devices provide simple and effective means of driving LED bar arrays. Housed in 18 pin DIL packages. Ideally suited to our bar graph LED displays. Each device converts an analogue input voltage and directly drives the display where the amplitude of the signal determines the number of segments illuminated. Can easily be altered to moving dot display. The LM3914 exhibits a linear relationship with the input voltage and the LM3915 a logarithmic relationship. Supply voltage 3 to 18V. Max. power dissipation 600mW.



	Order code	1+	25+	100+	500+
	LM3914	1.90	1.80	1.75	1.70
	LM3915	1.90	1.80	1.75	1.70

A to D converter ZN427E

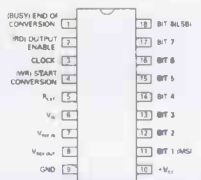
The ZN427E is an 8-bit A to D converter with tri-state outputs to permit easy interfacing to a common data bus. The device contains a voltage switching DAC, a fast comparator, successive approximation logic and a 2.56V precision voltage reference. Supply voltage 4.5 to 5.5V. Supply current 25mA.



	Order code	1+	25+	100+	500+
	ZN427E	5.70	5.30	4.70	4.70

A to D converter ZN448E

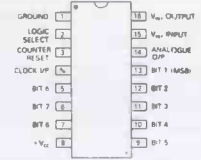
The ZN448E is an 8-bit A to D converter with tri-state output buffers for easy interfacing to microprocessor and digital systems. Designed for stand alone operation requiring only a minimum of external components. The device contains a 2.5V precision reference, comparator, clock generator, interface and control logic. Supply voltage 4.5 to 5.5V. Supply current 25mA.



	Order code	1+	25+	100+	500+
	ZN448E	5.50	5.20	4.50	4.50

A to D/D to A converter ZN425E

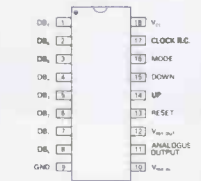
The ZN425E is an 8-bit D to A converter housed in a 16 pin DIL package. Included on-chip are a counter and a 2.5V precision voltage reference. The device may also be used as an A to D converter or as a ramp generator. Fully TTL and CMOS compatible. Supply voltage 4.5 to 5.5V. Supply current 25mA.



	Order code	1+	25+	100+	500+
	ZN425E	3.40	2.90	2.50	2.30

Multifunction data converter ZN435E

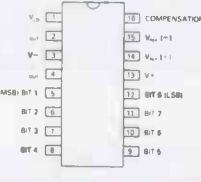
The ZN435E contains an 8-bit D/A converter, a precision voltage reference, an 8-bit up/down counter with control logic and an oscillator. The DAC uses a voltage switching R-2R ladder network with reference voltage sourced either internally or externally. The counter can be used to feed the DAC to provide a variety of waveforms. Housed in an 18 pin DIL package. Supply voltage 5V. Supply current 35mA.



	Order code	1+	25+	100+	500+
	ZN435E	3.95	3.50	2.95	2.95

High speed D to A converter DAC0800LCN

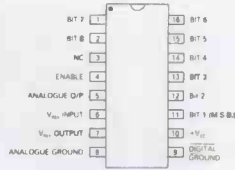
The DAC0800LCN is a high speed D to A converter housed in a 16 pin DIL package providing complementary current outputs. Fully TTL compatible. A feature of this device is a wide operating voltage range and very low power consumption. Supply voltage 4.5 to 18V.



	Order code	1+	25+	100+	500+
	DAC0800LCN	2.50	2.30	2.15	1.95

D to A converter ZN428E

The ZN428E is an 8-bit D/A converter with input latches to enable updating from a data bus. A 2.5V precision voltage reference is also included. Housed in a 16 pin DIL package. Complementary to the ZN427E. Supply voltage 4.5 to 5.5V. Supply current 20mA.



Order code	1+	25+	100+	500+
ZN428E	4.50	4.20	3.60	3.60

D to A converter ZN426E

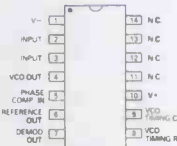
The ZN426E is an 8-bit D/A converter complete with 2.5V precision voltage reference. Binary weighted voltages are produced at the output, value determined by number applied to the input. Housed in a 14 pin DIL package. Supply voltage 4.5 to 5.5V. Supply current 8mA.



Order code	1+	25+	100+	500+
ZN426E	2.00	1.75	1.45	1.40

Phase locked loop NE565

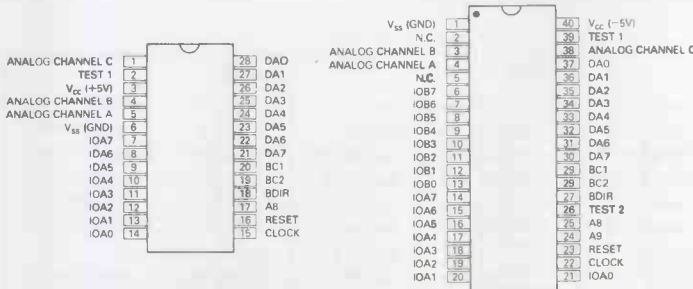
The NE565 contains a VCO, phase detector and amplifier all housed in a 14 pin DIL package. Features of this device include high stability and high linearity. Centre frequency is set by the addition of two external components. Applications include modems, tone decoders and frequency multiplication and division. Supply voltage 5 to 12V.



Order code	1+	25+	100+	500+
NE565	0.90	0.77	0.68	0.63

Programmable sound generators AY-3-8910/AY-3-8912

The AY-3-8910 and AY-3-8912 are LSI programmable sound generators which can produce a wide variety of complex sounds under software control. Operation requires a 5V supply, a TTL compatible clock, and a microprocessor controller. Easily interfaced to any bus oriented system. The AY-3-8910 has two general purpose 8-bit I/O ports and is supplied in a 40 pin DIL package and the AY-3-8912 has one port and is housed in a 28 pin DIL package. Applications include music synthesis and general sound effects generation.



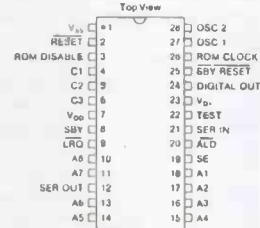
Order code	1+	25+	100+	500+
AY-3-8910	4.80	4.50	4.20	3.90
AY-3-8912	4.80	4.50	4.20	3.90
Data sheet	99-0110	0.36		

Speech synthesiser SPO256AL2

The SPO256AL2 is a speech synthesiser containing 64 allophones which when added together can produce any sound in the English language. The achievable output is equivalent to a flat frequency response ranging from 0 to 5kHz, a dynamic range of 42dB, and a signal to noise ratio of approximately 35dB. The device includes four functions:

- A software programmable digital filter that can be made to form a vocal tract.
- A 16K ROM which stores both data and instructions.
- A microcontroller which controls the data flow from the ROM to the digital filter, the assembly of the 'word strings' necessary for linking speech elements together, and the amplitude and pitch information to excite the digital filter.
- A pulse width modulator that creates a digital output which is converted to an analogue signal when filtered by an external low pass filter.

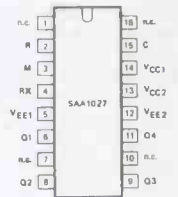
Supplied in a 28 pin DIL package.



Order code	1+	25+	100+	500+
SPO256AL2	7.20	6.80	6.50	6.20
Data sheet	99-0200	0.50		

Stepper motor drive circuit SAA1027

The SAA1027 is a bi-polar integrated circuit intended for driving four-phase two-state motors. The circuit consists of a bi-directional four-state counter and a code converter to drive the four outputs in the sequence required for driving a stepper motor.

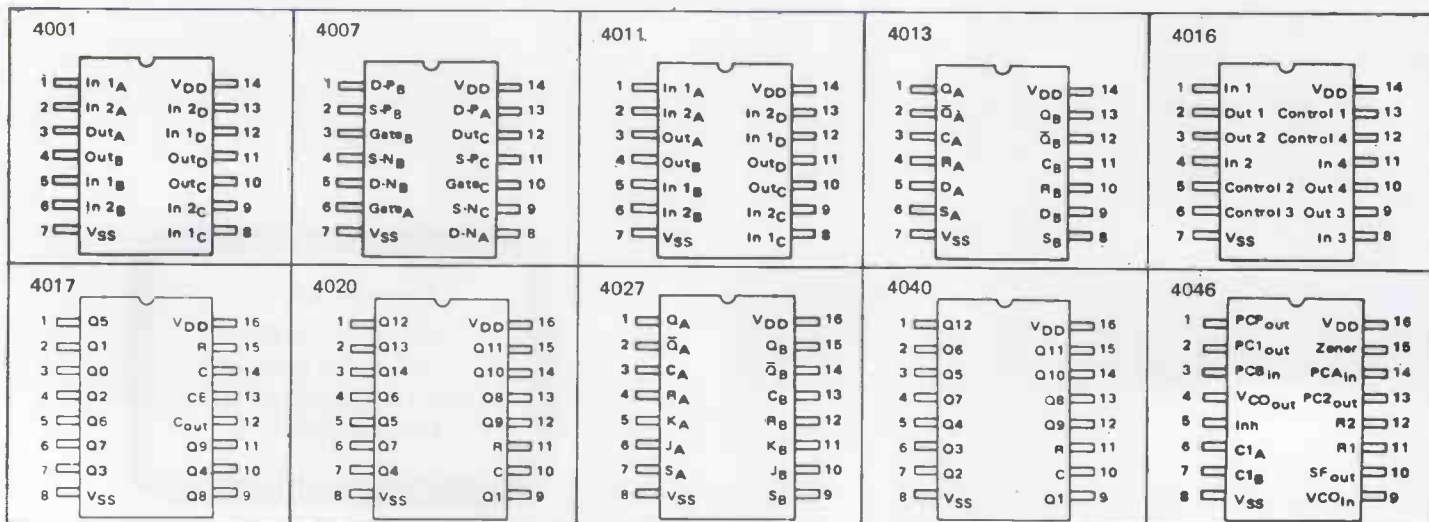


Order code	1+	25+	100+	500+
SAA1027	2.20	1.95	1.55	1.50

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CMOS

Order code 7+	100+	500+		DIL 14	Order code 1+	100+	500+		DIL 14
4000B	0.15	0.10	0.085	Dual 3-input NOR gate+inverter	4070UB	0.15	0.10	0.085	Quad 2-input exclusive OR gate
4001B	0.15	0.10	0.085	Quad 2-input NOR gate	4071B	0.15	0.10	0.085	Quad 2-input OR buffer/gate
4002B	0.15	0.10	0.085	Dual 4-input NOR gate	4072B	0.15	0.10	0.085	Dual 4-input OR gate
4006B	0.40	0.26	0.22	18 stage static shift register	4073B	0.15	0.10	0.085	Triple 3-input AND gate
4007UB	0.15	0.10	0.085	Dual compl. pair+inverter	4075B	0.15	0.10	0.085	Triple 3-input OR gate
4008B	0.40	0.26	0.22	4-bit binary full adder	4076B	0.45	0.31	0.26	Quad D-type flip-flop
4009UB	0.25	0.18	0.15	Hex inverter/buffer	4077B	0.29	0.20	0.165	Quad EXCLUSIVE-NOR gate
4010B	0.25	0.18	0.15	Hex buffers	4081B	0.14	0.09	0.08	Quad 2-input AND gate
4011B	0.15	0.10	0.085	Quad 2-input NAND gate	4082B	0.15	0.10	0.085	Dual 4-input AND gate
4012B	0.15	0.10	0.085	Dual 4-input NAND gate	4085B	0.33	0.22	0.18	Dual 2-wide 2-in AND-OR-INVERT
4013B	0.22	0.15	0.12	Dual D-type flip-flop	4086B	0.35	0.22	0.185	4-wide 2-input AND-OR-INVERT
4014B	0.20	0.14	0.11	8-bit shift register	4089B	1.10	0.55	0.48	Binary rate multiplier
4015B	0.20	0.14	0.11	Dual 4-bit shift register	4093B	0.18	0.12	0.10	Quad 2-input NAND schmitt trigger
4016B	0.20	0.14	0.11	Quad bilateral switches	4094B	0.55	0.40	0.33	8 stage shift+store bus register
4017B	0.32	0.21	0.17	Decade counter/divider	4095B	0.80	0.62	0.52	J-K flip-flop
4018B	0.32	0.22	0.185	Presetable divide by n counter	4097B	1.30	0.65	0.57	8 channel differential multiplexer
4019B	0.28	0.19	0.155	Quad 2-input multiplexers	4098B	0.70	0.38	0.34	Retriggerable dual monostable
4020B	0.33	0.22	0.185	14 stage binary counter	4099B	0.48	0.33	0.275	8-bit addressable latch
4021B	0.40	0.27	0.225	8-bit shift register	40106B	0.25	0.16	0.135	Hex Schmitt trigger
4022B	0.36	0.25	0.205	Divide-by-8 counter/divider	40109B	1.30	0.75	0.68	Quad level shifter
4023B	0.15	0.10	0.085	Triple 3-input NAND gates	40163B	0.40	0.275	0.225	Full sync binary counter
4024B	0.26	0.18	0.15	7 stage binary counter	40173B	0.40	0.275	0.225	Dual 2-wide 2-in AND-OR-INVERT
4025B	0.15	0.10	0.085	Triple 3-input NOR gates	40175B	0.40	0.275	0.225	Quad D-type flip-flop
4026B	0.65	0.44	0.37	Decade ctr w decoded 7 seg output	40193B	0.55	0.375	0.31	Binary up/down counter
4027B	0.20	0.14	0.11	Dual J-K master-slave flip-flops	4502B	0.45	0.25	0.21	Strobed hex inverter/buffer
4028B	0.30	0.20	0.165	BCD-to-decimal decoder	4503B	0.45	0.25	0.21	Tri-state hex buffer
4029B	0.36	0.25	0.20	Syn presetable bin/decoder/ctr	4507B	0.45	0.21	0.21	Quad EXCLUSIVE-OR gate
4030UB	0.15	0.10	0.085	Quad EXCLUSIVE-OR gate	4508B	0.90	0.65	0.55	Dual 4-bit latch
4031B	1.25	0.68	0.59	64 stage static shift register	4510B	0.35	0.24	0.20	BCD up/down counter
4034B	1.45	0.75	0.68	MSI 8 stage static shift register	4511B	0.45	0.32	0.26	BCD to 7 segment decoder/driver
4036UB	2.70	2.10	1.70	4 wordx8-bit RAM	4512B	0.45	0.23	0.19	8 channel data selector
4039UB	2.70	2.10	1.70	4 wordx8-bit RAM	4514B	0.80	0.53	0.44	4-bit latch/4 to 16 line (high)
4040B	0.35	0.24	0.20	12 stage ripple carry binary ctr	4515B	0.80	0.53	0.44	4-bit latch/4 to 16 line (low)
4041UB	0.40	0.35	0.29	Quad true/complement buffers	4516B	0.35	0.24	0.20	Binary up/down counter
4042B	0.26	0.18	0.15	Quad clocked D-type latches	4518B	0.35	0.24	0.20	Dual BCD up counter
4043B	0.40	0.27	0.225	Quad NOR R/S latches	4520B	0.35	0.24	0.20	Dual Binary up counter
4044B	0.40	0.27	0.225	Quad NAND R/S latches	4521B	1.00	0.55	0.48	24 stage frequency divider
4046B	0.50	0.38	0.31	Micropower phase locked loop	4526B	0.40	0.28	0.23	Divide by N counter (binary)
4047B	0.45	0.30	0.25	Monostable/astable	4527B	0.45	0.25	0.21	BCD rate/multiplier
4048B	0.35	0.28	0.22	Expandable 8 input gate	4528B	0.40	0.27	0.225	Retriggerable dual monostable
4049UB	0.18	0.125	0.10	Hex inverters/buffers	4529B	0.60	0.30	0.24	Dual 4-channel data selector
4050B	0.18	0.125	0.10	Hex buffers	4532B	0.50	0.42	0.35	8-input priority encoder
4051B	0.35	0.24	0.20	Analogue multiplexer/demultiplexer	4534B	2.60	1.45	1.20	Real time 5-decade counter
4052B	0.35	0.24	0.20	Analogue multiplexer/demultiplexer	4538B	0.45	0.31	0.26	Dual monostable
4053B	0.35	0.24	0.20	Analogue multiplexer/demultiplexer	4543B	0.50	0.35	0.29	BCD to 7 seg latch/decoder for LCD
4054B	0.70	0.50	0.42	4 line LCD driver	4549B	3.90	3.20	2.70	Successive approximation register
4055B	0.70	0.50	0.42	BCD to 7 seg LCD decoder/driver	4553B	1.30	0.70	0.62	3-digit BCD counter
4059UB	3.70	2.20	1.90	Programmable divide by N ctr	4555B	0.40	0.275	0.225	Dual binary-to-1 of 4 decoder
4060B	0.45	0.31	0.25	12 stage ripple carry binary ctr	4556B	0.38	0.25	0.21	Dual binary-to-1 of 4 decoder (inv)
4063B	0.67	0.45	0.38	4-bit magnitude comparator	4559B	3.90	3.20	2.70	Successive approximation register
4066B	0.20	0.13	0.11	Quad bilateral switches	4560B	1.20	0.65	0.58	BCD adder
4067B	1.80	0.98	0.87	16 channel multiplexer/dem	4584B	0.25	0.16	0.135	Hex Schmitt trigger
4068B	0.15	0.10	0.085	8-input NAND gate	4585B	0.50	0.36	0.29	4-bit magnitude comparator
4069UB	0.14	0.09	0.08	Hex inverters	4724B	0.90	0.55	0.48	8-bit addressable latch



The 74HC/74HCT series of high speed CMOS logic integrated circuits include an extensive line of products that are pin compatible with many existing bipolar 74STTL, 74TTL and CMOS 4000 series of digital logic devices. The new ICs provide high speed CMOS replacements for the most popular LSTTL devices in existing designs and also offer low-power all-CMOS designs for new digital systems. Features include:

- High noise immunity for optimum all-CMOS-system compatibility — 74HC family
 $N_{IH}=20\%$ of supply, $N_{IL}=30\%$ of supply
- Direct LSTTL input logic compatibility as well as CMOS input compatibility — 74HCT family
 (can replace LSTTL or be mixed with LSTTL devices)
 $V_{IH}=0.8V$ max. $V_{IL}=2V$ min.
- 2 to 6V operation — 74HC family
- 4.5 to 5.5V operation — 74HCT family
- Gate propagation delay of 8ns typ.
- Balanced high-to-low and low-to-high propagation delays
- Significant power reduction compared to LSTTL bipolar logic devices

74HCT

Order code	1+	25+		
74HCT00	0.25	0.21	Quad 2-input NAND gate	DIL 14
74HCT04	0.25	0.21	Hex inverter	DIL 14
74HCT08	0.25	0.21	Quad 2-input AND gate	DIL 14
74HCT10	0.25	0.21	Triple 3-input NAND gate	DIL 14
74HCT11	0.25	0.21	Triple 3-input AND gate	DIL 14
74HCT27	0.25	0.21	Triple 3-input NOR gate	DIL 14
74HCT86	0.40	0.32	Quad 2-input exclusive OR gate	DIL 14
74HCT138	0.50	0.38	1 of 8 decoder/multiplexer	DIL 16
74HCT139	0.50	0.38	Dual 1 of 4 decoder/multiplexer	DIL 16
74HCT151	0.45	0.30	8 bit multiplexer	DIL 16
74HCT154	1.30	1.15	1 of 16 decoder/multiplexer	DIL 24
74HCT164	0.60	0.45	8 bit serial-in/parallel-out shift reg	DIL 14
74HCT165	0.60	0.45	8 bit serial/parallel-in/ser out shift	DIL 16
74HCT174	0.50	0.38	Hex D flip-flop	DIL 16
74HCT241	0.75	0.55	Octal tri-state buffer	DIL 20
74HCT244	0.75	0.55	Octal tri-state buffer	DIL 20
74HCT251	0.55	0.43	8-input tri-state multiplexer	DIL 16
74HCT377	0.80	0.65	Octal D flip-flop with clock enable	DIL 20
74HCT393	0.55	0.45	Dual 4 bit binary ripple counter	DIL 14
74HCT573	1.50	1.30	Octal tri-state transparent latch	DIL 20
74HCT640	1.30	0.98	Octal tri-state inv bus transceiver	DIL 20
74HCT643	0.90	0.65	Octal tri-state non inv bus trans	DIL 20

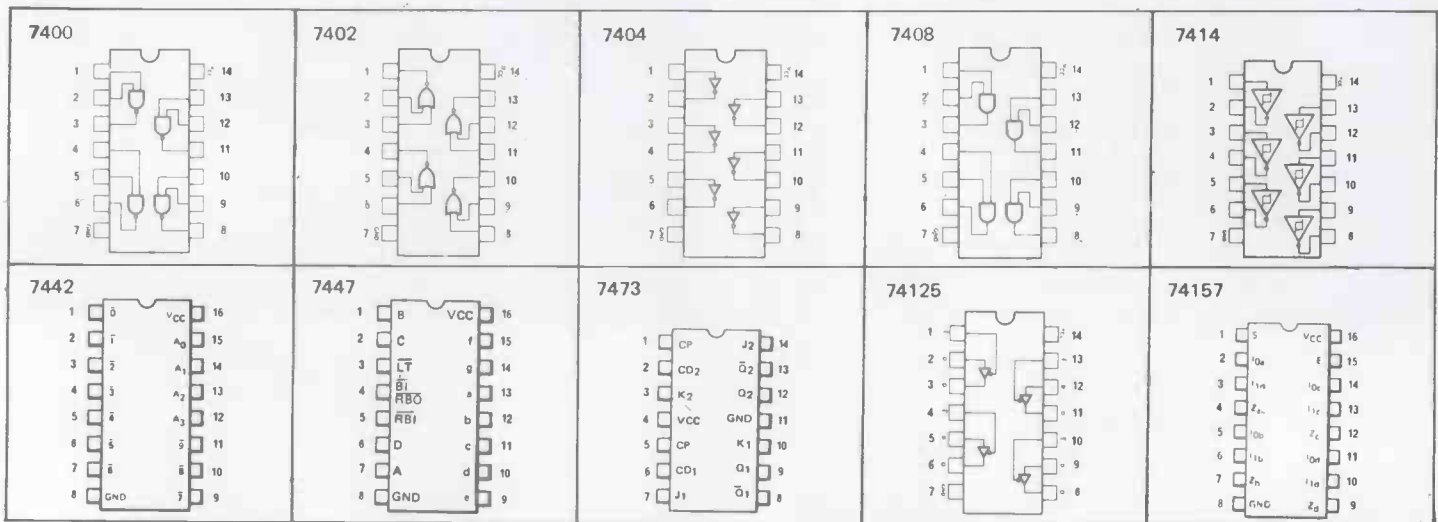
74HC

Order code	1+	100+		
74HC00	0.18	0.15	Quad 2-input NAND gate	DIL 14
74HC02	0.18	0.15	Quad 2-input NOR gate	DIL 14
74HC03	0.18	0.15	Quad 2-input NAND gate OC	DIL 14
74HC04	0.18	0.15	Hex inverter	DIL 14
74HC08	0.18	0.15	Quad 2-input AND gate	DIL 14
74HC10	0.18	0.15	Triple 3-input NAND gate	DIL 14
74HC14	0.28	0.20	Hex Schmitt inverter	DIL 14
74HC20	0.18	0.15	Dual 4-input NAND gate	DIL 14
74HC27	0.18	0.15	Triple 3-input NOR gate	DIL 14
74HC30	0.18	0.15	8-input OR gate	DIL 14
74HC32	0.18	0.15	Quad 2-input OR gate	DIL 14
74HC42	0.45	0.36	BCD to decimal decoder	DIL 16
74HC73	0.30	0.20	Dual J-K flip-flop	DIL 14
74HC74	0.26	0.18	Dual D-type flip-flop	DIL 14
74HC75	0.35	0.27	Dual J-K flip-flop	DIL 16
74HC76	0.35	0.27	Dual J-K flip-flop	DIL 16
74HC85	0.50	0.38	4 bit magnitude comparator	DIL 16
74HC86	0.28	0.20	Quad exclusive OR gate	DIL 14
74HC107	0.35	0.24	Dual J-K flip-flop	DIL 14
74HC123	0.40	0.29	Dual monostable multivibrator	DIL 16

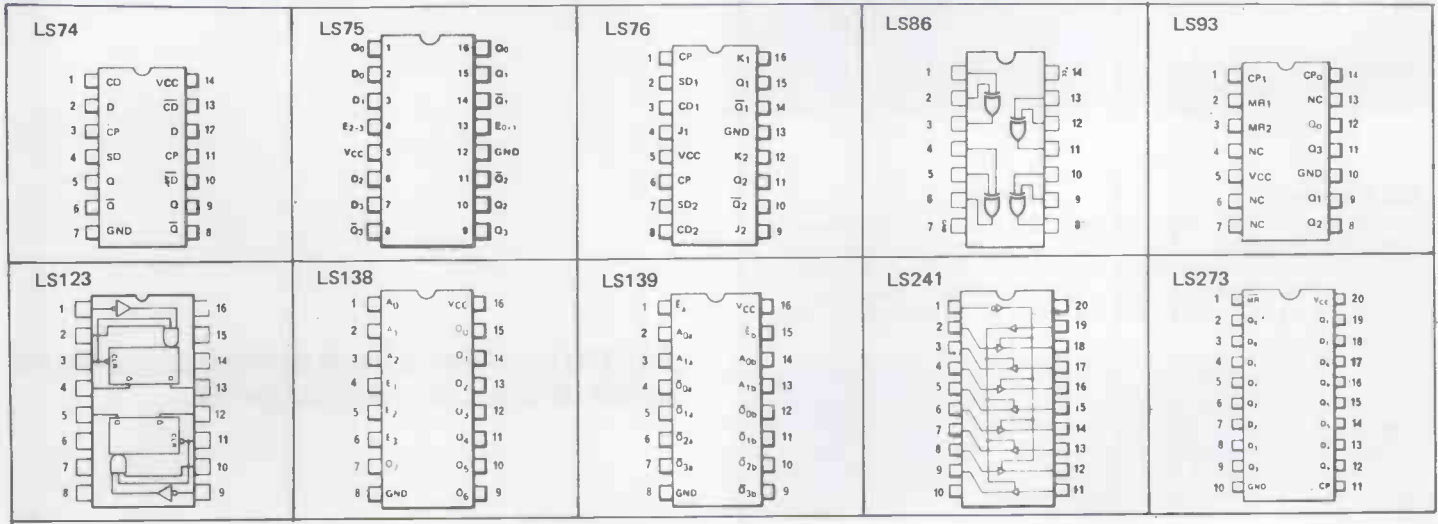
74HC

Order code	1+	100+		
74HC125	0.35	0.26	Quad bus buffer	DIL 14
74HC126	0.35	0.26	Quad bus buffer	DIL 14
74HC133	0.30	0.22	13-input NAND gate	DIL 16
74HC138	0.35	0.25	3 to 8 decoder	DIL 16
74HC139	0.45	0.33	10 to 4 priority encoder	DIL 16
74HC151	0.40	0.29	8 to 1 multiplexer	DIL 16
74HC153	0.40	0.29	Dual 4 to 1 multiplexer	DIL 16
74HC154	0.95	0.70	4 to 16 encoder	DIL 24
74HC157	0.37	0.26	Quad 2 to 1 line multiplexer	DIL 16
74HC158	0.37	0.26	Quad 2 to 1 line multiplexer	DIL 16
74HC160	0.50	0.36	4 bit decade counter+clear	DIL 16
74HC161	0.50	0.36	4 bit binary counter+clear	DIL 16
74HC162	0.50	0.36	4 bit decade counter+clear	DIL 16
74HC163	0.50	0.36	4 bit binary counter+clear	DIL 16
74HC164	0.50	0.36	8 bit SIPO shift register	DIL 14
74HC165	0.52	0.40	8 bit PISO shift register	DIL 16
74HC173	0.45	0.33	Quad D-type register tri-state	DIL 16
74HC174	0.45	0.33	Hex D-type flip-flop+clear	DIL 16
74HC175	0.45	0.33	Quad D-type flip-flop+clear	DIL 16
74HC192	0.50	0.38	Sync up/down decade counter	DIL 16
74HC193	0.50	0.38	Sync up/down binary counter	DIL 16
74HC194	0.50	0.38	4 bit PIPO shift register	DIL 16
74HC195	0.50	0.38	4 bit PIPO shift register	DIL 16
74HC240	0.65	0.50	Octal inverter buffer	DIL 20
74HC241	0.65	0.50	Octal buffer	DIL 20
74HC242	0.65	0.50	Quad inverter bidirectional buffer	DIL 14
74HC243	0.65	0.50	Quad bidirectional buffer	DIL 14
74HC244	0.55	0.40	Octal buffer	DIL 20
74HC245	0.62	0.55	Quad bidirectional buffer	DIL 20
74HC251	0.40	0.28	8 to 1 line multiplexer tri-state	DIL 16
74HC253	0.40	0.28	Dual 4 to 1 line multiplexer tri-state	DIL 16
74HC257	0.35	0.26	Quad 2 to 1 line multiplexer	DIL 16
74HC259	0.53	0.40	8 bit addressable latch	DIL 16
74HC266	0.30	0.23	Quad exclusive NOR gate	DIL 14
74HC273	0.65	0.50	Octal D-type flip-flop	DIL 16
74HC280	0.60	0.45	9 bit generator	DIL 14
74HC299	1.20	0.90	8 bit PIPO shift register	DIL 20
74HC354	0.50	0.40	8 channel MUX/register	DIL 20
74HC356	0.50	0.40	8 channel MUX/register	DIL 20
74HC365	0.36	0.25	Hex bus buffer	DIL 16
74HC366	0.36	0.25	Hex inverting buffer	DIL 16
74HC367	0.36	0.25	Hex bus buffer	DIL 16
74HC368	0.36	0.25	Hex inverting buffer	DIL 16
74HC373	0.50	0.40	Octal D-type latch	DIL 20
74HC374	0.50	0.40	Octal D-type latch	DIL 20
74HC390	0.55	0.42	Dual decade counter	DIL 16
74HC393	0.55	0.42	Dual binary counter	DIL 14
74HC423	0.55	0.42	12 stage binary counter	DIL 16
74HC563	0.65	0.48	Octal inverter D-type latch	DIL 20
74HC564	0.65	0.48	Octal inverter D-type latch	DIL 20
74HC573	0.65	0.48	Octal D-type latch	DIL 20
74HC574	0.65	0.48	Octal D-type latch	DIL 20
74HC640	0.90	0.70	Octal bus transceiver	DIL 20
74HC643	0.90	0.70	Octal bus transceiver	DIL 20
74HC688	0.70	0.53	8 bit equity comparator	DIL 20
74HC4002	0.25	0.17	Dual 4 input NOR gate	DIL 14
74HC4017	0.45	0.33	Decade counter/divider	DIL 16
74HC4020	0.45	0.33	14 stage binary counter	DIL 16
74HC4040	0.45	0.33	12 stage binary counter	DIL 16
74HC4049	0.30	0.24	Hex inverter buffer	DIL 16
74HC4050	0.30	0.24	Hex buffer	DIL 16
74HC4060	0.45	0.33	14 stage binary counter	DIL 14
74HC4075	0.25	0.17	Triple 2-input OR gate	DIL 14
74HC4078	0.25	0.17	8-input OR/NOR gate	DIL 16
74HC4511	0.50	0.39	BCD to 7 segment decoder/driver	DIL 24
74HC4514	1.10	0.90	4 to 16-line decoder	DIL 24
74HC4538	0.65	0.50	Dual monostable multivibrator	DIL 16
74HC4543	0.65	0.50	BCD to 7 segment decoder driver	DIL 16

Order code	1+	100+		DIL 14	Order code	1+	100+		DIL 14
7400	0.25	0.22	Quad 2-input positive NAND gate	DIL 14	7493	0.45	0.40	4-bit binary counter	DIL 14
7401	0.28	0.25	Quad 2-input positive NAND O/C op	DIL 14	7494	0.80	0.75	4-bit parallel in serial-out shift register	DIL 16
7402	0.25	0.22	Quad 2-input NOR gate	DIL 14	7495	0.60	0.55	4-bit serial-in/par-in/par-out shift register	DIL 14
7403	0.28	0.25	Quad 2-input NAND gate O/C op	DIL 14	7496	0.80	0.70	5-bit serial-in parallel-out shift register	DIL 16
7404	0.25	0.22	Hex inverters	DIL 14	7497	1.50	1.40	Synchronous 6-bit rate multiplier	DIL 16
7405	0.28	0.25	Hex inverters with O/C outputs	DIL 14	74100	1.20	1.15	Quad latch	DIL 24
7406	0.40	0.32	Hex inverters/buffers/drivers 30V op	DIL 14	74107	0.40	0.38	Dual J-K ff with clear	DIL 14
7407	0.40	0.32	Hex buffer/drivers with O/C 30V op	DIL 14	74109	0.50	0.39	Dual J-K pos edge trig ff w/pres+clear	DIL 16
7408	0.28	0.25	Quad 2-input positive AND gate	DIL 14	74121	0.40	0.36	Monostable multivibrator	DIL 14
7409	0.28	0.25	Quad 2-input positive AND gate O/C op	DIL 14	74122	0.50	0.48	Retriggerable monostable multi+clear	DIL 14
7410	0.28	0.25	Triple 3-input positive NAND gate	DIL 14	74123	0.50	0.43	Dual retriggerable monostable+clear	DIL 16
7411	0.28	0.25	Triple 3-input positive AND gate	DIL 14	74125	0.45	0.42	Quad bus buffer drivers (tri-state)	DIL 14
7412	0.28	0.25	Triple 3-input pos NAND gate O/C op	DIL 14	74126	0.45	0.42	Quad bus buffer drivers (tri-state)	DIL 14
7413	0.38	0.35	Dual 4-input pos NAND Schmitt trigger	DIL 14	74132	0.50	0.42	Quad 2-input positive NAND Schmitt	DIL 14
7414	0.48	0.40	Hex Schmitt trigger inverters	DIL 14	74137	0.90	0.85	BCD to 7 seg/cold cathode tube driver	DIL 16
7416	0.38	0.33	Hex inverter buffer/driver with O/C 30V	DIL 14	74145	0.75	0.64	BCD to dec decoder, lamp relay driver	DIL 16
7417	0.38	0.33	Hex buffer/driver with O/C 15V op	DIL 14	74147	1.30	1.20	10-line decimal to 4-line BCD priority en	DIL 16
7420	0.28	0.25	Dual 4-input positive NAND gate	DIL 14	74148	1.05	0.90	8-line to 3-line octal priority encoder	DIL 16
7421	0.50	0.45	Dual 4-input positive AND gate	DIL 14	74150	1.35	1.20	1-of-16 data demulti/selecter	DIL 24
7422	0.28	0.25	Dual 4-input positive NAND gate O/C	DIL 14	74153	0.70	0.65	Dual 4-line to 1-line data dec/multi	DIL 16
7427	0.30	0.28	Triple 3-input positive NOR gate	DIL 14	74154	1.35	1.20	4-line to 16-line decoder/multiplexer	DIL 24
7428	0.30	0.28	Quad 2-input positive NOR buffer	DIL 14	74157	0.70	0.65	Quad 2-line to 1-line data selector/multi	DIL 16
7430	0.28	0.25	8-input positive NAND gate	DIL 14	74160	0.80	0.70	Synchronous 4-bit decade ctr wi clear	DIL 16
7432	0.30	0.27	Quad positive 2-input OR gate	DIL 14	74161	0.80	0.70	Synchronous 4-bit binary ctr wi clear	DIL 16
7433	0.38	0.35	Quad 2-input pos NOR buffer O/C op	DIL 14	74162	0.80	0.70	Syn-4-bit ctr with syn clear	DIL 16
7437	0.30	0.28	Quad 2-input NAND buffers	DIL 14	74163	0.80	0.70	Syn-4-bit binary ctr with syn clear	DIL 16
7438	0.35	0.32	Quad 2-input NAND buffers O/C op	DIL 14	74164	1.10	1.05	8-bit serial-in parallel-out shift register	DIL 14
7440	0.28	0.25	Dual 4-input NAND buffers	DIL 14	74165	0.80	0.70	8-bit parallel-in serial-out shift register	DIL 16
7442	0.70	0.68	BCD to decimal decoder	DIL 16	74167	2.00	1.80	Synchronous decade rate multiplier	DIL 16
7444	1.05	1.05	Excess 3 gray to decimal decoder	DIL 16	74170	1.70	1.50	4-by-4 register file	DIL 16
7446	1.30	1.20	BCD to 7 segment 30V O/C decoder/dr	DIL 16	74173	0.90	0.80	4-bit D-type register (tri-state)	DIL 16
7447	0.88	0.75	BCD to 7 segment 15V O/C decoder dr	DIL 16	74174	0.90	0.80	Hex D-type ff with common dir clear	DIL 16
7448	0.88	0.75	BCD to 7 segment decoder/driver	DIL 16	74175	0.80	0.70	Quad D-type ff with common dir cir	DIL 16
7450	0.28	0.25	Expandable dual 2-wide 2 ip AND-OR-IN	DIL 14	74176	0.80	0.70	Presettable 35MHz decade ctr/latch	DIL 14
7451	0.28	0.25	Dual 2-wide 2-input AND-OR-INVERT	DIL 14	74177	0.80	0.70	Presettable 35MHz 4-bit binary ctr/latch	DIL 14
7453	0.28	0.25	4-wide 2-input AND-OR-INVERT	DIL 14	74179	0.90	0.78	4-bit universal shift register	DIL 16
7454	0.28	0.25	4-wide 2-input AND-OR-INVERT	DIL 14	74180	0.90	0.78	9-bit odd/even parity generator/checker	DIL 14
7460	0.28	0.25	Dual 4-input expanders	DIL 14	74181	2.40	2.10	Arithmetic logic unit/function gen	DIL 24
7472	0.35	0.33	AND gated J-K master slave ff+clear	DIL 14	74182	0.80	0.75	Look-ahead carry generator	DIL 16
7473	0.35	0.32	Dual J-K master slave ff with clear	DIL 14	74190	0.70	0.65	Synchronous decade up/down ctr	DIL 16
7474	0.35	0.32	Dual D-type pos edge trig ff pre+clear	DIL 14	74191	0.75	0.65	Synchronous 4-bit binary up/down ctr	DIL 16
7475	0.45	0.40	Quad bistable latches	DIL 16	74192	0.75	0.65	Synchronous decade up/down w dl clks	DIL 16
7476	0.40	0.38	Dual J-K master slave ff pre+clear	DIL 16	74193	0.70	0.60	Syn 4-bit binary ctr with dual clocks	DIL 16
7480	0.50	0.45	Gated full adder	DIL 14	74194	0.75	0.65	4-bit bidirectional universal shift reg	DIL 16
7482	0.50	0.45	2-bit binary full adder	DIL 14	74195	0.75	0.65	4-bit parallel access shift register	DIL 16
7483	0.48	0.45	4-bit binary full adder with fast carry	DIL 16	74196	0.75	0.65	Presettable 50MHz decade ctr/latch	DIL 14
7485	0.80	0.75	4-bit magnitude comparator	DIL 16	74197	0.75	0.65	Presettable 50MHz binary ctr/latch	DIL 14
7486	0.38	0.35	Quad 2-input EXCLUSIVE-OR gate	DIL 14	74198	1.60	1.40	8-bit directional universal shift register	DIL 24
7489	1.40	1.30	64-bit RAM	DIL 16	74199	1.60	1.40	8-bit bidirectional universal shift reg	DIL 24
7490	0.40	0.33	Decade counter	DIL 14					
7491	0.70	0.58	8-bit serial-out shift register	DIL 14					
7492	0.55	0.48	Divide by twelve counter	DIL 14					



Order code	1+	100+	500+		DIL 14	Order code	1+	100+	500+		DIL 16
74LS00	0.16	0.12	0.095	Quad 2-input positive NAND gate	DIL 14	74LS148	0.55	0.35	0.31	8-line to 3-line priority encoder	DIL 16
74LS01	0.16	0.12	0.095	Quad 2-input NAND gate O/C op	DIL 14	74LS151	0.30	0.21	0.17	1-of-8 data selector/multiplexer	DIL 16
74LS02	0.16	0.12	0.095	Quad 2-input positive NOR gate	DIL 14	74LS153	0.30	0.21	0.17	Dual 4-line data selectors/multiplex	DIL 16
74LS03	0.16	0.12	0.095	Quad 2-input NAND gate O/C op	DIL 14	74LS154	1.20	0.90	0.80	Dual 4-line to 16-line decoder/multiplexer	DIL 24
74LS04	0.16	0.12	0.095	Hex inverters	DIL 14	74LS155	0.30	0.21	0.17	Dual 2-line to 4-line decoder	DIL 16
74LS05	0.16	0.12	0.095	Hex inverters open collector	DIL 14	74LS156	0.30	0.21	0.17	Dual 2-line to 4-line decoder O/C op	DIL 16
74LS08	0.16	0.12	0.095	Quad 2-input positive AND gates	DIL 14	74LS157	0.30	0.21	0.17	Quad 2-line to 1-line data selectors	DIL 16
74LS09	0.16	0.12	0.095	Quad 2-input NAND gate O/C op	DIL 14	74LS158	0.30	0.21	0.17	Quad 2-line to 1-line data selectors	DIL 16
74LS10	0.16	0.12	0.095	Triple 3-input positive NAND gate	DIL 14	74LS160	0.35	0.25	0.22	Synchronous decade counter+clear	DIL 16
74LS11	0.16	0.12	0.095	Triple 3-input positive AND gate	DIL 14	74LS161	0.35	0.25	0.22	Synchronous 4-bit binary ctr+clear	DIL 16
74LS12	0.16	0.12	0.095	Triple 3-input NAND gate O/C op	DIL 14	74LS162	0.35	0.25	0.22	Synchronous decade ctr with syn cl	DIL 16
74LS13	0.18	0.12	0.095	Dual 4-input pos Schmitt triggers	DIL 14	74LS163	0.30	0.21	0.17	Synchronous 4-bit bin ctr with syn cl	DIL 16
74LS14	0.24	0.16	0.13	Hex Schmitt trigger inverters	DIL 14	74LS164	0.30	0.21	0.17	8-bit serial-in/parallel-out shift reg	DIL 14
74LS15	0.16	0.12	0.095	Triple 3-input pos AND gates O/C op	DIL 14	74LS165	0.45	0.32	0.29	8-bit parallel-in/serial-out shift reg	DIL 16
74LS20	0.16	0.12	0.095	Dual 4-input positive NAND gate	DIL 14	74LS166	0.45	0.32	0.29	8-bit shift register PISO	DIL 16
74LS21	0.16	0.12	0.095	Dual 4-input positive AND gate	DIL 14	74LS170	1.00	0.90	0.85	4-by-4 register file	DIL 16
74LS22	0.16	0.12	0.095	Dual 4-input pos NAND gate O/C	DIL 14	74LS173	0.45	0.32	0.29	4-bit D-type register (tri-state)	DIL 16
74LS26	0.16	0.12	0.095	Quad 2-input 15V int pos NAND	DIL 14	74LS174	0.30	0.21	0.17	Hex D-type ff with common dir cir	DIL 16
74LS27	0.16	0.12	0.095	Triple 3-input positive NOR gate	DIL 14	74LS175	0.30	0.21	0.17	Quad D-type ff with common dir cir	DIL 16
74LS30	0.16	0.12	0.095	8-input positive NAND gate	DIL 14	74LS190	0.30	0.21	0.17	Synchronous decade up/down count	DIL 16
74LS32	0.16	0.12	0.095	Quad 2-input positive OR gate	DIL 14	74LS191	0.30	0.21	0.17	Synchronous 4-bit bin up/down ctr	DIL 16
74LS37	0.16	0.12	0.095	Quad 2-input positive NAND buffer	DIL 14	74LS192	0.30	0.21	0.17	Syn decade up/down ctr+dual clocks	DIL 16
74LS38	0.16	0.12	0.095	Quad 2-input positive NAND buffer	DIL 14	74LS193	0.30	0.21	0.17	Syn 4-bit bin ctr+dual clocks	DIL 16
74LS40	0.16	0.12	0.095	Dual 4-input positive BAND buffer	DIL 14	74LS195	0.30	0.21	0.17	4-bit parallel-access shift register	DIL 16
74LS42	0.30	0.21	0.17	BCD to decimal decoder	DIL 16	74LS196	0.30	0.21	0.17	Presettable 30MHz decade ctr/latch	DIL 14
74LS47	0.50	0.42	0.35	BCD to 7 seg 15V O/C decoder/driver	DIL 16	74LS197	0.30	0.21	0.17	Presettable 30MHz binary ctr/latch	DIL 14
74LS48	0.50	0.42	0.35	BCD to 7 seg decoder/driver	DIL 16	74LS221	0.45	0.32	0.29	Dual monostable multivibrators	DIL 16
74LS51	0.16	0.12	0.10	Dual 2-wide 2-input AND-OR-INV	DIL 14	74LS240	0.44	0.31	0.245	Octal tri-state inverter buffer	DIL 20
74LS55	0.16	0.12	0.10	2-wide 4-input AND-OR-INVERT	DIL 14	74LS241	0.44	0.31	0.245	Octal tri-state buffer	DIL 20
74LS73	0.22	0.17	0.15	Dual J-K master-slave flip-flops	DIL 14	74LS242	0.44	0.31	0.245	Quad bus transceiver	DIL 14
74LS74	0.23	0.16	0.135	Dual D-type edge trig ff with clear	DIL 14	74LS243	0.44	0.31	0.245	Quad bus transceiver	DIL 14
74LS75	0.30	0.22	0.18	Quad bistable latches	DIL 16	74LS244	0.44	0.31	0.245	Octal tri-state buffer	DIL 20
74LS76	0.30	0.22	0.18	Dual J-K master-slave	DIL 16	74LS245	0.50	0.35	0.29	Octal tri-state bus transceiver	DIL 20
74LS78	0.30	0.22	0.18	Dual J-K master-slave ff+clear	DIL 14	74LS247	0.45	0.32	0.29	BCD to 7 segment encoder/driver	DIL 16
74LS83	0.32	0.21	0.17	4-bit binary full adder with fast carry	DIL 16	74LS251	0.33	0.22	0.19	Data selector/multiplexer	DIL 16
74LS85	0.32	0.21	0.17	4-bit magnitude comparator	DIL 16	74LS257	0.30	0.21	0.17	Tri-state quad 2-input multiplexer	DIL 16
74LS86	0.22	0.16	0.135	Quad 2-input EXCLUSIVE-OR gate	DIL 14	74LS258	0.30	0.21	0.17	Tri-state quad 2-input multiplexer	DIL 16
74LS90	0.30	0.22	0.19	Decade counter	DIL 14	74LS259	0.30	0.21	0.17	8-bit addressable latch	DIL 20
74LS92	0.35	0.28	0.24	Divide-by-12 counter	DIL 14	74LS266	0.16	0.12	0.095	Quad exclusive NOR gate O/C	DIL 14
74LS93	0.30	0.21	0.17	4-bit binary counter	DIL 14	74LS273	0.44	0.31	0.245	Octal D-type ff with clear	DIL 20
74LS95	0.30	0.21	0.17	4-bit ser par-in/par-out shift register	DIL 14	74LS279	0.30	0.21	0.17	Quad S-R latch	DIL 16
74LS96	0.75	0.45	0.38	5-bit shift register	DIL 16	74LS283	0.30	0.21	0.17	4-bit binary adder	DIL 16
74LS107	0.23	0.16	0.14	Dual J-K flip-flops with clear	DIL 14	74LS353	0.45	0.35	0.31	Tri-state dual 4-bit multiplexer inverter	DIL 16
74LS109	0.23	0.16	0.14	Dual J-K edge trig ff preset+clear	DIL 16	74LS365	0.25	0.16	0.135	Tri-state hex buffer	DIL 16
74LS112	0.23	0.16	0.14	Dual neg edge trig ff preset+clear	DIL 16	74LS366	0.25	0.16	0.135	Tri-state hex inverter	DIL 16
74LS113	0.23	0.16	0.14	Dual neg edge trig ff preset	DIL 14	74LS367	0.25	0.16	0.135	Tri-state hex buffer	DIL 16
74LS114	0.23	0.16	0.14	Dual J-K neg edge trif ff pr, c+clear	DIL 14	74LS368	0.25	0.16	0.135	Tri-state hex inverter	DIL 16
74LS122	0.45	0.25	0.22	Retriggerable one shot (clear)	DIL 14	74LS373	0.44	0.31	0.245	Tri-state octal transparent latch	DIL 20
74LS123	0.36	0.25	0.20	Dual retriggerable monostable+clear	DIL 16	74LS374	0.44	0.31	0.245	Tri-state octal D-type ff	DIL 20
74LS125	0.24	0.16	0.13	Quad bus buffer gates (tri-state)	DIL 14	74LS375	0.35	0.23	0.20	Quad latch	DIL 16
74LS126	0.24	0.16	0.13	Quad bus buffer gates (tri-state)	DIL 14	74LS377	0.50	0.37	0.34	Octal D-type ff with enable	DIL 20
74LS132	0.24	0.16	0.13	Quad 2-ip positive NAND Schmitt trigger	DIL 14	74LS378	0.50	0.37	0.34	Hex D-type ff with enable	DIL 16
74LS136	0.26	0.18	0.15	Quad EXCLUSIVE-OR gate	DIL 14	74LS390	0.30	0.21	0.17	Dual decade ripple counter	DIL 16
74LS138	0.30	0.21	0.17	3-line to 8-line decoder/multiplexer	DIL 16	74LS393	0.30	0.21	0.17	Dual 4-bit binary ripple counter	DIL 14
74LS139	0.30	0.21	0.17	Dual 2-line to 4-line decoder/multiplexer	DIL 16	74LS399	0.65	0.45	0.39	Quad 2-input multiplexer	DIL 16
74LS145	0.60	0.39	0.35	BCD decimal decoder 15V op	DIL 16	74LS541	0.58	0.39	0.34	Octal buffer and line DR/RX	DIL 20
74LS147	0.70	0.45	0.39	10-line to 4-line priority encoder	DIL 16	74LS670	0.55	0.34	0.30	Tri-state 4x4 register file	DIL 16



MICRO

6500 series

The 6500 series 8-bit microprocessor and associated peripheral integrated circuits feature advanced system architecture for enhanced performance. The 6500 devices are bus compatible with 6800 series devices and are designed to operate at 1MHz. Supplied in standard DIL plastic packages.

Order code	Function		1+	25+
6502	8-bit CPU 1MHz	DIL 40	3.30	2.75
6522	Versatile interface adaptor	DIL 40	3.30	2.75
6532	RAM, I/O, interval timer	DIL 40	4.50	4.10
6551	Asynchronous comm. interface	DIL 28	4.70	4.20

CMOS 6500 series

CMOS version of the popular 6500 series 8-bit microprocessor and associated peripheral integrated circuits. Will operate at up to 2MHz with considerable savings in power consumption making them ideal for use in battery operated equipment. Supplied in standard DIL plastic packages.

Order code	Function		1+	25+
65C02	8-bit CPU 2MHz	DIL 40	4.50	3.90
65C21	Peripheral interface adaptor 2MHz	DIL 40	3.90	3.40
65C22	Versatile interface adaptor 2MHz	DIL 40	3.70	3.15

6800 series

The 6800 series 8-bit microprocessor and associated peripheral integrated circuits use a single 5V supply thus reducing system cost and complexity. All parts are supplied in standard DIL plastic packages.

Order code	Function		1+	25+
6800	8-bit CPU 1MHz	DIL 40	2.50	2.00
6802	Improved 8-bit CPU 1MHz	DIL 40	1.70	1.50
6809	High performance 8-bit CPU	DIL 40	2.20	2.00
6810	128x8 Static RAM 450nS	DIL 24	1.40	1.30
6821	Peripheral interface adaptor	DIL 40	0.80	0.75
6840	Programmable timer module	DIL 28	1.50	1.40
6850	Asynchronous comm. interface	DIL 24	1.50	1.40
6852	Synchronous serial data adaptor	DIL 24	2.40	2.10
6875	Two phase clock generator	DIL 16	5.00	4.60
6880	Quad tri-state inv. trans.	DIL 16	1.00	0.90

8080A/8085A series

The 8080A/8085A series 8-bit microprocessor and associated peripheral integrated circuits are a well established means of assembling micro systems. All parts are supplied in standard DIL plastic packages.

Order code	Function		1+
8085AC	8-bit CPU 3MHz	DIL 40	3.20
8156C	Input/output timer with RAM	DIL 40	3.80
8251AC	Programmable comm. interface	DIL 28	3.50
8253C	Programmable interval timer	DIL 24	3.70
8255C	Programmable peripheral interface	DIL 40	3.20
8259AC	Programmable interrupt control	DIL 28	4.00

Z80A series

The Z80A series 8-bit microprocessor and associated peripheral integrated circuits provide the means to construct extremely cost effective high performance microcomputer systems. The Z80A series operates at up to 4MHz clock rate with a minimum instruction execution time of 1 μ s. All parts are supplied in standard OIL plastic packages.

Order code	Function		1+	25+
Z80A CPU	8-bit CPU 4MHz	DIL 40	1.60	1.30
Z80A PIO	2 port parallel input/output	DIL 40	1.60	1.30
Z80A CTC	4 channel counter/timer	DIL 28	1.60	1.30
Z80A SIO	2 channel serial input/output	DIL 40	5.20	4.50
Z80A DMA	Direct memory access controller	DIL 40	5.20	4.50

CMOS Z80A series

CMOS version of the popular Z80A series 8-bit microprocessor and associated peripheral integrated circuits. Operating speed 4MHz with considerable savings in power consumption, the PIO draws a mere 2mA at 4MHz and the CTC 3mA at 4MHz. Supplied in standard DIL plastic packages.

Order code	Function		1+	25+
CMOS Z80A CPU	8-bit CMOS CPU 4MHz	DIL 40	3.50	3.10
CMOS Z80A PIO	2 port parallel input/output	DIL 40	3.00	2.75
CMOS Z80A CTC	4 channel counter/timer	DIL 28	3.30	3.00

Support devices

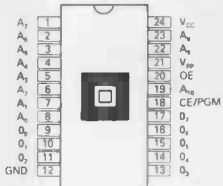
Order code	Function		1+	25+
MC1488	RS232, V24 driver		0.60	0.45
MC1489	RS232, V24 driver		0.60	0.45

For DIL sockets at the most competitive price in the UK – see page 32.

Eproms

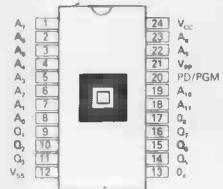
Electrically programmable read only memories which are suited for uses where fast turn around and pattern experimentation are required. The devices incorporate a transparent window to permit erasure of the programmed pattern by exposure to ultraviolet light. A new active pattern can then be written into the device.

2716



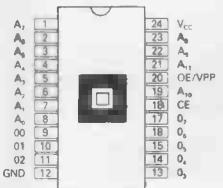
Size 16,384 bits
 Organisation 2,048 words×8 bits
 Access time 450ns max.
 Supply +5V DC
 Power dissipation 560mW max.
 Package 24 pin DIL cerdip
 Operating temperature 0 to +70 deg C

2532A



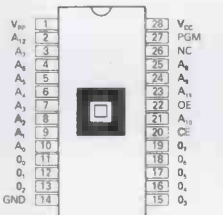
Size 32,768 bits
 Organisation 4,096 words×8 bits
 Access time 450ns max.
 Supply +5V DC
 Power dissipation 858mW max.
 Package 24 pin DIL cerdip
 Operating temperature 0 to +70 deg C

2732A



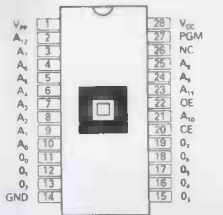
Size 32,768 bits
 Organisation 4,096 words×8 bits
 Access time 450ns max.
 Supply +5V DC
 Power dissipation 788mW max.
 Package 24 pin DIL cerdip
 Operating temperature 0 to +70 deg C

2764



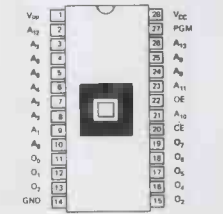
Size 65,536 bits
 Organisation 8,192 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Power dissipation 788mW max.
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

27C64



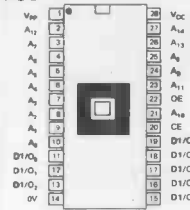
Size 65,536 bits
 Organisation 8,192 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Power dissipation 40mW max.
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

27128



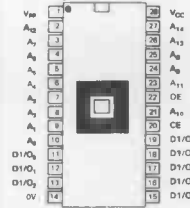
Size 131,072 bits
 Organisation 16,384 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Program voltage +12.5V
 Power dissipation 525mW max.
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

27256



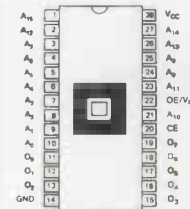
Size 262,144 bits
 Organisation 32,768 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Program voltage +12.5V
 Power dissipation 525mW max.
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

27C256



Size 262,144 bits
 Organisation 32,768 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Program voltage +12.5V
 Power dissipation 20mW
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

27512



Size 524,288 bits
 Organisation 65,536 words×8 bits
 Access time 250ns max.
 Supply +5V DC
 Program voltage +12.5V
 Package 28 pin DIL cerdip
 Operating temperature 0 to +70 deg C
 BBC Micro compatible

Type/order code	1+	25+	100+
2716	3.50	2.85	2.60
2532A	4.90	4.50	4.20
2732A	3.80	3.35	2.95
2764-250	2.80	2.50	2.10
27C64-250	2.70	2.15	1.80
27128-250	3.60	3.00	2.35
27256-250	4.50	3.50	2.80
27C256-250	3.90	2.80	2.45
27512	10.50	8.20	6.10

Model UV141 EPROM eraser



The UV141 EPROM Eraser will erase up to 14 EPROMs simultaneously by exposing them to short wave ultraviolet radiation. The unit is safety interlocked to prevent the UV source from operating with the tray removed. An electronic timer provides a useful 'set and forget' facility for erase time.

Features:

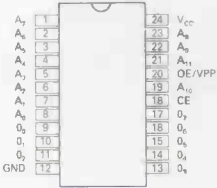
- 14 EPROM capacity
- Convenient slide-tray loading of EPROMs
- UV source output at 2537 Angstrom
- Unit safety interlocked to prevent accidental exposure
- 'Mains' and 'Erase' indicators
- 5-50 minute electronic timer
- 12 month warranty
- Rugged table top unit

Type	Order code	1+	3+
UV141	90-0500	88.00	82.00

Prom

The 2732P is a 4Kx8 electrically programmable read-only memory (PROM). Features output enable control and offers a standby mode with an attendant 80% saving in power consumption. Total programming time for all 32,768 bits is only 210 seconds.

2732P



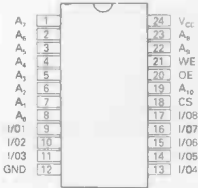
Size 32,768 bits
 Organisation 4,096 wordsx8 bits
 Access time 450ns max.
 Supply +5V
 Power dissipation 750mW max.
 Package 24 pin plastic
 Operating temperature -10 to +80 deg C

Type/order code	1+
2732P	2.80

CMOS low power static RAMs

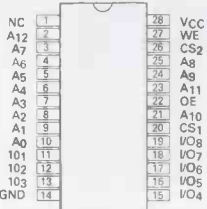
Random access memories or read/write memories are normally used for temporary data storage applications. CMOS types which are ideally suited to battery powered and back-up circuits.

6116LP3



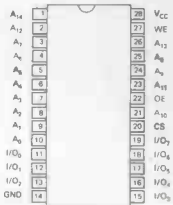
Size 16,384 bits
 Organisation 2,048x8 bits
 Access time 150ns max.
 Supply +5V
 Supply current 30mA
 Standby current 1µA typ.
 Package 24 pin DIL plastic

6264LP15



Size 65,536 bits
 Organisation 8,192x8 bits
 Access time 150ns max.
 Supply +5V
 Supply current 110mA
 Standby current 20µA typ.
 Package 28 pin DIL cerdip

62256



Size 262,144 bits
 Organisation 32,768x8 bits
 Access time 150ns max.
 Supply +5V DC
 Supply current 70mA
 Standby current 20µA typ.
 Package 28 pin DIL cerdip

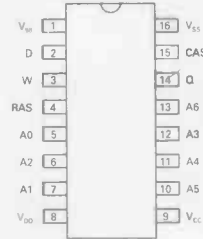
Type/order code	1+	25+	100+
6116LP3	P.O.A.	P.O.A.	P.O.A.
6264LP15	P.O.A.	P.O.A.	P.O.A.
62256	P.O.A.	P.O.A.	P.O.A.

13.00

Dynamic RAMs

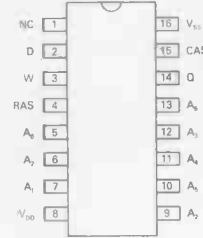
Dynamic random access memories provide higher capacity storage with reduced chip area than static RAMs. We offer the 16K, 64K and the new 256K devices.

4116N4



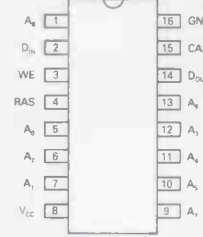
Size 16,384 bits
 Organisation 16,384x1 bit
 Access time 250ns
 Supplies +5V; +12V
 Power dissipation 480mW
 Package 16 pin DIL plastic

4164-15



Size 65,536 bits
 Organisation 65,536x1 bit
 Access time 150ns
 Supply +5V
 Supply current 39mA max.
 Package 16 pin DIL plastic

41256



Size 262,144 bits
 Organisation 262,144x1 bit
 Access time 150ns
 Supply +5V
 Supply current 70mA max.
 Package 16 pin DIL plastic

Type/order code	1+	25+	100+
4116N4	0.70	0.60	0.55
4164-15	1.80	1.50	1.35
41256	P.O.A.	P.O.A.	P.O.A.

Crystals

A range of crystals for frequency and time control applications in colour TVs, video games, microprocessors, clocks, filters and remote control. Temperature range -20 to +70 deg C.

Case	Pitch
HC-33	12.4
HC-13	4.9



Frequency	Case	Order code	1+	25+	100+
1MHz	HC-33	90-0110	2.75	2.20	2.05
1.8432MHz	HC-33	90-0120	1.80	1.40	1.25
2MHz	HC-33	90-0125	1.80	1.40	1.25
2.4576MHz	HC-18	90-0130	0.80	0.56	0.49
3.276MHz	HC-18	90-0135	0.60	0.42	0.29
3.579MHz	HC-18	90-0140	0.60	0.42	0.29
4MHz	HC-18	90-0145	0.60	0.42	0.29
4.194MHz	HC-18	90-0150	0.80	0.63	0.55
4.43MHz	HC-33	90-0155	1.30	1.20	1.05
5.008MHz	HC-18	90-0160	1.00	0.75	0.66
6MHz	HC-18	90-0165	0.60	0.42	0.29
6.144MHz	HC-18	90-0170	0.60	0.42	0.29
8MHz	HC-18	90-0180	0.60	0.42	0.29
10MHz	HC-18	90-0185	0.60	0.42	0.29
12MHz	HC-18	90-0190	0.85	0.68	0.56
16MHz	HC-18	90-0195	1.00	0.75	0.66
18MHz	HC-18	90-0200	1.00	0.75	0.66

SERVICE AIDS

Twin pack potting compound

A new range of twin pack potting compounds enabling the resin and hardener to be mixed in the bag preventing air entrapment and direct contact. A black flame retardant epoxy resin for potting electrical and electronic components and assemblies. Supplied in a range of four pack sizes, each pack containing separate sections of hardener and resin until the contents are to be mixed. Low exothermic temperature rise protects components during cure. Compatible with most electronic components including polystyrene capacitors. Curing time at 20 deg C is 24 hours which decreases to 20 minutes at 100 deg C.



Type	Order code	1+	10+
50g twin pack	87-0200	2.00	1.80
100g twin pack	87-0205	2.35	2.10
50g twin pack	87-0210	3.15	2.80
50g twin pack	87-0215	4.30	3.80

Switch cleaner

Highly efficient switch cleaner that removes dirt, grease, oil, etc., and leaves a residual relatively conducting oil film which by increasing the contact area reduces resistance. Supplied with plastic applicator. Does not attack most plastics, rubber, etc. Non-toxic, non-flammable. 226g aerosol can.



	Order code	1+	10+
Switch cleaning lubricant	87-0100	1.10	0.95

Aero-klene

A selective precision cleaning agent which can be used for cleaning tape recorder heads, switches, PCBs, pots, etc. Harmless on all plastics, paint, rubber, etc. Leaves no residue. Non-toxic. Non-flammable.



	Order code	1+	10+
Aero-klene	87-0130	1.00	0.90

Circuit freezer

Designed to assist in fault finding. Reduces temperature of component to approx. -60 deg C in about 2 seconds. Non-toxic, non-flammable. 226g aluminium aerosol complete with applicator.



	Order code	1+	10+
Circuit freezer	87-0105	1.20	1.10

Foam cleanser

Multi-purpose cleanser that will remove grease and grime from woodwork, glass, metal, paintwork, vinyl surfaces, etc. 370g aerosol tin.



	Order code	1+	10+
Foam cleanser	87-0110	1.10	1.00

Silicone grease

Multi-purpose silicone grease spray is invaluable for use on switch contacts, EHT connections, etc. Waterproofs and insulates. Supplies complete with plastic adaptor. 226g aerosol.



	Order code	1+	10+
Silicone grease	87-0115	1.40	1.20

Anti-static spray mist

Prevents build up of static electricity which attracts dust. Prepared for use on all plastic, wooden surfaces, TV screens, telephones, etc. 150g aerosol.



	Order code	1+	10+
Anti-static spray mist	87-0120	1.20	1.10

Plastic seal

This is a transparent insulator that will prevent arcing and corona discharge on EHT transformers and high voltage circuits. Can also be used for weather-proofing external TV aerial connections. Heat resistant and waterproof. 145g aerosol.



	Order code	1+	10+
Plastic seal	87-0125	1.20	1.10

Aero-duster

A quick easy way of removing dust and dirt from inaccessible places. Capacity over 1,000, one second bursts in each aerosol. Non-toxic, non-flammable and non-corrosive. 200g aluminium container complete with applicator.



	Order code	1+	10+
Aero-duster	87-0135	1.30	1.20

SERVICE AIDS

Industrial superglue C2 cyanoacrylate

An economical singler part cyanoacrylate adhesive. Will give high strength bonds between plastics, rubber, metals and ceramics. Bonds in seconds at room temperature with only contact pressure required. Very economical to use as usually only one drop is necessary. Available in three sizes all complete with dispensing nozzles. Approved to MOD TS10168 Type 2.



Type	Order code	1+	5+
3g tube	87-0350	0.80	0.73
10g bottle	87-0355	2.40	2.20
50g bottle	87-0360	10.50	9.50

Fast setting adhesive

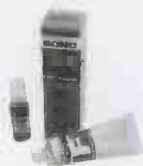
An easy to use two part epoxy resin adhesive that sets in 3 to 5 minutes. Supplied as a 3g sachet. Simply cut off the end and squeeze out. Sachet contains the correct amount of resin and hardener to ensure a perfect mix. Stir the two parts together with stick on palette (both supplied) apply immediately to both surfaces to be bonded and hold tightly for a few minutes. Completely cured in 24 hours. Suitable for metals, plastics, wood, ceramics, concrete, etc.



Type	Order code	1+	10+
Single sachet	87-0300	0.25	0.20
Box of 50 sachets	87-0305	8.40	7.95

Toughened adhesive F241

An extremely versatile general purpose grade toughened adhesive. Will bond most surfaces and forms strong permanent load bearing joints which are particularly resistant to shock loads—peel and cleavage—and to severe environmental conditions. No mixing is required—apply initiator to one surface and adhesive to the other, bring together and a bond is achieved in under a minute. Kit contains 50ml adhesive complete with applicator and 5ml initiator with applicator brush. Approved to MOD-DID5577.



Type	Order code	1+	100+
50ml kit F241 adhesive	87-0320	3.80	3.40

Fast setting adhesive in syringe

A double syringe containing equal quantities of the above epoxy resin adhesive which sets in 3 to 5 minutes. Overall mixture provides 25ml of mixed adhesive. Once used the syringe nozzle can be resealed with cap supplied. Suitable for metals, plastics, wood, ceramics, concrete, etc.



Type	Order code	1+	10+
25ml syringe epoxy resin	87-0310	1.80	1.65

Glue gun

A hot melt glue gun suitable for industrial or domestic use providing a trouble free supply of tough adhesive. The gun has an electronically controlled heating element which melts the long solid glue when inserted into the back of the gun. A smooth flow of adhesive is controlled by the trigger feed mechanism. Suitable for a wide range of materials including most metals, PVC, concrete and asbestos. Glue sticks are supplied as a pack of 12, 10cm in length. Double insulated. 240V supply.



Type	Order code	1+	10+	50+
Glue gun	87-0400	7.50	6.00	5.30
Pack glue sticks	87-0405	1.00	0.80	0.70

PVC insulating tape

Strong PVC self-adhesive insulating tape. 19mm wide. Supplied on 20M reels.



Colour	Order code	1+	10+
Black	87-0500	0.28	0.24
Red	87-0505	0.28	0.24
Blue	87-0510	0.28	0.24
White	87-0515	0.28	0.24
Yellow	87-0520	0.28	0.24
Green	87-0525	0.28	0.24

Bench top component dispenser

A wire frame stand designed to hold a combination of picking bins detailed below. The frame consists of three tiers each of 396mm width which can accommodate up to 12 picking bins. The dispenser (supplied without bins) greatly assists accurate selection of components and is ideally suited to small manufacturing facilities. Supplied complete with labels.

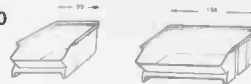


Type	Order code	1+	5+
Benchtop dispenser (less bins)	14-0400	9.80	9.20

Picking bins

Picking bins to suit the above dispenser. Available in three standard widths. Each of the three tiers on the dispenser will carry a maximum width of 396mm.

14-0410 14-0415



14-0420 14-0425

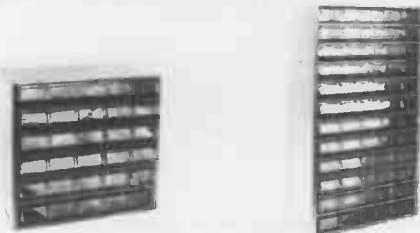


Width (mm)	Compartments	Colour	Order code	1+
99	1	Red	14-0410	0.90
198	1	Green	14-0415	1.10
198	3	Green	14-0420	1.50
297	1	Blue	14-0425	1.50

SERVICE AIDS

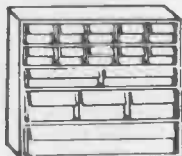
Storage cabinets

A range of transparent drawer storage units with steel frame available with a wide variety of drawer sizes. Can be wall mounted or free standing. Two basic frame sizes are available (the smaller is exactly half the size of the larger unit). Frame is finished in metallic grey. Supplied complete with labels.



16 drawer unit

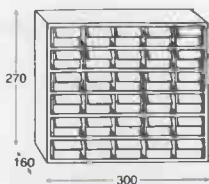
Contents:
 10 drawers 55×37×175
 2 drawers 138×37×175
 3 drawers 92×59×175
 1 drawer 277×59×175
 Overall size 300×270×160



	Order code	1+	4+
16 drawer unit	14-0100	15.00	14.40

30 drawer unit

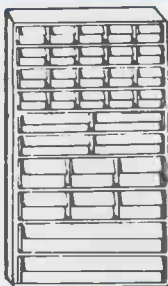
Contents:
 30 drawers 55×37×175
 Overall size 300×270×160



	Order code	1+	4+
30 drawer unit	14-0105	15.00	14.40
Pack of 10 dividers	14-0300	0.45	0.40

32 drawer unit

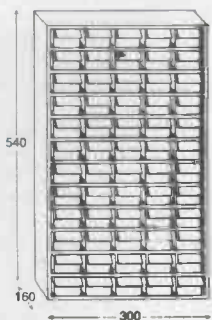
Contents:
 20 drawers 55×37×175
 4 drawers 138×37×175
 6 drawers 92×59×175
 2 drawers 277×59×175
 Overall size 300×540×160



	Order code	1+	4+
32 drawer unit	14-0110	25.50	24.00

60 drawer unit

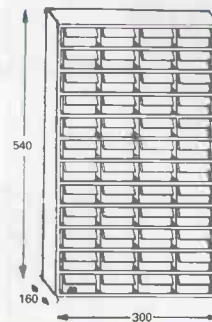
Contents:
 60 drawers 55×37×175
 Overall size 300×540×160



	Order code	1+	4+
60 drawer unit	14-0115	25.50	24.00
Pack of 10 dividers	14-0300	0.45	0.40

48 drawer unit

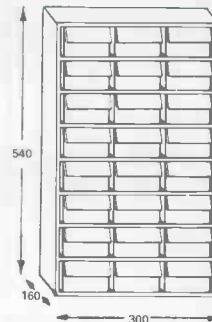
Contents:
 48 drawers 69×37×175
 Overall size 300×540×160



	Order code	1+	4+
48 drawer unit	14-0120	25.50	24.00
Pack of 10 dividers	14-0305	0.70	0.65

24 drawer unit

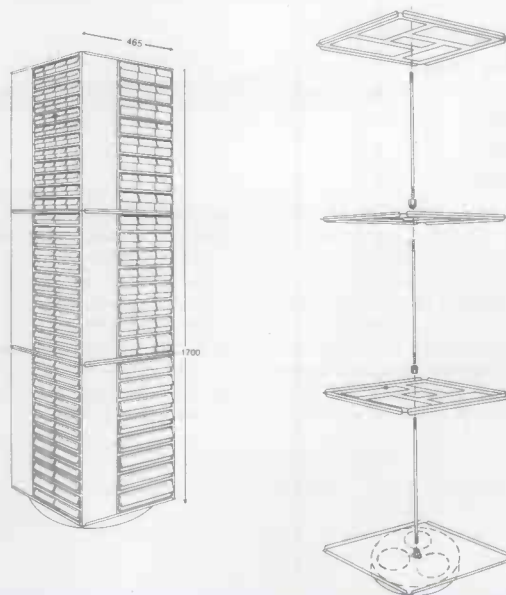
Contents:
 24 drawers 92×59×175
 Overall size 300×540×160



	Order code	1+	4+
24 drawer unit	14-0125	25.50	24.00
Pack of 10 dividers	14-0310	1.00	0.90

Turntable unit for storage cabinets

A turntable unit for use with the storage cabinets detailed above. This unit is ideal for use where space is at a premium, accommodating twelve storage units using only 0.25 square metres of floor space. Each tier of the stand is secured firmly in position. The bearing turns smoothly and easily. Total load capacity is over 1,000Kg.



	Order code	1+	4+
Turntable unit	14-0200	56.50	53.00

SOLDERING EQUIPMENT

Antex CS 17W soldering iron



A 17W precision miniature soldering iron featuring a double shaft. An inner shaft of ceramic to provide near perfect insulation and virtually no leakage and an outer shaft of stainless steel for strength. 240V mains operation. The iron is also now available with heat proof silicone cable ideally suited to educational environments. Leakage current to 3 to 5µA. Bits are secured on the element sheaths by a sliding ring which when removed towards the tip, allows the bit to slip on or off. Complete with 2.3mm bit and mains cable.

Part	Order code	1+	5+
CS 17W soldering iron	85-0500	5.00	4.60
CS 17W iron + silicone cable	85-0502	6.65	6.20
Spare element to suit	85-0505	2.40	2.30
1mm bit to suit	85-0510	0.85	0.80
2.3mm bit to suit	85-0515	0.85	0.80
4.7mm bit to suit	85-0520	0.85	0.80

Antex XS 25W soldering iron



A 25W 240V mains soldering iron ideal for soldering transistors and integrated circuits. Leakage current 1µA. Again uses double shaft principle. Bits are secured on the element sheaths by a sliding ring which when removed towards the tip, allows the bit to slip on or off. Complete with mains lead and fitted with 3mm bit.

Part	Order code	1+	5+
XS 25W soldering iron	85-0525	5.00	4.60
Spare element to suit	85-0530	2.40	2.30
2.3mm bit to suit	85-0535	0.85	0.80
3mm bit to suit	85-0540	0.85	0.80
4.7mm bit to suit	85-0545	0.85	0.80

Low voltage 17W soldering irons

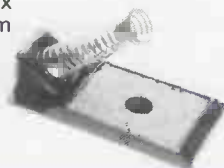


The Antex CS 17W soldering iron is ideal for miniature precision soldering. 12V and 24V element voltages are offered. Both irons are now available with heat proof silicone cable ideally suited to educational environments. The iron features a double shaft: an inner shaft of ceramic to provide near perfect insulation and virtually no leakage and an outer shaft of stainless steel for strength. Leakage current is less than 2mA. Bits are secured on the element by a sliding ring which when removed towards the tip, allows the bit to slip on or off. Supplied complete with 2.3mm bit, 1.5M of cable and full instructions. A stand is available to accommodate the iron.

Part	Order code	1+	5+
12V CS 17W iron	85-0570	5.30	4.95
12V CS 17W iron + silicone cable	85-0572	6.90	6.45
12V element	85-0575	2.60	2.50
24V CS iron	85-0560	5.30	4.95
24V CS 17W iron + silicone cable	85-0562	6.90	6.45
24V element	85-0565	2.60	2.50
1mm bit to suit	85-0510	0.85	0.80
2.3mm bit to suit	85-0515	0.85	0.80
4.7mm bit to suit	85-0520	0.85	0.80

Soldering iron stand

A soldering iron stand manufactured by Antex for use with the above irons, constructed from a high grade insulation material with a chromium plated steel spring. The sponge serves to keep the soldering iron bits clean — this must be kept damp. Spare bits can be accommodated on the stand. Spare sponges are available.



	Order code	1+	5+
Soldering iron stand	85-0585	1.70	1.50
Spare sponge	85-0587	0.30	0.25

Heavy duty soldering iron stand

A heavy duty heatsink suitable for use with the Antex TCS240 iron. The stand is supplied complete with three bezels which will therefore allow the stand to accommodate all Antex irons and many other manufacturers. The stand is supplied with a heavy metal base and a cleverly designed spring which prevents contact with the bit thus avoiding temperature loss. Complete with detachable sponge for easy cleaning.



	Order code	1+	5+
Antex ST5 stand	85-0588	4.35	3.95
Spare sponge	85-0587	0.30	0.25

Temperature controlled soldering iron



The Antex TCS240 is a new development in temperature controlled soldering technology made possible by using the latest advancements in component miniaturisation, enabling the handle to be reduced in size and shaped into the revolutionary form that is most comfortable to hold. The 50W 240V element has been made using thick-film ceramic technology, with heating characteristics that produce a warm-up time of less than one minute, plus an in-built sensor that when matched with the specially designed circuit maintains a selected tip temperature within 2 deg. C. Temperature is controlled via a miniature setting dial, set into the handle which is continuously variable from 200 deg. C to 450 deg. C. Leakage current is negligible — less than 5µA. The iron is supplied complete with 1.5M of silicone covered cable and 2.3mm chrome-plated bit.

	Order code	1+	5+
TCS240 50W iron	85-0550	25.50	24.00
Spare element	85-0551	14.00	13.50
1mm chrome bit	85-0555	0.95	0.90
2.3mm chrome bit	85-0556	0.95	0.90
4.7mm chrome bit	85-0557	0.95	0.90

Temperature controlled soldering stations

The XY9 series of temperature controlled soldering stations and irons represent the latest available technology offered at exceptional prices. Two types of station are offered: the XY9A offering analogue readout of temperature setting and the XY9D offering digital readout. The specially insulated nichrome wire heating element is compressed between two layers of stainless steel for ruggedness and is located at the end of the barrel to ensure instant heat up and recovery. This also provides optimum tip temperature. The XY9 series incorporates electronic circuitry which enables the user to adjust temperature at the tip from 100 deg. C through to 470 deg. C without changing the tip or heater element. Revolutionary electronic 'zero voltage' thyristor switching protects voltage and current sensitive components (CMOS devices) against transient voltage spikes caused in stations using mechanical switching action. Soldering iron voltage is 24V. Tip temperature is maintained to within 3 deg. C of preset temperature. Dynamic response to soldering load variations is ensured by the positioning of a unique sensor close to the working surface of the tip. Heat-up time to the preset temperature is attained in about 45 seconds. The soldering tip is grounded through the power unit to ensure less than 0.4 millivolt or 0.03 microampere leakage. All units exceed current UL specifications. Station supply voltage 240V AC.

SOLDERING EQUIPMENT

XY9A soldering iron station and iron

The XY9A soldering iron station comprises analogue meter readout station complete with 60W iron. Temperature is displayed on miniature edgewise panel meter. The balanced 60W soldering iron is supplied complete with silicone flexible cable for ease of use terminated with four pole locking connector. A novel feature of the station are dual slots to accommodate the iron stand so that the stand can be fitted to the left or right hand side of the station. The station incorporates a 'lock-out' feature to allow educational supervisors the ability to set and lock the station at a specific temperature. Station is supplied complete with tray to accommodate spare bits and cleaning sponge. The 60W iron is supplied complete with 2mm bit.



Type	Order code	1+	5+	10+
XY9A station and 60W iron	85-0805	46.50	43.50	41.50

XY9D soldering iron station and iron

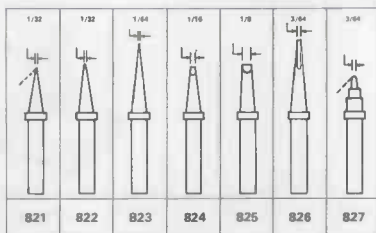
The XY9D soldering iron station comprises digital readout station complete with 60W iron. Temperature is displayed on three 0.56in LED displays with resolution of 1 deg. C. The balanced 60W soldering iron is supplied complete with silicone flexible cable for ease of use terminated with four pole locking connector. Novel feature of the station are dual slots to accommodate the iron stand so that the stand can be fitted to the left or right hand side of the station. The station incorporates a 'lock-out' feature to allow educational supervisors the ability to set and lock the station at a specific temperature. Station is supplied complete with tray to accommodate spare bits and cleaning sponge. The 60W iron is supplied complete with 2mm bit.



Type	Order code	1+	5+	10+
XY9D station and 60W iron	85-0800	69.50	65.00	61.50

Soldering iron bits

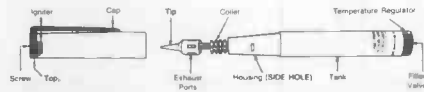
A range of soldering iron bits to suit the above iron. Manufactured for maximum heat transfer and for long operating life. Plating steps are carefully controlled thereby inhibiting corrosion, oxidation, pitting, scaling and amalgamation. This process reduces the possibility of the shank freezing or sticking in the soldering iron thus providing long life with minimum attention and maximum uninterrupted performance. All bits are pre-tinned and ready for immediate use.



Type	Tip size	Order code	1+	10+
821	0.8mm	85-0822	1.20	1.10
822	0.8mm	85-0827	1.20	1.10
823	0.5mm	85-0832	1.20	1.10
824	2.0mm	85-0837	1.20	1.10
825	3.2mm	85-0842	1.20	1.10
826	1.2mm	85-0847	1.20	1.10
827	1.2mm	85-0852	1.20	1.10

Portable gas soldering iron **NEW**

A lightweight, compact, fully portable gas soldering iron. The iron operates on butane gas from its own internal reservoir, and can be quickly and easily refilled from any standard butane gas refill. Heat up time is typically twenty seconds.

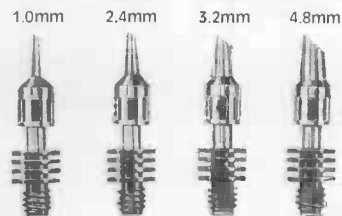


The iron will run for up to one hour on its own internal gas supply. Gas energy source removes all risks of electrical damage to sensitive components. Fully adjustable tip temperature from equivalent 10 to 60 W (max temp. 400 deg C). Overall size just 170x19mm. A wide range of replacement bits are available as detailed below. Supplied with 2.4mm bit.

	Order code	1+	10+	50+
Portable gas iron	85-1020	8.60	7.70	6.90

Spare bits for portable gas iron **NEW**

A range of spare bits to suit the portable gas soldering iron. All bits include catalytic converter.



Type	Order code	1+	10+	50+
1.0mm bit	85-1025	3.00	2.70	2.45
2.4mm bit	85-1030	3.00	2.70	2.45
3.2mm bit	85-1035	3.00	2.70	2.45
4.8mm bit	85-1040	3.00	2.70	2.45

Butane gas pencil torch

An extremely versatile Butane gas powered tool which may be used for a variety of applications including soldering, welding, brazing and general repair work. The aluminium handle acts as a fuel tank which is simply refilled using lighter fuel. Flame is adjustable from approximately 12mm to 20mm in length producing a maximum temperature of 1300 deg. C. The fuel tank has sufficient capacity to give 40 minutes' working time at maximum flame setting. Supplied with full instructions.



Type	Order code	1+	10+	50+
Butane pencil torch	85-1100	4.50	3.90	3.30

SOLDERING EQUIPMENT

Solder

High grade 60/40 tin/lead alloy solder available in a wide variety of diameters and reel sizes. Melting temperature 188 deg. C. Recommended minimum bit temperature 248 deg. C. Manufactured to BS219.



Reel size	Gauge	Approx. length	Order code
10M pack	22	10M	85-0590
0.5Kg	22	175M	85-0595
0.5Kg	18	61M	85-0610
2.0Kg	18	244M	85-0615

Order code	1+	10+	50+	100+
85-0590	0.75	0.65	0.50	0.45
85-0595	6.00	5.00	4.40	3.90
85-0610	5.40	4.60	4.10	3.60
85-0615	21.00	17.80	15.50	13.50

Bar solder

High grade extruded solder containing 60% tin and 40% lead alloy ideally suited to printed circuit soldering machines, baths and pots, etc. Supplied in bars of 0.5Kg.



Type	Order code	1+	10+	50+
High grade solder bar	85-0620	4.50	4.20	3.30

Solder remover

A specially treated wick draws up molten solder, leaving joints clean for removal of components or re-soldering. Length 1.5 metres. Supplied on plastic dispenser.



Type	Order code	1+	25+	100+
Solder remover	85-0625	0.40	0.35	0.30

Desoldering tool



Powerful desoldering tool quickly removes molten solder from joint. Spring loaded piston is closed while solder is being melted, then released by a simple push button. The nozzle is easily removed for cleaning or replacement. Fully enclosed plunger.

Type	Order code	1+	10+
Desoldering tool	85-0600	2.50	2.20
Spare nozzle	85-0605	0.50	0.40

Electric desoldering tool

This award winning tool replaces the conventional method of desoldering components by combining desolder pump and soldering iron in one neat handtool. The tool contains a ceramic heater element and vacuum pump which allows one handed operation when desoldering components. To operate the plunger is pressed until locked position is reached, the tip is then moved in a circular direction until solder has melted, the pump is then released, solder is then removed from the joint. Supplied with long life tip and mains lead. 240V supply required. Complete with 1.5M of mains cable.



Type	Order code	1+	5+	10+
Electric desoldering tool	85-0900	10.90	10.20	9.70
Spare tip	85-0905	1.30	1.20	1.15

Soldering iron bit cleaner

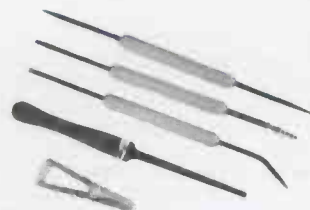
A soldering iron bit tinner/cleaner offering a speedy and effective method of cleaning and re-tinning de-wetted bits. Supplied in a 15g tin with lid and self-adhesive pad so that it can be readily affixed to any convenient surface.



Type	Order code	1+	10+
Bit cleaner	85-0631	1.35	1.25

Soldering aids set

A set of five useful tools for use when soldering PCBs. The set comprises fork/hook, knife/needlepoint, wire brush/scrapper, heatsink and tweezers.



Type	Order code	1+	10+	50+
Soldering aid set	85-0632	1.20	1.10	0.95

Solder pot



The Oryx Soldip 60 is a 45 watt solder pot for dipping and tinning components and wires. Of extremely stable design, it may be used free standing or alternatively screwed to the bench for greater security, four 5mm diameter holes being provided in the base for this purpose. Supplied complete with 1.5M of burn proof cable.

Technical specification

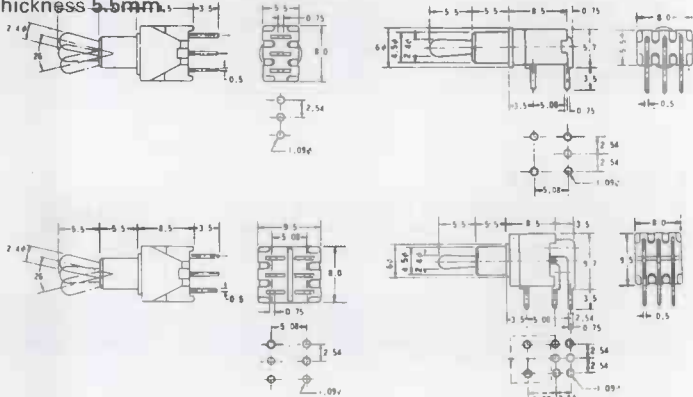
Power-supply	240V 50Hz 45W
Typical operating temperature	330 deg. C
Solder capacity	9.5cc
Tilting capacity	45°

Type	Order code	1+	5+
Oryx 60 solder pot	85-1050	28.30	26.50

SWITCHES

Ultra-miniature PCB toggle switches

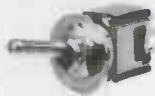
A range of fixed position ultra-miniature PCB mounting toggle switches in either vertical or right angle mounting styles. Pins are arranged on a 0.1in pitch for easy PCB mounting. Right angle types have two additional support pins. Contacts are gold plated and thereby suitable for low level switching applications. Ideal for use where space is at a premium. Contacts rated at 100mA 5V DC or 25mA 25V DC. Mounting hole 4.8mm, maximum panel thickness 5.5mm.



Type	Order code	1+	25+
Vertical type			
SPDT	75-0190	1.02	0.92
SPDT centre off	75-0195	1.10	1.00
DPDT	75-0200	1.35	1.20
DPDT centre off	75-0205	1.45	1.30
Right angle type			
SPDT	75-0210	1.20	1.08
SPDT centre off	75-0215	1.25	1.10
DPDT	75-0220	1.65	1.50
DPDT centre off	75-0225	1.80	1.60

Sub-miniature toggle switches

A range of cost-effective sub-miniature toggle switches. Rated at 250V 1.5A AC. Chrome plated brass dolly. Panel cutout 5.2mm. Panel thickness max. 5mm.



Type	Body dim.	Order code	1+	25+	100+	500+
SPST	8x4x7	75-0100	0.40	0.34	0.30	0.25
SPDT	8x4x7	75-0105	0.42	0.36	0.32	0.27
DPDT	8x9x7	75-0110	0.48	0.42	0.36	0.30

Miniature toggle switches

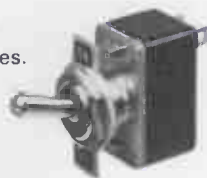
A range of high quality miniature toggle switches. Rated 250V 1A AC. Chrome plated brass dolly. Available with centre off position. Panel cutout 6.2mm.



Type	Body dim.	Order code	1+	25+	100+	500+
SPDT	13x8x9	75-0130	0.40	0.34	0.30	0.25
SPDT centre off	13x8x9	75-0135	0.45	0.39	0.35	0.29
DPDT	13x13x9	75-0140	0.48	0.42	0.36	0.30
DPDT centre off	13x13x9	75-0145	0.53	0.47	0.40	0.35

Standard toggle switches

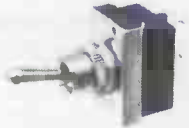
A range of low cost standard size toggle switches. Complete with on/off plate. Rated at 250V 1.5A AC. Panel cutout 12mm.



Type	Body dim.	Order code	1+	25+	100+	500+
SPST	25x14x14	75-0180	0.35	0.30	0.26	0.22
DPDT	28x18x14	75-0185	0.48	0.43	0.35	0.31

High current standard toggle switches

A range of high current standard toggle switches. Panel cutout 12mm. Rated at 250V AC 10A. 6.3mm solder tag termination.



Type	Body dim.	Order code	1+	25+	100+
SPST	30x18x14	75-0250	1.00	0.88	0.81
DPDT	30x21x20	75-0255	1.20	1.05	0.95

Miniature rocker switch

A smart miniature rocker switch with concave rocker in black with matt black bezel. On position is clearly marked by legend printed on rocker face. UL and CSA approved. Panel cutout 19.3x12.9mm. 4.8x0.8mm crimp connections. Body dimensions 21x15x14mm.



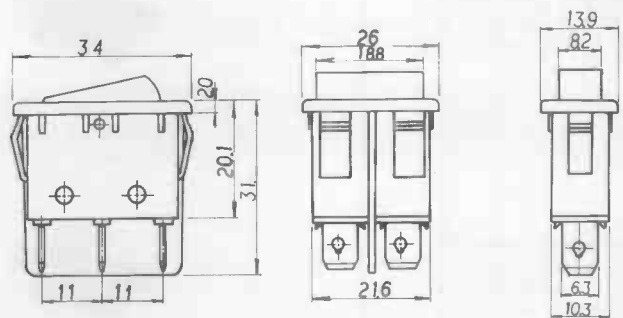
Technical specification

Contact rating	3A 250V AC
Insulation resistance	100M min.
Contact resistance	Less than 50mΩ
Mechanical life	>30,000 operations
Electrical life	>10,000 operations

Type	Order code	1+	25+	100+	500+
SPST miniature rocker	75-0275	0.30	0.26	0.22	0.20

Illuminated rocker switches

A range of high quality illuminated rocker switches which incorporate a neon and series resistor for 250V AC operation. Matt black bezel with On status marked on rocker face. CSA approved. 6.3x0.8mm crimp connections.



Technical specification

Contact rating	10A 250V AC
Insulation resistance	100M min
Contact resistance	Less than 50mΩ
Mechanical life	>30,000 operations
Electrical life	>10,000 operations

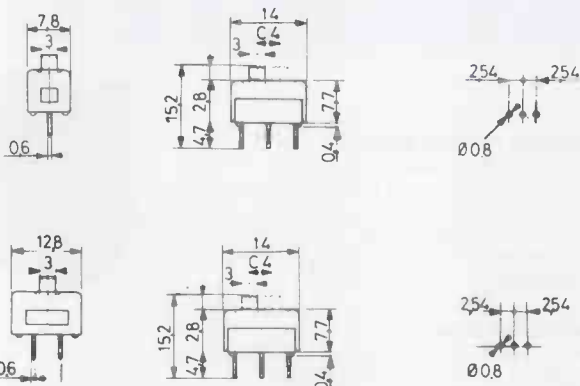
Type	Order code	1+	25+	100+	500+
SPST red rocker	75-0295	0.50	0.45	0.40	0.36
DPST red rocker	75-0280	0.75	0.68	0.58	0.52
DPST amber rocker	75-0290	0.75	0.68	0.58	0.52

● Subject to design change

SWITCHES

Ultra-miniature slide switches

A range of vertical mounting and right angle PCB mounting slide switches having pins on a 0.1in grid. Silver plated contacts close with a positive action. Sealed terminals are flux immune.



Technical specification

Contact rating	250V 2A
Minimum load	100mA 10V
Initial contact resistance	10mΩ max.
Electrical life	2×10 ⁴ operations
Temperature range	-40 to +85 deg C

Type	Order code	1+	25+	100+	500+
SPDT vertical	76-0200	0.50	0.42	0.36	0.315
DPDT vertical	76-0220	0.58	0.46	0.40	0.33
SPDT right angle	76-0205	0.50	0.42	0.36	0.315
DPDT right angle	76-0215	0.65	0.55	0.46	0.38

Slide switches

Miniature slide switch

Rated at 0.5A, 125V AC. Connections to solder tags. Fixing centres 19mm. DPDT contacts.



Type	Body dim.	Order code	1+	25+	100+	500+
Min. slide	15×8×7	76-0100	0.12	0.10	0.08	0.07

Standard slide switch

Rated at 0.5A, 125V AC. Connections to solder tags. Fixing centres 28mm. Also available with centre off position. DPDT contacts.



Type	Body dim.	Order code	1+	25+	100+	500+
Std slide	22×12×8	76-0105	0.14	0.12	0.10	0.085
Std centre off	22×13×8	76-0110	0.16	0.14	0.12	0.105

Micro-miniature push button switch

A micro-miniature push to make switch with gold plated contacts suitable for low voltage switching. 6.5mm coloured caps are available in black, green or red, although the switch may be used without one being fitted. Initial contact resistance less than 30mΩ.



Type	Order code	1+	50+
Push switch	78-0130	0.95	0.92
Black 6.5mm cap	78-0135	0.04	0.03
Green 6.5mm cap	78-0140	0.04	0.03
Red 6.5mm cap	78-0145	0.04	0.03

Miniature push switches

Miniature low cost push to make switches with all-plastic body and chrome locking nut offered in a variety of button colours. Non-locking action. Overall dimensions 28mm long, 10.5mm diameter. Rated 250mA 125V AC. Panel cutout 7mm.



	Order code	1+	100+	500+
Red push switch	78-0030	0.12	0.10	0.085
Black push switch	78-0035	0.12	0.10	0.085
Green push switch	78-0040	0.12	0.10	0.085
Yellow push switch	78-0045	0.12	0.10	0.085
Blue push switch	78-0050	0.12	0.10	0.085
White push switch	78-0055	0.12	0.10	0.085

Push switches

Miniature low cost push to make switch with red button. Non-locking. Overall dimensions 28mm long, 10.5mm diameter. Rated 250mA 125V AC. Panel cutout 7mm.



Type	Order code	1+	25+	100+	500+
Push to make	78-0100	0.14	0.12	0.10	0.09

Miniature low cost push to break switch with black button. Non-locking. Overall dimensions 28mm long, 10.5mm diameter. Rated 250mA 125V AC. Panel cutout 7mm.



Type	Order code	1+	25+	100+	500+
Push to break	78-0105	0.20	0.18	0.16	0.14

Square push switches

A range of attractive miniature non-locking square push switches available in push to make or push to break contacts. Four different coloured actuator buttons are also available providing a wide combination of types. Overall body dimensions 17×14×14mm. Rated 0.5A 250V AC. Panel cutout 12.5×10.5mm.



Push to make		Order code	1+	25+	100+	500+
Colour						
Red		78-0350	0.22	0.20	0.18	0.15
Yellow		78-0355	0.22	0.20	0.18	0.15
Green		78-0360	0.22	0.20	0.18	0.15
White		78-0365	0.22	0.20	0.18	0.15
Push to break		Order code	1+	25+	100+	500+
Colour						
Red		78-0380	0.22	0.20	0.18	0.15
Yellow		78-0385	0.22	0.20	0.18	0.15
Green		78-0390	0.22	0.20	0.18	0.15
White		78-0395	0.22	0.20	0.18	0.15

Square push switches

A range of larger push switches with large actuator button in red. Available in non-locking push to make or SPST latching. Body dimensions 34×15×15mm. Panel cutout 12mm. Rated 3A 250V AC.

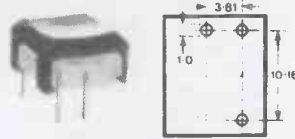


Type	Order code	1+	25+	100+	500+
SPST non-locking	78-0110	0.34	0.26	0.22	0.19
SPST latching	78-0115	0.36	0.28	0.24	0.21

SWITCHES

Miniature PCB keyboard switch

This low profile keyboard switch type VMS is designed primarily for switching logic. Contact action is by a special spherical disc spring which operates with a positive, tactile action, snapping back when the operating force is reduced.



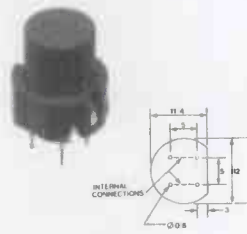
Technical specification

Max. current	10mA
Max. voltage	30V DC
Contact resistance	Less than 1 ohm
Travel	0.35mm
Operating force	2.3N
Operating temperature	-10 to +70 deg C

Colour	Order code	1+	25+	100+	1000+
Black	78-0180	0.26	0.23	0.20	0.16
White	78-0185	0.26	0.23	0.20	0.16
Green	78-0190	0.26	0.23	0.20	0.16
Red	78-0195	0.26	0.23	0.20	0.16
Blue	78-0200	0.26	0.23	0.20	0.16

PCB keyboard switch

Type D6 range of SPST normally open miniature PCB mounting keyboard switches with round tops. Primarily designed for digital applications. Momentary action with tactile feedback with actuator button available in three colours. Switches can be mounted on a 12.7mm pitch. Strapped terminals allow for the possibility of X, Y coding.



Technical specification

Max. load	10mA/35V DC
Insulation resistance	Greater than 10 ⁶ ohms
Contact resistance	Less than 10mΩ
Life	Greater than 250,000 operations
Operating force	1.3N
Travel	0.8mm
Operating temperature	-20 to +65 deg C

Colour	Order code	1+	25+	100+	1000+
Black	78-0150	0.28	0.24	0.21	0.17
Green	78-0155	0.28	0.24	0.21	0.17
Red	78-0160	0.28	0.24	0.21	0.17

Miniature tilt switch

A miniature tilt switch consisting of a mercury bubble in a small glass envelope. Intended for low voltage use only. Overall dimensions 18x5mm diameter



	Order code	1+	25+	100+
Tilt switch	78-0790	0.45	0.40	0.35

Sub-miniature interlocking PCB switches

A range of sub-miniature PCB mounting switches designed for low current applications in test equipment, communications equipment, etc. A maximum of 10 switches may be banked together using the mounting bracket as detailed below. Switch operation may be momentary. Latching or interlocking or a combination used with a latching bar. Suitable for mounting on 0.1in pitch PCB.

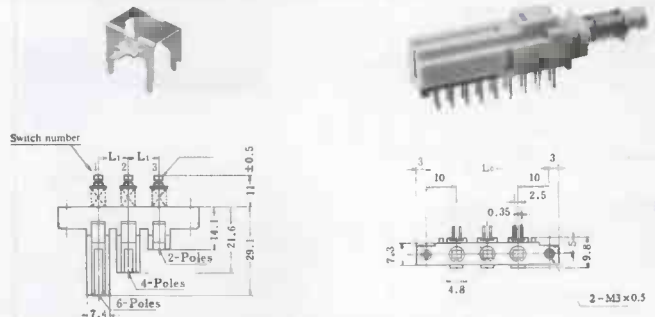


Technical specification

Contact rating	30V DC @ 100mA
Insulation resistance	>100MΩ
Operating force	2 pole 160g+100g
	4 pole 220g+100g
	6 pole 300g+100g
Electrical life	1x10 operations
Temperature range	-10 to +60 deg C

	Order code	1+	25+	100+
Momentary action				
2 pole changeover	78-0400	0.60	0.55	0.50
4 pole changeover	78-0405	0.70	0.65	0.60
6 pole changeover	78-0410	0.90	0.80	0.75
Latching action				
2 pole changeover	78-0415	0.70	0.65	0.60
4 pole changeover	78-0420	0.80	0.75	0.70
6 pole changeover	78-0425	0.90	0.80	0.75

Mounting brackets for PCB switches



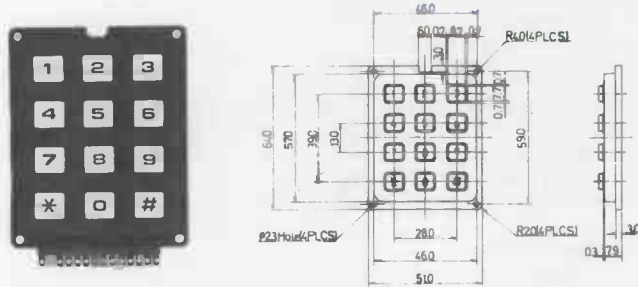
A range of mounting brackets for use with the above. It is recommended that a bracket be employed to provide adequate support. Two types of bracket are available: a single PCB bracket and a range of panel mounting types in a range of sizes. If interlocking action is required a latching bar should be employed (supplied in 10 switch lengths). When independent switching is required the appropriate interlocking stud should be removed from the latching bar. Employing this method offers the user with a wide range of switching permutations. Suitable push-fit knobs are available in round or rectangular styles in black.

Type	Order code	1+	25+	100+
Single switch PCB bracket	78-0450	0.09	0.08	0.07
Single switch panel bracket	78-0460	0.14	0.13	0.12
2 switch panel bracket	78-0465	0.16	0.15	0.13
4 switch panel bracket	78-0470	0.18	0.16	0.15
6 switch panel bracket	78-0475	0.27	0.25	0.23
8 switch panel bracket	78-0480	0.34	0.31	0.29
10 switch panel bracket	78-0485	0.49	0.45	0.41
10 switch latching bar	78-0490	0.70	0.65	0.60
Rectangular black knob	78-0440	0.14	0.13	0.115
Round black knob	78-0445	0.14	0.13	0.115

All prices quoted in this catalogue are valid to 30th September 1989.

SWITCHES

Miniature data entry keypad



A low profile keypad of compact size suitable for use on hand held and other small equipment. A single rectangular cut is required to fit the keypad through a panel and four mounting holes are provided for retention of the keypad. The conductive rubber contacts require a low operating force, but have a positive action to give the operator feedback. Input and output connections are via solder pads. Available in common bus or matrixed output styles.

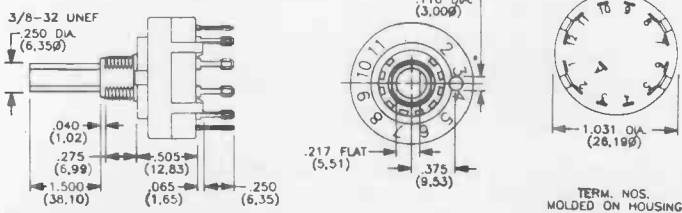
Technical specification

Mechanical life	1 x 10 ⁶ operations
Contact bounce	Less than 10ms
Contact resistance	Less than 200 ohms
Contact rating	24V DC 5mA
Operating temperature	-20 to +60 deg C

	Order code	1+	25+	100+	500+
Common bus keypad	78-0300	2.00	1.60	1.30	1.00
Matrixed keypad	78-0305	2.00	1.60	1.30	1.00

Rotary switches

A range of high quality rotary switches moulded in glass filled nylon. Make before break contacts. Adjustable rotation stop. Mounting bush 9.8mm diameter. Spindle length 40mm.



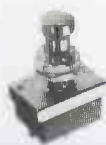
Technical specification

Contact rating	150mA 250V AC
Initial contact resistance	20mΩ max.
Electrical life	15 x 10 ³ full rotation cycles
Temperature range	-20 to +65 deg C

Type	Order code	1+	25+	100+	500+
1 pole 12 way	79-0100	0.45	0.40	0.36	0.32
2 pole 6 way	79-0105	0.45	0.40	0.36	0.32
3 pole 4 way	79-0110	0.45	0.40	0.36	0.32
4 pole 3 way	79-0115	0.45	0.40	0.36	0.32

Footswitch

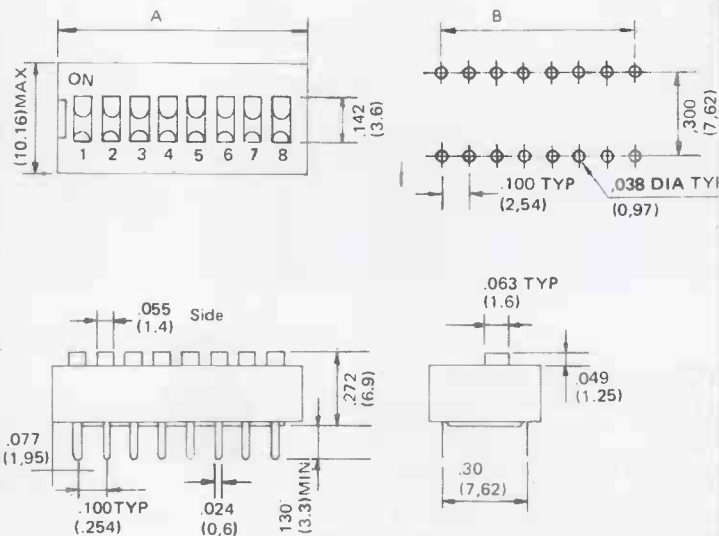
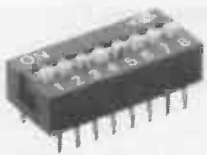
A heavy duty successional action footswitch with an all metal operating button. DPDT contacts. Rated at 6A 250V AC. Body dimensions 28x18x23mm. Bush and knob length 24mm. 12mm panel cutout.



Type	Order code	1+	10+
Footswitch	80-0160	1.80	1.50

DIL switches

Dual in line, laterally operated switches designed to be stacked, end on end, in any combination on 0.1in matrix printed circuit boards. On/Off status is clearly defined by a screen printed 'ON' indication against numbered switches. All types are SPST switched. Ideally suited for multiple programming functions, i.e., computers, communications equipment, remote control, security equipment, etc.



Type	A	B	Order code
4 way	11.7	7.6	80-0100
6 way	16.8	12.7	80-0105
8 way	21.8	17.8	80-0110

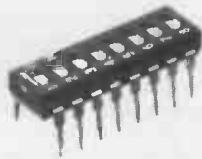
Technical specification

Contact rating	50V DC 100mA non switching
	24V DC 25mA switching
Contact resistance	30mΩ initial
Life	5,000 make/break cycles min.
Insulation resistance	1000M at 500V DC
Capacitance	5pF max. between terminals
Operating force	500g max.
Contact material	Phosphor bronze with gold plating 5 micron over nickel

Type	Order code	1+	25+	100+	500+
4 way 8 pin	80-0100	0.45	0.37	0.29	0.26
6 way 12 pin	80-0105	0.50	0.42	0.38	0.30
8 way 16 pin	80-0110	0.55	0.47	0.42	0.36

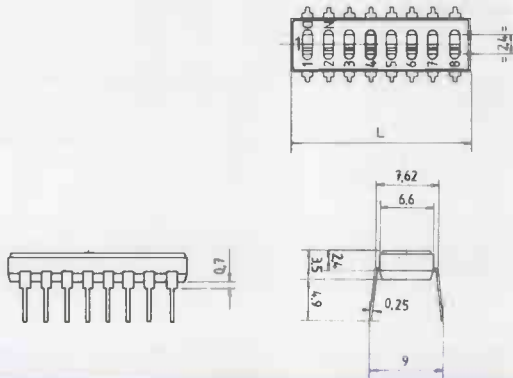
Low profile DIL switches **NEW**

A range of low profile DIL switches available in 2, 4 and 8 SPST switched versions. Black moulded, tape sealed switch body is only 4.4mm above board height, comparable to that of an IC. Switches are end stackable and have sliding self-cleaning gold plated contacts operated via an actuator which is flush with top switch.



Technical specification

Contact rating	28V DC 100mA
Contact resistance	Less than 50mΩ
Electrical life	5 × 10 ³ operations
Temperature range	-40 to +85 deg C



Type	L	Order code	1+	25+	100+	500+
2 way 4 pin	6.5	80-0115	0.40	0.36	0.27	0.25
4 way 8 pin	11.6	80-0120	0.48	0.39	0.31	0.28
8 way 16 pin	21.8	80-0125	0.64	0.54	0.47	0.42

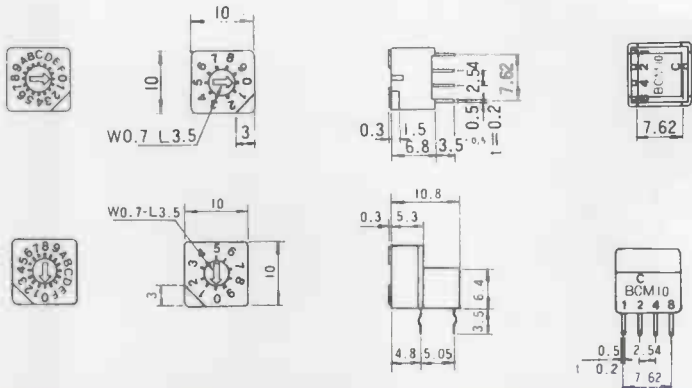
Binary coded rotary switches

Miniature PCB mounting binary coded rotary switches with gold plated contacts. Available either in horizontal or vertical mounting with either 16 position hexadecimal (0-9, A-F) or 10 position decimal outputs. All types have a recessed arrow position indicator operated by a screwdriver. Vertical mounting types are ideal for edge of board locations.



Technical specification

Contacts	100mA 5V DC (resistive)
Contact resistance	Less than 100mΩ
Operating life	10,000 min.
Temperature range	-25 to +70 deg C



Type	Order code	1+	25+
Horizontal hexadecimal	80-0170	1.80	1.55
Horizontal decimal	80-0175	1.70	1.45
Vertical hexadecimal	80-0180	1.90	1.60
Vertical decimal	80-0185	1.80	1.55

Microswitches

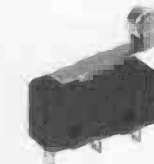
A range of high quality standard size microswitches offering a switching capacity of 15A at 250V AC. Connection may be made by a ¼in connector or soldering.



button

lever

roller



short roller

Technical specification

Contacts	Silver
Rating	15A 250V AC resistive
Mechanical life	>10 ⁷ operations

	button	lever	roller	short roller
Pretravel	1.2	3.3	3.3	1.5
Differential	0.15-0.4	1.25 max.	1.25 max.	0.4
Operating force	230g	115g	115g	230g
Release force	56g	14g	14g	45g

Type	Order code	1+	25+	100+	500+
button	78-0700	0.55	0.50	0.45	0.39
lever	78-0705	0.60	0.54	0.48	0.41
roller	78-0710	0.65	0.57	0.50	0.42
short roller	78-0715	0.65	0.57	0.50	0.42

Schedule your order to obtain a better price break based on overall quantity ordered.

TEST EQUIPMENT

102BZ analogue multimeter

A sophisticated 20,000 ohms/V analogue bench multimeter offering an advanced specification at extremely low cost. The meter offers a total of 23 ranges including a 10A DC current facility. Full protection is included against accidental overload. The convenient handle built onto the case doubles as a stand to position the meter in an upright position. A continuity buzzer is featured together with battery test facilities. Supplied complete with 4mm test leads, battery and comprehensive instruction manual. A good quality analogue meter offered at a very competitive price.



Technical specification

		Accuracy
DC voltage	2.5, 10, 50, 250 and 1000V	4%
AC voltage	10, 50, 250 and 1000V	5%
DC current	5, 50 and 500mA	4%
	10A on separate socket	4%
Resistance	10K, 100K and 10M	4%
AF output B	-8 to +62 B	
Battery	1.5V AA and 9V standard	
Continuity	Buzzer will sound when resistance between probes is <100 ohms.	
Size	92x135x38mm	

	Order code	1+	5+	10+	25+
102BZ analogue multimeter	85-0630	9.50	8.50	7.90	7.50

208 digital LCD multimeter

A compact pocket sized 3½ digit LCD multimeter offering exceptional performance at very low cost. A total of 17 ranges have been offered including a 10A DC current range, diode test and battery test. Accuracy is typically 1% on all ranges. Overrange indication is shown by blanking all digits except decimal point. Battery life is typically 300 hours — the meter includes 'low battery' indication. A high overall standard of production is employed throughout using the highest quality components. Supplied in attractive grey ABS case. Supplied complete with leads, battery, spare fuse and carry case. Size 120x69x24mm. A compact LCD multimeter offered at a price only normally associated with analogue instruments.



Technical specification

DC voltage				
Range	Resolution	Accuracy*	Input impedance	Overload protection
200mV	100µV	1%+1	1M	1000V DC/peak AC on all ranges
2V	1mV	1%+1	1M	
20V	10mV	1%+1	1M	
200V	100mV	1%+1	1M	
1000V	1V	1.2%+1	1M	

AC voltage				
Range	Resolution	Accuracy*	Input impedance	Overload protection
200V	100mV	1%+4	4.3M	750V rms on all ranges
750V	1V	2.5%+4	4.3M	

DC current				
Range	Resolution	Accuracy*	Burden volt	Overload protection
200µA	100µA	1%+1	0.3V	0.2A fuse up to 250V. 10A range not fused
200mA	100µA	2%+1	1.2V	
10A	10mA	2%+1	1.2V	

Resistance				
Range	Resolution	Accuracy*	Open voltage	Overload protection
200R	100m	1.2%+2	<3.2V	250V DC/rms on all ranges
2K	1R	1.2%+2	<3.2V	
20K	10R	1.2%+2	<3.2V	
200K	100R	1.2%+2	<3.2V	
2M	1K	1.2%+2	<3.2V	

Diode test			
Range	Resolution	Test current	Open circuit volts
Diode	0.001K	Approx. 1mA	Approx. 2.8V

Battery test		
Range	Resolution	Approximate load current
2V DC	0.001V	150mA DC at 1.5V DC

* Accuracy reading is % ± number of digits

	Order code	1+	5+	10+	25+
208 multimeter	85-0675	19.80	18.70	17.50	15.90

See page 36 for suitable replacement test leads.

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TEST EQUIPMENT

921 autoranging hand-held meter

An extremely compact hand-held digital autoranging multimeter ideally suited to in-circuit measurements or continuity testing. The meter is held like a pencil in the right hand, the probe tip applied to the circuit under test, the second connection being made via a probe on a flying lead which plugs into the back of the meter. A unique 'hold' facility enables a reading to be taken when the display is in inaccessible positions. A two-position slider selects volts or ohms and slider switches on the top select AC or DC and continuity check. Supplied complete with probe and flying lead, battery and comprehensive instructions.



Technical specification

DC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100µV	0.5%+3	10M	250V DC max. all ranges
2V	1mV	0.7%+2	12M	
20V	10mV	0.7%+2	11M	
200V	100mV	0.7%+2	11M	
500V	1V	0.7%+2	11M	

AC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
2V	1mV	1%+5	12M	500V AC max. all ranges
20V	10mV	1%+5	11M	
200V	100mV	1%+5	11M	
500V	1V	1%+5	11M	

Resistance				
Range	Resolution	Accuracy*	Impedance	Overload protection
200R	100m	0.7%+4	250V DC and AC peak	
2K	1R	0.7%+2		
20K	10R	0.7%+2		
200K	100R	0.7%+2		
2M	1K	1.2%+2		
20M	10K	3%+3		

Continuity
When the continuity tester is selected an internal audible buzzer sounds when the resistance between the probes is <280 ohms.

*Accuracy specification is % of reading ± number of digits

	Order code	1+	5+	10+	25+
921 multimeter	85-0660	22.90	21.00	19.90	17.50

775 autoranging LCD multimeter

A sophisticated autoranging LCD 3½ digit multimeter offering several advantages over conventional multimeter design. This meter is particularly useful where a wide range of differing input signals requires fast, accurate measurement as range switch does not need to be continually turned. A 'range hold' button is incorporated which will lock into a particular range — turning the range selector returns the meter to autorange. The 0.5in LCD display also incorporates several other features: 'LO-BAT' indicates low battery; 'AUTO' indicates autoranging; '1' flashing indicates overranging; '1' flashing indicates overrange. A 'MEM' button will, when activated, make readings relative to the value of the last two digits displayed at the time the button was pressed and this value is subtracted from further measurements so that unwanted values can be effectively removed. The low Ω mode allows higher resolution and presents to the probes a sufficiently low open circuit voltage to permit in-circuit testing without turning on semi-conductor devices. A continuity test is also incorporated and a piezo transducer will sound whenever resistance read is below 200Ω. Supplied in attractive black ABS case complete with operation manual, test leads and battery. Overall size 150x75x34mm.



Technical specification

DC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100µV	0.5%+1	10M	1100V DC/peak AC on all ranges
2V	1mV	0.5%+1	10M	
20V	10mV	0.5%+1	10M	
200V	100mV	0.5%+1	10M	
1000V	1V	0.5%+1	10M	

AC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
2V	1mV	0.75%+5	10M	1100V DC/peak AC on all ranges
20V	10mV	0.75%+5	10M	
200V	100mV	0.75%+5	10M	
750V	1V	0.75%+5	10M	

DC current				
Range	Resolution	Accuracy*	Burden volt	Overload protection
20mA	10µA	0.75%+1	0.3V max.	0.2A fuse
10A	20mA	1.5%+5	0.7V max.	12A max.

AC current (40 to 500Hz)				
Range	Resolution	Accuracy*	Burden volt	Overload protection
20mA	10µA	1%+5	0.3V max.	0.2A fuse
10A	20mA	2%+5	0.7V max.	12A max.

Resistance				
Range	Resolution	Accuracy*	Open voltage	Overload protection
	Low High			
2K	1R 0.1R	0.75%+1	HiV 1V LoV 0.5V	250V DC all ranges
20K	1R 0.1R	0.75%+1		
200K	1R 0.1R	0.75%+1		
2M	1R 0.1R	0.75%+1		

* Accuracy specification is % of reading ± number of digits

	Order code	1+	5+	10+	25+
775 multimeter	85-0670	28.50	26.90	25.00	23.50

See page 36 for suitable replacement test leads.

TEST EQUIPMENT

300 autoranging LCD multimeter

A new autoranging LCD 3½ digit multimeter offering a wide range of facilities in an extremely compact design. The meter is useful where a wide range of differing input signals requires fast, accurate measurement as range switch can remain in a fixed position. A 'range hold' button is incorporated which will lock into a particular range – turning the range switch returns the meter to autorange. The clear 0.5in LCD display also incorporates several other features: 'LO BAT' indicates low battery; 'AUTO' indicates autoranging. A memory 'MEM' button will when activated make readings relative to the value of the last two digits displayed at the time the button was pressed and this value is subtracted from further measurements so that unwanted values can be effectively removed. Overrange indication is shown by blanking all digits except decimal point.



The low Ω mode allows higher resolution and presents to the probes a sufficiently low open circuit voltage to permit in-circuit testing without turning on semi-conductor devices. A continuity test is also incorporated and a piezo transducer will sound whenever resistance is below 1.9 Ω . Facilities are also provided to measure HFE (gain) of transistors. Supplied in attractive grey ABS case. Supplied complete with leads, transistor test leads, battery, spare fuse and carry case. Overall size 120x69x24mm. An extremely compact meter offering a comprehensive range of facilities at a very competitive price.

Technical specification

DC voltage

Range	Resolution	Accuracy	Impedance	Overload protection
200mV	100 μ V	0.5%+1	10M Ω	1100V DC all ranges
2V	1mV	0.5%+1	10M Ω	
20V	10mV	0.5%+1	10M Ω	
200V	100mV	0.5%+1	10M Ω	
1000V	1V	0.5%+1	10M Ω	

AC voltage

Range	Resolution	Accuracy	Impedance	Overload protection
2V	1mV	0.8%+5	10M Ω	1100V DC all ranges
20V	10mV	0.8%+5	10M Ω	
200V	100mV	0.8%+5	10M Ω	
750V	1V	0.8%+5	10M Ω	

DC current

Range	Resolution	Accuracy	Impedance	Overload protection
20mA	10 μ A	0.8%+1	0.3V max.	0.2A fuse
200mA	100 μ A	0.8%+1	0.3V max.	10A not fused
10A	20mA	1.5%+1	0.7V max.	

AC current

Range	Resolution	Accuracy	Burden voltage	Overload protection
20mA	10 μ A	1.2%+1	0.3V max.	0.2A fuse
200mA	100 μ A	1.2%+1	0.3V max.	10A not fused
10A	20mA	2%+1	0.7V max.	

Resistance

Range	Resolution	Accuracy	Open voltage	Overload protection
200 Ω	1R 0.1R	1.2%+2	HiV 1V LoV 0.5V	250V DC all ranges
2k Ω	1R 0.1R	0.8%+1		
20k Ω	1R 0.1R	0.8%+1		
200k Ω	1R 0.1R	0.8%+1		
2M Ω	1R 0.1R	0.8%+1		

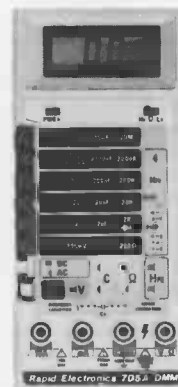
Continuity

When the continuity tester is selected an internal audible buzzer sounds when the resistance between the test probes is <1.9 Ω .

Type	Order code	1+	5+	10+	25+
300 autoranging multimeter	85-0645	30.50	28.50	26.50	25.30

705A digital LCD multimeter

The new 705A digital LCD multimeter represents a considerable breakthrough in terms of price and performance. LCD 3½ digit readout with side buttons for single handed operation. The meter combines 36 ranges including 5 capacitance ranges and a transistor test facility. Accuracy on all ranges is typically 1%. Overrange indication is shown by blanking all digits except decimal point. Battery life is typically 150 hours – the meter includes 'low battery' indication. A high overall standard of production is employed throughout using the highest quality components. Supplied in two-tone grey ABS case with stand for upright operation. Supplied complete with transistor test leads, leads, battery, spare fuse, black carry case and operation manual. Overall size 175x83x38mm. A very attractive and useful meter offered at a very competitive price.



Technical specification

DC voltage

Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100 μ V	0.5%+1	10M	1000V DC/peak AC on all ranges
2V	1mV	0.5%+1	10M	
20V	10mV	0.5%+1	10M	
200V	100mV	0.5%+1	10M	
1000V	1V	0.8%+1	10M	

AC voltage

Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100 μ V	1%+4	10M on all ranges Capacitance <1000p	750V rms on all ranges except 200mV AC range (15 seconds max. above 250V, AC)
2V	1mV	1%+4		
20V	10mV	1%+4		
200V	100mV	1%+4		
750V	1V	2%+4		

DC current

Range	Resolution	Accuracy*	Burden volt.	Overload protection
200 μ A	100nA	1%+1	0.3V max. 0.7V max.	up to 250V, 10A range not fused
2mA	1 μ A	1%+1		
20mA	10 μ A	1%+1		
200mA	100 μ A	1%+1		
10A	10mA	1%+1		

AC current

Range	Resolution	Accuracy*	Burden volt.	Overload protection
200 μ A	100nA	1.2%+4	0.3V max. 0.7V max.	up to 250V 10A range not fused
2mA	1 μ A	1.2%+4		
20mA	10 μ A	1.2%+4		
200mA	100 μ A	1.2%+4		
10A	10mA	1.5%+4		

Resistance

Range	Resolution	Accuracy*	Open voltage	Overload protection
200R	100m	1%+2	HiV<3.5V LoV<0.25V	250V DC/rms on all ranges
2K	1R	0.8%+2		
20K	10R	0.8%+2		
200K	100R	0.8%+2		
2M	1K	0.8%+2		
20M	10K	2%+4		

Capacitance

Range	Resolution	Accuracy*	Test signal	Max. input
2n	1p	3.5%+4	400mV rms	3V DC/peak AC on all ranges
20n	10p	3.5%+4	512Hz 40mV rms	
200n	100p	3.5%+4		
2 μ	1n	3.5%+4		
20 μ	10n	3.5%+4		

* Accuracy specification is % of reading \pm number of digits

Type	Order code	1+	5+	10+	25+
705A multimeter	85-0665	29.50	27.50	25.50	24.00

See page 36 for suitable replacement test leads.

TEST EQUIPMENT

55 digital LCD multimeter

The new 55 digital LCD multimeter offers several features only normally associated with expensive models including a 20A DC/AC facility, frequency count to 200kHz and transistor test facilities. A total of 31 ranges are selected by a single rotary switch ensuring the correct range is quickly and easily found. Accuracy on all ranges is typically 1%. Overrange indication is shown by blanking all digits except decimal point. A continuity test is also featured as standard. A flip-up stand allows the meter to be used in an upright position. Supplied complete with transistor test leads, 4mm test leads, battery, spare fuse, black carry case and operation manual. Overall size 175x83x38mm.



3225 bench digital multimeter



The 3225, manufactured by Black Star in the UK, is a rugged compact 3½ digit LCD bench multimeter which operates from six alkaline 'C' cells (supplied) and offers >7000 hours battery life on DC voltage measurements. The 0.5in display has polarity, overrange and low battery indication. Supplied complete with tilt stand, instruction manual, test leads and alkaline batteries. Overall size 79(h)x219(w)x240(d)mm. Weight 1.2 Kg.

Technical specification

DC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100µV	0.5%+1	10M	1000V DC/peak AC on all ranges
2V	1mV	0.5%+1	10M	
20V	10mV	0.5%+1	10M	
200V	100mV	0.5%+1	10M	
1000V	1V	0.8%+1	10M	

AC voltage				
Range	Resolution	Accuracy*	Impedance	Overload protection
200mV	100µV	0.8%+4	10M	On all ranges 200mV AC range (15 second max. above 250V AC)
2V	1mV	0.8%+4	10M	
20V	10mV	0.8%+4	10M	
200V	100mV	0.8%+4	10M	
750V	1V	1.2%+4	10M	

DC current				
Range	Resolution	Accuracy*	Burden volt.	Overload protection
200µA	100nA	1%+1	0.3V max.	Up to 250V, 20A range not fused
2mA	1µA	1%+1		
20mA	10µA	1%+1		
200mA	100µA	1.5%+1		
20A	20mA	1%+1		

AC current				
Range	Resolution	Accuracy*	Burden volt.	Overload protection
200µA	100µA	1.2%+4	0.3V max.	Up to 250V 20A range not fused
2mA	1µA	1.2%+4		
20mA	10µA	1.2%+4		
200mA	100µA	2%+4		
20A	20mA	1.5%+4		

Resistance				
Range	Resolution	Accuracy*	Open voltage	Overload protection
200R	100m	1%+2	<3.5V	250V DC/rms on all ranges
2K	1R	0.8%+2		
20K	10R	0.8%+2		
200K	100R	0.8%+2		
2M	1K	0.8%+2		
20M	10K	2%+4		

Frequency				
Range	Resolution	Accuracy*	Impedance	Overload protection
20kHz		0.5%+1	10M	250V DC/rms both ranges
200kHz		2%+1	10M	

Diode test				
Range	Resolution	Test current	Open circuit volts	
Diode	0.001K	Approx. 1mA	Approx. 2.8V	

Continuity test
An internal audible buzzer sounds when the resistance between the probes is <30 ohms.

* Accuracy specification is % of reading ± number of digits

Type	Order code	1+	5+	10+	25+
55 multimeter	85-0635	34.50	32.40	30.70	27.30

Technical specification

DC voltage				
Range	Resolution	Accuracy*	Impedance	Max. input
200mV	100µV	0.25%+1d	10MΩ	1100V DC or peak AC all ranges
2V	1mV	0.25%+1d	10MΩ	
20V	10mV	0.25%+1d	10MΩ	
200V	100mV	0.25%+1d	10MΩ	
1000V	1V	0.25%+1d	10MΩ	

AC voltage				
Range	Resolution	Accuracy*	Impedance	Max. input
200mV	100µV	0.5%+2d	10MΩ	250V rms 200mV range 750V rms all other ranges
2V	1mV	0.5%+2d	10MΩ	
20V	10mV	0.5%+2d	10MΩ	
200V	100mV	0.5%+2d	10MΩ	
750V	1V	0.5%+2d	10MΩ	

DC current				
Range	Resolution	Accuracy*	Max. burden	Overload protection
200µA	100nA	0.3%+1d	200mV	Up to 250V (2A fuse). Max. input for 10A range (not fused) is 20A for 10 seconds
2mA	1µA	0.3%+1d	200mV	
20mA	10µA	0.3%+1d	200mV	
200mA	100µA	0.3%+1d	200mV	
2000mA	1mA	0.5%+1d	<1V	
10A	10mA	2%+3d	200mV	

AC current				
Range	Resolution	Accuracy*	Max. burden	Overload protection
200µA	100nA	1%+2d	200mV	Up to 250V (2A fuse). Max. input for 10A range (not fused) is 20A for 10 seconds
2000µA	1µA	1%+2d	200mV	
20mA	10µA	1%+2d	200mV	
200mA	100µA	1%+2d	200mV	
2000mA	1mA	1%+2d	<1V	
10A	10mA	2.5%+2d	200mV	

Resistance				
Range	Resolution	Accuracy*	FS voltage	Max. input
200µΩ	100mΩ	0.15%+1d	<0.5V	250V DC or AC rms all ranges
2kΩ	1Ω	0.15%+1d	<0.5V	
20KΩ	10Ω	0.15%+1d	>0.7V	
200kΩ	100Ω	0.15%+1d	>0.7V	
2000kΩ	1kΩ	0.2%+1d	>0.7V	
20MΩ	10kΩ	1%+2d	>0.7V	

Diode
The 20kΩ range has sufficient full scale voltage to turn on a silicon diode at a current of approx. 100µA.

Continuity
When the continuity tester is selected an internal audible buzzer sounds when the resistance between the test probes is <50Ω.

* Accuracy specification is % of reading ± number of digits

Type	Order code	1+	3+
3225 multimeter	85-0680	84.50	79.50
Service manual (zero rated VAT)	85-0681	5.00	5.00

TEST EQUIPMENT

3210 bench digital multimeter (true rms)



A 3½ digit LCD bench multimeter, manufactured by Black Star, which, uniquely in this price range, offers true rms AC measurements, together with comprehensive voltage, current and resistance ranges, plus diode and continuity test functions. Operating from six alkaline 'C' cell batteries (supplied) which will give over 7000 hours life on DC voltage measurements. Supplied complete with tilt stand, instruction manual, test leads and alkaline batteries. Overall size 79(h)×219(w)×240(d)mm. Weight 1.2Kg.

Technical specification

DC voltage

Range	Resolution	Accuracy*	Impedance	Max. input
200mV	100µV	0.1%+1d	10MΩ	1100V DC or peak AC all ranges
2V	1mV	0.1%+1d	10MΩ	
20V	10mV	0.1%+1d	10MΩ	
200V	100mV	0.1%+1d	10MΩ	
2000mA	1V	0.1%+1d	10MΩ	
1000V	1V	0.1%+1d	10MΩ	

AC voltage (true rms)

Range	Resolution	Accuracy*	Impedance	Max. input
200mV	100µV	0.5%+2d	10MΩ	250V rms 200mV range 750V rms all other ranges
2V	1mV	0.5%+2d	10MΩ	
20V	10mV	0.5%+2d	10MΩ	
200V	100mV	0.5%+2d	10MΩ	
2000mA	1V	0.5%+2d	10MΩ	
750V	1V	0.5%+2d	10MΩ	

DC current

Range	Resolution	Accuracy*	Max. burden	Overload protection
200µA	100nA	0.15%+1d	200mV	Up to 250V (2A fuse). Max. input for 10A range (not fused) is 20A for 10 seconds
2mA	1µA	0.15%+1d	200mV	
20mA	10µA	0.15%+1d	200mV	
200mA	100µA	0.15%+1d	200mV	
2000mA	1mA	0.3%+1d	200mV	
10A	10mA	2%+3d	200mV	

AC current (true rms)

Range	Resolution	Accuracy*	Max. burden	Overload protection
200µA	100nA	1%+2d	200mV	Up to 250V (2A fuse). Max. input for 10A range (not fused) is 20A for 10 seconds
2000µA	1µA	1%+2d	200mV	
20mA	10µA	1%+2d	200mV	
200mA	100µA	1%+2d	200mV	
2000mA	1mA	1%+2d	200mV	
10A	10mA	2.5%+2d	200mV	

Resistance

Range	Resolution	Accuracy*	FS voltage	Max. input
200Ω	100mΩ	0.15%+1d	<0.5V	250V DC or AC rms all ranges
2kΩ	1Ω	0.15%+1d	<0.5V	
20kΩ	10Ω	0.15%+1d	>0.7V	
200kΩ	100Ω	0.15%+1d	>0.7V	
2000kΩ	1kΩ	0.2%+1d	>0.7V	
20MΩ	10kΩ	1%+2d	>0.7V	

Diode

The 20kΩ range has sufficient full scale voltage to turn on a silicon diode at a current of approx. 100µA.

Continuity

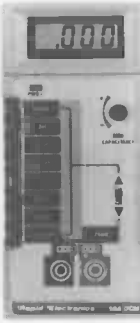
When the continuity tester is selected an internal audible buzzer sounds when the resistance between the test probes is approx. <50Ω.

* Accuracy specification is % of reading ± number of digits

Type	Order code	1+	3+
3210 multimeter	85-0685	113.00	108.00
Service manual (zero rated VAT)	85-0686	5.00	5.00

50A digital capacitance meter

A fully portable LCD 3½ digit digital capacitance meter which offers a high degree of accuracy and provides over 200 hours of active use. The meter will accurately measure capacitance from 0.1pF through to 20,000µF. Overrange indication is shown by blanking all digits except decimal point. Supplied in two-tone grey ABS case with stand for upright operation. Supplied complete with test leads, battery, spare fuse, black carry case and operation manual. Overall size 175×83×38mm.



Technical specification

Range	Resolution	Accuracy*
200pF	0.1pF	0.5%+1
2n	1pF	0.5%+1
20n	10pF	0.5%+1
200n	100pF	0.5%+1
2µ	1n	0.5%+1
20µ	10n	0.5%+1
200µ	100n	1%+1
2000µ	1µ	2%+1
20000µ	10µ	2%+1

* Accuracy specification is % of reading ± number of digits

Type	Order code	1+	5+	10+	25+
50A capacitance meter	85-0690	34.50	32.40	30.70	27.30

TC200 LCR meter

A useful meter which will accurately measure capacitance, resistance and inductance. Dissipation factor can also be measured on each range. Basic accuracy on all 17 ranges is 1%. Overrange indication is shown by blanking all digits except 1. Battery life using an alkaline cell is in excess of 100 hours. Supplied complete with test leads, spare fuse and instruction manual. Dimensions 172×87×35mm.



Supplied to Rapid by Thandar Electronics

Technical specification

Capacitance

Range	Accuracy*	Test condition	Overload protection.
200pF	1%+1	1KHz 100mV	125mA fuse and transistor protection up to 250V DC/rms
2n	1%+1	1KHz 100mV	
20n	1%+1	1KHz 100mV	
2µ	1%+1	1KHz 100mV	
20µ	2%+1	1KHz 100mV	
200µ	2%+1	1KHz 100mV	

Inductance

Range	Accuracy*	Test condition	Overload protection
200µH	2%+1	1KHz 10mA	125mA fuse and transistor protection up to 250V DC/rms
2mH	1%+1	1KHz 1mA	
20mH	1%+1	1KHz 100µA	
200mH	1%+1	1KHz 10µA	
2H	2%+1	1KHz 1µA	

Resistance

Range	Accuracy*	Overload protection.
200R	0.5%+1	PTC and transistor protection up to 250V DC/rms
2K	0.5%+1	
20K	0.5%+1	
200K	0.5%+1	
2M	0.5%+1	
20M	1%+1	

* Accuracy specification is % of reading ± number of digits

Type	Order code	1+	5+
TC200 LCR meter	85-0692	95.00	87.50

TEST EQUIPMENT

Resistance substitution box

A rapid system for selecting a correct resistor value within a circuit. A neat swivelling disc provides close tolerance substitution resistors of 36 preferred values from 5Ω through to 1MΩ. Simply attach crocodile clips into circuit and swivel until optimum result is achieved. Features high stability 0.25W 5% resistors.



Resistance box	Order code	1+	10+	50+
	85-1490	5.90	5.40	4.70

Capacitance substitution box **NEW**

A five decade capacitance substitution box ideal for use in industrial and educational environments. The unit will simulate capacitances from 100pF to 9.9999μF in 100pF steps. The required capacitance is set by clearly marked thumbwheel switches with the value displayed in μF. A further terminal marked 'screen' enables the metal box to be earthed. Output is via 4mm terminals with 4mm sockets. Housed in a sturdy metal box with non-slip rubber feet.



Technical specification

Capacitance range	100pF to 9.9999μF in 100pF steps
Accuracy	±1%
Max. working voltage	63V DC, 40V AC
Residual capacitance	<40pF
Overall size	50(h)×71(w)×113(d)mm

Capacitance box	Order code	1+	5+	10+
	85-1485	77.50	74.50	71.50

Resistance substitution box **NEW**

A six decade resistance substitution box ideal for use in industrial and educational environments. The unit will simulate resistances from 1Ω to 999,999Ω in 1Ω steps. Required resistance is set by clearly marked thumbwheel switches with the value displayed in ohms. An additional 1K resistor is provided connected between one of the terminals of the internal resistance and a third terminal so that the unit can be used as an accurate potential divider. A further terminal marked 'screen' enables the metal box to be earthed. All outputs are on 4mm terminals with 4mm sockets. Housed in a sturdy metal box with non-slip rubber feet.



Technical specification

Decade 1Ω to 9Ω	1W ±1% tolerance
Decade 10Ω to 90Ω	1W ±0.5% tolerance
Decade 100Ω to 900kΩ	0.5W ±0.1% tolerance
Max. switching current	75mA
Max. carrying current	1A
Stability	100ppm deg C
Overall size	50(h)×71(w)×113(d)mm

Resistance box	Order code	1+	5+	10+
	85-1495	69.50	67.50	65.50

Educational meters

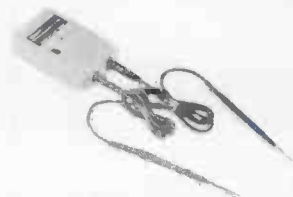
A range of moving coil bench mounted meters ideally suited to educational users. The meters are terminated by marked 4mm terminals. Accuracy typically 4%. Housed in a robust case with large clearly defined scales. Dimensions 80×100×48mm.



Type	Order code	1+	10+	25+
0-1A	85-1600	4.80	4.30	3.80
0-2A	85-1610	4.80	4.30	3.80
0-5A	85-1615	4.80	4.30	3.80
0-6V DC	85-1620	4.80	4.30	3.80
0-15V DC	85-1625	4.80	4.30	3.80
0-30V DC	85-1630	4.80	4.30	3.80

Short circuit tester **NEW**

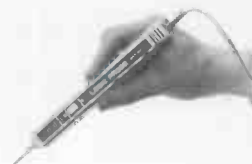
A miniature short circuit tester which gives a visual (LED) and audible (buzzer) indication of a short circuit. Supplied complete with a set of 4mm test probes. Complete with battery.



Short circuit tester	Order code	1+	10+	50+
	85-0700	6.50	5.95	5.40

Logic probe

An economical logic probe designed to measure logic levels in systems employing TTL/CMOS technology. Pulse enlargement capability allows pulse detection down to 25nS. One-shot narrow pulses which are nearly impossible to be seen with a fast scope are easily detectable and visible. The intensity of the 'pulse' LED is directly proportional to the duty cycle of the signal observed. LED indicators and a two-tone sounder indicates 'HI' or 'LO' logic states. Supplied complete with power lead and comprehensive instruction manual.



Technical specification

Max. input frequency	20MHz
Detectable pulse width	25nS min.
Input impedance	1M
Operating voltage	4-16V DC
Consumption	32mA at 5V
Overload protection	Input ±250V DC/AC Supply ±50V DC/AC
Thresholds	HI 70% V _{CC} LO 30% V _{CC}

Logic probe	Order code	1+	5+	10+	25+
	85-0695	7.50	6.60	6.20	5.90

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TEST EQUIPMENT

Audio signal generator

A good quality audio signal generator covering 10Hz to 1MHz in five ranges on a calibrated scale. Output offers either square or sine wave at up to 8V rms. Level may be set to 'high' or 'low' and a fine adjustment to output is also incorporated. Output is via two 4mm terminals. Supplied complete with operation manual and 2 metres of mains leads.



Technical specification

Frequency range	10Hz-1MHz sine, 20Hz-20KHz square wave
Accuracy	3%+2Hz
Output voltage	8V rms max.
Output impedance	600Ω
Output control	High, low (-40dB) and fine control
Distortion	0.05% 500Hz-50Hz, 0.5% 50Hz-500KHz
Synchronisation	+3%
Input impedance	10K
Dimensions	150x250x130mm
Weight	2.5Kg

Audio generator	Order code	1+	3+
	85-1205	69.00	64.00

RF signal generator

A good quality RF signal generator covering 100kHz to 150MHz in six ranges (up to 450MHz in 3rd harmonic). Level may be set to 'high' or 'low' and a fine adjustment to output is also incorporated. Output is via two 4mm terminals. The generator includes an internal 1kHz oscillator which may also be used as an output. Internal or external modulation facility and a crystal oscillator for crystals between 1 and 15MHz is included. Supplied complete with operation manual and 2M mains lead.

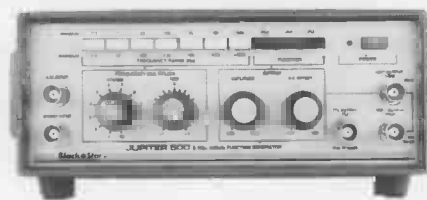


Technical specification

Frequency range A	100kHz-300kHz
B	300kHz-1000kHz
C	1MHz-3.2MHz
D	3.0MHz-10MHz
E	10MHz-35MHz
F	32MHz-150MHz
F(harm).	96MHz-450MHz
Accuracy	+3%
RF output	100mV typ.
Modulation	internal 1kHz 30% approx. External 50Hz-20kHz less than 1V rms input
Audio output	1kHz 1V rms (fixed)
Crystal oscillator	Suit 1-15MHz type
Dimensions	150x250x130mm
Weight	2.5Kg

RF signal generator	Order code	1+	3+
	85-1200	67.00	62.00

Jupiter 500 function generator 0.1Hz-500kHz



The Jupiter 500 function generator is a compact and rugged mains operated general purpose laboratory instrument offering enormous versatility for many applications.

Many features are unusual in an instrument in this price range such as full programmability of both amplitude and frequency by external voltage, and exceptionally high output voltage — up to 30V peak-to-peak.

The Jupiter 500 offers low distortion and a wide frequency range. Sine, square and triangle output waveforms are selectable and an adjustable DC offset up to 15V DC can be applied to the output; an independent buffered TTL square wave is also provided. Frequency range is selected by push button switching with switched decade selection of coarse frequency, and a fine frequency adjust control to give maximum setability.

Technical specification

Frequency range	0.1Hz to 500kHz in 7 switched decade ranges with fine frequency control
Frequency accuracy	3% of range
Output impedance	600 ohms (±2%)
Output amplitude	0 to 30V p/p min. (low output minus 20dB)
Output DC offset	-15V to +15V fully variable
Output waveform purity	SINE — distortion <1.5% up to 100kHz; typically 2% up to 500kHz TRIANGLE — linearity typically 1% up to 100kHz SQUARE — Mark/space ratio 50% ±1%. Rise and fall times 200ns max. Slew rate 170V/μS typ. TTL — Mark/space ratio 50% ±2%. Rise and fall times 25ns max. (120pF/225 ohm load, max. load 30 standard TTL inputs)
Output amplitude stability	Typically 2% from 0.1Hz to 100kHz
Frequency stability	Typically 1% over operating temperature range
Frequency setability	Typically better than 0.1%
External amplitude modulation facility	Input impedance — 6.8kΩ nom. Sensitivity — 100% modulation from 6V p/p typical Linearity — typically 2% up to 95% modulation Maximum Frequency Response — 200kHz (-3dB)
External frequency sweep facility	Maximum peak input voltage — 35V Input impedance — 18kΩ nom. Sensitivity — 0 to 4V for full range sweep up to 120kHz. 0 to 1.7V (typically) for full range sweep on 500kHz range Sweep linearity — typically 8% for 1000:1 sweep or 2% for 10:1 sweep within range 0.1Hz to 100kHz Maximum peak input voltage ±70V
Mains input voltage	240V ±10%
Mains input frequency	48-62Hz
Environmental operating range	0 deg C to 40 deg C (10%-80% RH non-condensing)
Case	Custom-moulded, sturdy, light-weight ABS with tilt stand and rear panel storage compartment
Supplied accessories	Instruction manual Mains lead Spare fuse
Overall size	98(h)x219(w)x240(d)mm
Weight	2.3Kg

	Order code	1+	3+
Jupiter 500 function generator	85-1250	104.00	99.50
Service manual (zero rated VAT)	85-1251	5.00	5.00
BNC to BNC cable 1.2M	16-0330	1.70	1.70

TEST EQUIPMENT

5250 frequency counter **NEW**

A low-cost 7 digit frequency counter covering 10Hz to 150MHz in two ranges with two gate times. Battery powered. Supplied complete with BNC terminated lead and instruction manual.



Technical specification

Frequency range	10Hz to 150MHz
Gate times	0.1s, 1s
Sensitivity	10Hz to 25MHz 50mV 10MHz to 150MHz 35mV
Accuracy	±1 count
Display	7 digit LED
Power requirement	9V battery/AC adaptor
Input impedance	1M
Overall size	78(h)×160(w)×160(d)mm
Weight	1.2Kg

	Order code	1+	5+	10+
5250 counter	85-1410	69.70	65.50	61.50

Meteor 100 frequency counter



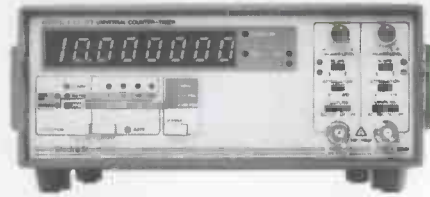
A high quality and accurate 8 digit frequency counter from Black Star covering 5Hz-100MHz in three ranges with three gate times. With sensitivity of 5mV at 10MHz and resolution down to 0.1Hz, together with the additional features of low pass filter and trigger level control, this counter is equally suited for professional or educational applications. The counter is powered by six size 'C' Ni-Cd cells or a mains adaptor which is supplied. Comprehensive instruction manual included.

Technical specification

Frequency range	5Hz-100MHz
Timebase frequency	10MHz
Temperature stability	±10ppm. -10 deg C to +70 deg C
Gate times	0.1s, 1s, 10s
Sensitivity	<5mV to 10MHz; <10mV to 50MHz; <25mV to 100MHz
Resolution	0.1Hz to 100Hz dependent on range and gate time
Display	8 digit LED
Low pass filter	To 50kHz
Trigger level control	5Hz-10MHz range
Power requirements	9V DC @ (max.) 600mA. Mains adaptor/charger (supplied) or 6×Ni-Cd 'C' cells (option)
Overall size	98(h)×219(w)×240(d)mm
Weight	1.9Kg

	Order code	1+	3+
Meteor 100 frequency counter	85-1300	94.00	89.50
Set of rechargeable batteries	85-1301	12.00	12.00
Service manual (zero rated VAT)	85-1302	5.00	5.00
Telescopic antenna	85-1303	8.50	8.50
Passive probe (×1/×10)	85-1595	11.60	11.60

Apollo 10 universal counter timer



A full function mains operated universal counter timer from Black Star with a wide range of features and functions. The frequency range of DC-100MHz is covered with a sensitivity of 30mV at 100MHz and resolution down to 0.1Hz. In addition to frequency measurement the Apollo 10 counts events and measures ratio, period and time interval. Full signal conditioning is provided including low pass filter and trigger level control. The Apollo 10 is housed in a rugged ABS case, and is supplied with instruction manual, mains lead and spare fuse. Overall size 98(h)×219(w)×240(d)mm. Weight 2.9Kg.

Technical specification

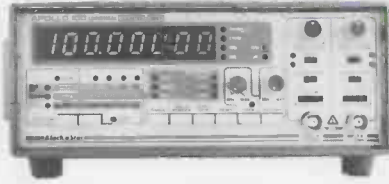
Timebase frequency	10MHz
Temperature stability	±10ppm. -10 deg C to +70 deg C
Sensitivity	<5mV DC to 10MHz; <10mV to 50MHz; <30mV to 100MHz
Gate times	0.01s, 0.1s, 1s, 10s
Resolution	DC to 10MHz (1+gate time) Hz 1MHz to 100MHz (10+gate time) Hz
Signal conditioning	Trigger level control, low pass filter, edge controls. AC, DC and 50Ω input coupling, and ×1/×10 attenuators
Frequency range	DC to 100MHz
Frequency ratio	Max. frequency 10MHz (input A), 2MHz (input B)
Period	500ns-10s
Time interval	250ns-10s
Totalise	10 ⁸ -1 max.
Additional features	External timebase oscillator; external reset input
Display	8 digit LED

	Order code	1+	3+
Apollo 10 universal counter timer	85-1350	208.00	199.00
Service manual (zero rated VAT)	85-1351	5.00	5.00

Schools, colleges, Government departments and public-quoted companies have automatic account facilities. Orders may be placed for immediate despatch.

TEST EQUIPMENT

Apollo 100 universal counter timer



A sophisticated mains operated digital counter timer from Black Star which provides all the expected features and measurement functions, including frequency, ratio, period, time interval and totalise. In addition extra facilities not normally found in an instrument of this price include a frequency multiplier for improved resolution at low frequencies, single measure, display hold and trigger hold-off. Useful extra functions are stopwatch and RPM. Full signal conditioning is provided on both input channels together with trigger level controls to permit measurement of a wide range of signal waveforms and amplitudes. The Apollo 100 is supplied with instruction manual, mains lead and spare fuse.

Overall size 98(h)x219(w)x240(d)mm. Weight 2.9Kg.

Technical specification

Timebase frequency	10MHz
Temperature stability	±10ppm. -10 deg C to +70 deg C
Sensitivity	<5mV DC to 10MHz; <10mV to 50MHz; <30mV to 100 MHz
Gate times	0.01s, 0.1s, 1s, 10s
Resolution	DC to 10MHz (1÷gate time) Hz 1MHz to 100MHz (10÷gate time) Hz
Resolution (frequency multiplier)	14÷Hz to 10kHz (0.01÷gate time) Hz 6Hz to 100kHz (0.1÷gate time) Hz
Signal conditioning	Trigger level control, low pass filter, edge controls. AC, DC and 50Ω input coupling, and x1/x10 attenuators
Frequency range	DC to 100MHz
Frequency ratio	Max. frequency 10MHz (input A), 2MHz (input B)
Period	500ns-10s
Time interval	250ns-10s
Totalise	10 ⁸ -1 max.
Stopwatch	Range 10 ⁸ s (>11 days)
RPM	Range 1-10 ¹¹
Ancillary controls	External timebase oscillator; external reset input; display hold; trigger hold-off; start/stop and reset
Display	8 digit LED

	Order code	1+	3+
Apollo 100 universal counter timer	85-1400	270.00	260.00
Service manual (zero rated VAT)	85-1401	5.00	5.00

7305 5MHz single trace oscilloscope



The 7305 is a reliable compact single trace oscilloscope ideally suited to educational establishments offered at an attractive price. The oscilloscope with a 3 inch CRT which operates from DC to 5MHz is supplied with a graticule with 6mm divisions. An external horizontal input terminal permits experiments involving external sweep frequencies. Supplied complete with mains lead, input lead and comprehensive instruction manual.

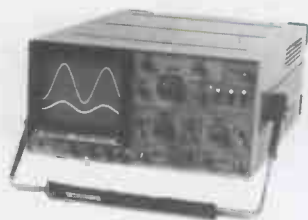
Technical specification

Vertical system	
Sensitivity	10mV/div to 10V/div
Attenuator	x1, x10, x100. Ground with fine control
Accuracy	±3%
Bandwidth	DC: DC to 5MHz (-3dB) AC: 2Hz to 5MHz (-3dB)
Rise time	70ns
Maximum input	500V (DC+AC peak)
Input impedance	1MHz in parallel with 40pF
Horizontal system	
Sweep speed	10Hz-100kHz in 4 ranges with fine control
Bandwidth	DC-500kHz (-3dB)
Sensitivity	250mV/div.
Maximum input voltage	100V (DC+AC peak)
Z Axis (intensity modulation)	
Sensitivity	25V peak to peak for full modulation of trace brightness
Maximum input voltage	100V (DC+AC peak)
General	
CRT	75mm round screen
Graticule	8x10 divisions (6mm div.)
Power requirements	115/230V AC 5/60Hz 10W
Dimensions	160x200x305mm
Weight	3.8Kg

Type	Order code	1+	5+	10+
7305 oscilloscope	85-2050	125.00	118.00	112.00

TEST EQUIPMENT

7020 20MHz dual trace oscilloscope



The new 7020 20MHz dual trace oscilloscope represents a considerable breakthrough in terms of price and performance. 20MHz bandwidth, high sensitivity, a full 8x10 rectangular screen with scale illumination and excellent triggering facilities, make this oscilloscope ideally suited for general service and educational applications. A well presented front panel ensures quick and easy operation. In order to obtain a stable display when measuring periodic waveforms a variable hold-off function is included. A convenient X-Y operation mode allows phase difference between measurements between two waveforms. The carrying handle, which may be locked into any position, also doubles as a tilt stand. Supplied complete with mains lead and comprehensive instruction manual.

Technical specification

Vertical system	
Sensitivity	5mV/div. to 5V/div. plus variable control 1mV/div. to 1V/div. when x5 magnification used
Accuracy	±3% (±5% with x5 mag.)
Bandwidth	DC to 20MHz (-3dB) DC to 7MHz (-3dB) when x5 magnification used
Rise time	17.5ns
Maximum input	300V (DC+AC peak) 500V pk-pk AC at 1kHz
Input impedance	1MΩ in parallel with 20pF typ.
Operating modes	Channel 1 or Channel 2 only Dual trace, chop or alternate Add (Subtract when using Channel 2 invert)
Horizontal system	
Sweep speed	0.2μS/div. to 0.2s/div. plus variable control
Magnifier	x10 (increases sweep to 100ns/div.)
Accuracy	3%
Hold-off	Variable control increases hold-off time by 2.5:1
Trigger system	
Modes	Auto, Normal, TV-V, TV-M
Source	Ch1, Ch2, line or external
Sensitivity CH1 and CH2	0.5 div. (20Hz-2MHz) 1.5 div. (2MHz-20MHz)
External	200mV (20Hz-2MHz) 800 mV (2MHz-20MHz)
Trigger level	Variable control indicated by LED
X-Y operation	
X-Y mode	Selected by switch
Bandwidth	DC-2MHz (3dB) Ch1-X axis, Ch2-Y axis
Display	
CRT	150mm diagonal flat screen illuminated scale
Graticule	8x10 1cm divisions. Internal
EHT	2kV acceleration voltage
Calibrator	1kHz, square wave 0.5V ±3%
Power requirements	110/120/220/240V AC 50/60Hz 35W
Dimensions	290x145x375mm
Weight	7.5Kg

	Order code	1+	5+	10+
7020 oscilloscope	85-2000	235.00	215.00	205.00

The 7020 oscilloscope is available on a 14-day evaluation period. For further details contact Sales.

TD201 digital storage unit



The TD201 is a low power, portable digital storage unit which adds digital storage capability to an ordinary real-time oscilloscope. Sensitivity is down to 5mV per division and the real-time bandwidth is greater than 200kHz. Operating modes are Real time, Refresh Roll and Single shot with selectable pre-trigger of 0%, 50% or 100%. Internal and external triggering, pen plot and hold facilities are also provided. The maximum sampling rate of 200kHz permits fast transients to be captured, whilst the minimum sampling rate enables events lasting more than 1 hour to be acquired. Data is stored in a 1K memory and can be retained for up to 4 years when batteries are fitted. The TD201 will operate from disposable or rechargeable cells (size C) or from an AC adaptor.

Supplied to Rapid by Thandar Electronics.

Technical specification

Vertical axis	
Sensitivity	5mV/div. to 20V/div. ±3% 12 ranges selectable in 1-2-5 sequence
Real-time bandwidth	DC to 200kHz
Effective storage bandwidth	DC to 20kHz
Coupling	DC, AC or ground selectable AC coupling - 3dB at 2Hz
Input impedance	1MΩ/47pF
Maximum input voltage	250V (DC or AC peak) 250V AC rms for 1 minute
Vertical resolution in storage mode	256 steps (0.4%)
Horizontal axis	
Sweep times	0.5ms/div. to 500s/div. ±0.01% 20 ranges selectable in 1-2-5 sequence
Sampling rate	5μs (at 0.5ms/div.) to 5s (at 500s/div.)
Horizontal resolution in storage mode	1k memory depth (0.1%)
Trigger	
Source	Internal or external selectable
Polarity	Positive or negative slope polarity selectable
Level	INT: Continuously variable over waveform EXT: 0 to 2V
Sensitivity	INT: less than 1 div. EXT: less than 0.5V pk-pk
Pre-trigger	Effective in Single Shot mode only; 0%, 50%, or 100% pre-trigger selectable
Trigger indication	In Refresh and Single Shot modes, LED lights when triggered and extinguishes when acquisition is complete
Arm/Plot/Indication	In Single Shot and Refresh modes, LED lights when unit is armed and awaiting trigger. In Plot mode LED lights to show pen down.
External trigger input	
Coupling	DC coupled
Input impedance	1MΩ/33pF
Maximum input voltage	250V DC; 250V AC rms, 50/60Hz
Operating modes	
Roll	Display updated continuously from the right at selected sweep rate
Refresh	When triggered the display is updated from left to right at selected sweep rate; at the end of acquisition the unit re-arms and re-waits trigger
Single Shot	As roll until triggered. At the end of acquisition the display shows pre- and/or post-trigger data according to the pre-trigger selection
Plot	Halts display updates. The data output rate is then determined by the timebase setting
Retain	Halts display updates. Data is retained in non-volatile memory when power is switched off (if batteries are fitted)
Outputs	
Y output	Oscilloscope modes: Analogue output to external oscilloscope with 10x8 div. screen set to 0.5ms/div. and 0.2V/div. Plot mode: Analogue output, 0.2V/div. with sweep rate selectable by Timebase switch
Trigger output	Oscilloscope modes: TTL compatible signal to external oscilloscope set to external negative edge triggering. Plot mode: Pen lift signal, TTL compatible
General	
Power requirements	4V to 10V DC from 4 disposable cells, rechargeable cells or AC adaptor. Typical power consumption 500mW. In the retain mode, new batteries provide typically 4 year memory back up
Size	255x150x50mm
Weight	900g excluding batteries

	Order code	1+	5+
Digital storage unit	85-2150	195.00	180.00

TEST EQUIPMENT

Hand-held LCD electronic timer

The 219 is a very low cost hand-held electronic timer with a wide range of facilities:

- Clock displaying hour, minute, second, months, date and day of week.
- 12/24-hour user selectable.
- Daily alarm.
- Large 8mm LCD display.
- Stopwatch capacity 24 hours with minutes, seconds and $\frac{1}{100}$ of a second on display.

Supplied complete with neckband, and battery, type LR44.



	Order code	1+	10+	25+
219 electronic timer	85-1445	4.50	3.90	3.50

Hand-held LCD electronic timer

The 220 is a sophisticated hand-held electronic timer with a wide range of facilities:

- Clock displaying hour, minute, second, month, date and day of week.
- 12/24-hour user selectable.
- Daily alarm.
- Stopwatch capacity 10 hours with minutes, seconds and $\frac{1}{100}$ of a second on display.
- 9 lap times measurable up to 1 hour.
- Count down facility with 0.1s resolution.
- Pace maker for 65-215 beats per minute
- Simultaneous twin display of time and lap time

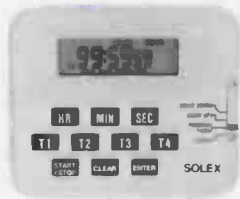
Supplied complete with neckband and battery, type LR44.



	Order code	1+	10+	25+
220 electronic timer	85-1450	5.70	5.00	4.50

Programmable clock/timer/stopwatch

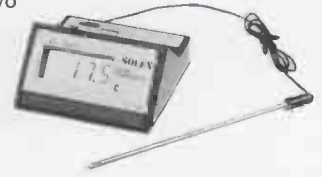
A sophisticated programmable timer offering four separate programmable countdown time intervals. The timer will operate as a clock displaying hours, minutes and seconds. The timer will count up and down from 1 second through to 99 hours, 59 minutes, 59 seconds. An alarm sounds when count reaches zero. Roll over facility when count reaches zero to indicate time overrun. The timer is fitted with pocket clip. Complete with battery. Overall size 70x60x16mm.



	Order code	1+	10+	25+
S540 programmable timer	85-1440	5.50	4.80	4.30

Digital thermometer

A battery powered digital thermometer which incorporates two sensors, one to monitor environmental temperature and another to monitor probe temperature. Both temperatures can be obtained at the flick of a switch. Suitable for temperature measurement of air, liquids, soft state materials and solid state surfaces. The temperature sensor is a silicon transducer sheathed overall in a chrome plated steel probe 150x3mm with 1M of cable. Large 13mm LCD display readout. Supplied complete with battery. Dimensions 90x90x45mm.



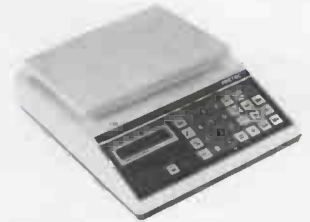
Technical specification

Temperature range	-45 to +120 deg C
Accuracy	0.1 deg C
Measuring accuracy	±1 deg C

	Order code	1+	5+
ST100 digital thermometer	85-1470	23.00	20.70

Electronic digital scale

A fully portable digital scale the SC200 offers the facilities of time clock, alarm clock, electronic scale and calculator in one compact, neat unit. A membrane keyboard is employed to select desired function. The scale has a tare facility to cancel weight of containers, etc. Powered by six AA cells. Dimensions 155x187x58mm.



Technical specification

Clock:	Time	12 hour display with hrs, mins and secs.
	Alarm	12 hour alarm system
	Accuracy	3 secs/day
Scale:	Weighing range	1000g
	Resolution	1g
	Error indication	Low battery and below zero
	Conversion	Display gram or oz
Calculator:	Display	8 digit LCD display
	Functions	+, -, ×, %
	Memory	M+, M-, Mrc

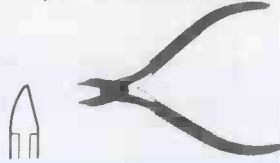
	Order code	1+	5+	10+	25+
SC200 digital scale	85-1460	19.00	16.50	15.00	13.50

High quality pliers and cutters

A comprehensive range of very high quality pliers and cutters for precise cutting and manipulation. Drop forged steel frames are box jointed (normally only available on much more expensive tools) for long term reliability and stability. Superbly finished with comfortable PVC grips. Complete with return spring these tools offer excellent handling in both production and laboratory environments.

Side cutters

Diagonal side cutters. 110mm long. Cutting edge 13mm. Cutting capacity 0.35-1mm diameter copper wire. Mirror polished.



Type	Order code	1+	5+
Side cutters	86-0100	8.05	7.55

Top cutters

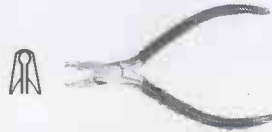
Blades angled for use in confined spaces. Length of cutting edge 8mm. Cutting capacity 0.35-1.2mm dia. copper wire. 110mm long. Mirror published.



Type	Order code	1+	5+
Top cutters	86-0105	8.50	8.00

Mini top cutters

A plush cutting tool suitable where a deep but fine cut needs to be made. Mirror polished. Double leaf spring. Overall length 110mm.



Type	Order code	1+	5+
Mini top cutters	86-0175	8.50	8.00

Snipe nose pliers

Slim jaws of half round section. Smooth gripping surface. Jaw length 22mm, tapering to 12mm. 120mm long. Mirror polished.



Type	Order code	1+	5+
Snipe nose pliers	86-0150	6.20	5.80

Bent snipe nose pliers

As above but with bent jaws. Mirror polished. Double leaf spring. 135mm long.



Type	Order code	1+	5+
Bent snipe nose pliers	86-0180	7.85	7.35

Flat nose pliers

Flat nose pliers with rectangular section. Smooth gripping surfaces. Jaw length 22mm. Overall length 120mm. Mirror polished.



Type	Order code	1+	5+
Flat nose pliers	86-0160	6.20	5.80

Round nose pliers

Round nose pliers with ground taper jaws. Jaw length 20mm. 120mm long. Smooth gripping surfaces. Mirror polished.



Type	Order code	1+	5+
Round nose pliers	86-0165	6.60	6.15

Economy pliers and side cutters

A range of economy electrical and electronic side cutters and pliers offering excellent value for money. Large contract purchases placed with manufacturers enable us to offer these tools at a fraction of their normal cost elsewhere.

Electronics side cutters

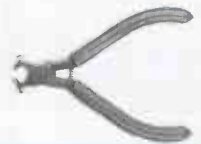
A pair of economical good quality lap jointed miniature side cutters with insulated handles and return spring. Size 115mm.



Type	Order code	1+	10+
Economy side cutters	85-0205	1.60	1.40

Electronics top cutters

A pair of economical good quality lap jointed miniature top cutters with cutting edge for use in confined spaces. Insulated handles and return spring. Size 115mm.



Type	Order code	1+	10+
Economy top cutters	85-0220	1.60	1.40

Electronic snipe nose pliers

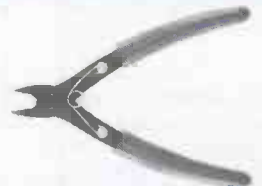
A pair of economical good quality lap jointed miniature snipe nose pliers with insulated handles and return spring. Size 115mm.



Type	Order code	1+	10+
Economy snipe nose pliers	85-0225	1.60	1.40

Light duty cutters

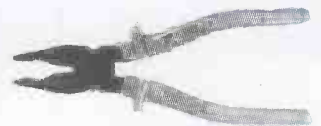
A pair of economical light duty cutters. Flush cutting edges for soft wires. Opening spring fitted. Complete with PVC grips. Cutting capacity 0.2-1.2mm copper wire.



Type	Order code	1+	10+
Economy cutters	85-0230	1.40	1.20

Electrician's pliers

A pair of low economical lap jointed electrician's pliers. Heavy insulation complete with anti-slip guards. Nominal length 150mm.



Type	Order code	1+	10+
Electrician's pliers	85-0235	2.20	1.90

Side cutters

A pair of economical lap jointed electrician's side cutters. Heavy insulation complete with anti-slip guards. Nominal length 150mm.



Type	Order code	1+	10+
Electrician's side cutters	85-0240	2.00	1.80

TOOLS

Snipe nose pliers

A pair of economical lap jointed electrician's snipe nose pliers. Heavy insulation complete with anti-slip guards. Nominal length 200mm.



Type	Order code	1+	10+
Electrician's snipe nose pliers	85-0245	2.00	1.80

Economy tool kit

An extremely economical zipped case tool kit containing 5 of the most commonly used tools within electronics, held in position by custom-fabricated elasticated straps for retention of tools in transit. The black textured, reinforced and padded case has a heavy duty zip fastener closing along three sides. When opened overall size is 240x205mm.



Tool kit contents:

85-0205 Side cutters	86-0555 Flat blade screwdriver
85-0225 Snipe nose pliers	86-0560 Phillips screwdriver
86-0350 Wire strippers	85-0090 Tool case

Economy tool kit	Order code	1+	10+	50+
	85-0050	6.20	5.80	5.00

Tool case

An extremely economical zipped tool case. The black textured reinforced and padded case has a heavy duty zip fastener closing along three sides. The case contains a single row of elasticated straps with a wide range of opening sizes for retention of tools in transit. When opened overall size is 240x205mm.



Tool case	Order code	1+	10+	50+
	85-0090	2.50	2.20	1.90

Light duty cutters

Light duty cutters complete with removable wire trap. Flush cutting for line soft wires. Opening spring fitted. Gun finished flat steel with PVC grips. Cutting capacity 0.2-1.2mm copper wire.



Type	Order code	1+	10+
Light duty cutters	86-0215	4.30	3.90

Wire strippers

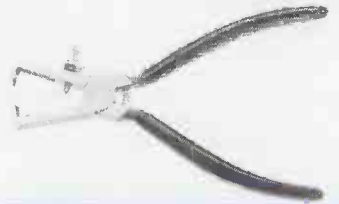
Light duty wire strippers. A handy wire stripper incorporating an adjustable gauge selector. Insulated handles with spring for automatic opening.



Type	Order code	1+	10+
Light duty stripper	86-0350	1.40	1.20

Standard wire stripper

Wire stripper with side mounted spring return and adjustable jaws via side screw and lock. Handles and PVC sleeved for comfortable grip. Maximum cable insulation diameter 4mm.



Type	Order code	1+	5+
Standard stripper	86-0355	6.20	5.60

Automatic wire stripper

Self adjusting wire end stripping tool, incorporating a flexible jaw cutting edge, consisting of a number of leaf blades on a sturdy base. This method avoids damaging conductors during the stripping operation. Single, multiple, round, flat or figure eight cable can be stripped with ease. Capable of stripping cables from 0.5mm to 6mm diameter. Manufactured in glass reinforced polyamide material for durability. Very light in weight making it ideal for use with fine wires and delicate insulation. Replacement blades are available. A wire cutter is also incorporated. Overall length 165mm. An extremely useful tool offered at a very attractive price.



	Order code	1+	5+
Automatic wire stripper	86-0360	3.95	3.50
Spare blade	86-0365	1.20	1.10

Coax cable stripper

A unique new tool for the rapid stripping of coaxial cables. The stripper will strip RG58/U and RG59/U cables. Stripping takes a matter of seconds. Locate the right block for the cable type, insert the cable in the groove position, twist the tool around the cable and pull tool away from cable. The tool's twin blades simultaneously cut the outer sheath and the insulation of the inner core in one neat action. Fine adjustment of the cutting blades can be made with a hex. key supplied with the tool. Spare blades are available for the stripper.

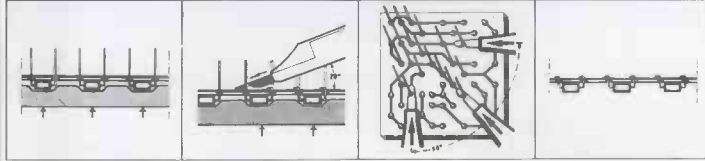


	Order code	1+	10+
Coax cable stripper	86-0370	4.20	3.70
Spare blade (conductor)	86-0375	0.70	0.65
Spare blade (jacket)	86-0380	0.70	0.65

Rapid Electronics – the most competitive broadline distributor of electronic components in the UK.

Cut and bend tool

A neat and very easy to use tool designed for trimming wires on PCBs. The component lead is placed in the notch in the head of the tool, the handles of the tool squeezed. The component wire is cut with a powerful spring action and the wire remaining is bent over to lock the component in place in one simple action. Overall length 210mm.



	Order code	1+	10+	50+
Cut and bend tool	85-0295	5.20	4.60	

Screwdrivers

A range of high quality screwdrivers with fully hardened and tempered high grade steel shafts. Chrome vanadium steel blades.



Flat bladed, round shaft parallel tip.

Type	Order code	1+	10+	50+
75x3mm flat blade	86-0400	0.40	0.35	0.25
100x3mm flat blade	86-0405	0.42	0.36	0.26
150x5mm flat blade	86-0410	0.65	0.58	0.45
200x5mm flat blade	86-0415	0.75	0.67	0.50

Pozidriv/Supadriv round shaft



Type	Order code	1+	10+	50+
75xNo. 0 Pozidriv	86-0450	0.40	0.35	0.25
75xNo. 1 Pozidriv	86-0455	0.60	0.54	0.40
100xNo. 2 Pozidriv	86-0460	0.75	0.68	0.53
150xNo. 3 Pozidriv	86-0465	1.20	1.05	0.85

Screw grip screwdrivers

A pair of screw grip screwdrivers to hold the screw in position in inaccessible positions. A simple spring loaded grip holds the screw in position and is then released when the screw is held in position. Available in flat blade or Pozidriv options.



Type	Order code	1+	10+	50+
Screw grip 100x3mm flat blade	86-0565	1.00	0.90	0.70
Screw grip 100xNo. 1 Pozidriv	86-0570	1.00	0.90	0.70

Pocket screwdrivers

Handy economically priced pocket size screwdrivers for general electronic and engineering work.



Type	Order code	1+	10+	50+
75x3mm flat blade	86-0555	0.14	0.13	0.10
75xNo. 0 Pozidriv	86-0560	0.15	0.14	0.11

Ratchet screwdrivers

Parallel tip, round blade screwdrivers having a 3 position ratchet mechanism: forward, reverse and centre locked.



Type	Order code	1+	10+
100x6mm flat blade	86-0530	2.90	2.65
100xNo. 2 Pozidriv	86-0535	2.90	2.65

Mains tester screwdriver

Mains tester screwdriver complete with internal neon and series resistor to enable use on 220 to 250V AC mains. Clear plastic moulding with extension over screwdriver shaft. Fitted with metal pocket clip. Overall length 120mm.



Type	Order code	1+	10+	50+
55x3mm flat blade	86-0600	0.45	0.40	0.30

Torx screwdrivers

A range of Torx screwdrivers which are becoming more common within the electronics industry. Manufactured in chrome vanadium steel with fluted red cellulose acetate butyrate handles.



Size	Blade length (mm)	Order code	1+	5+
TX6	85	86-0605	2.30	2.15
TX7	85	86-0610	2.30	2.15
TX8	85	86-0615	2.30	2.15
TX9	85	86-0620	2.30	2.15
TX10	85	86-0625	2.05	1.90
TX15	100	86-0630	2.05	1.90
TX20	100	86-0635	2.05	1.90

TOOLS

Miniature flat blade screwdriver set

Six precision flat blade screwdrivers in a hinged plastic case with transparent cover. Each consists of a specially hardened nickel chromed molybdenum steel blade set in a chromed brass holder with swivel cap. Blade widths 1, 1.2, 1.6, 2, 2.4 and 3mm.



	Order code	1+	10+
Flat blade screwdriver set	85-0150	0.80	0.70

Miniature crosspoint screwdriver set

Six precision tools in a hinged plastic case with transparent cover. Each consists of a specially hardened nickel chromed molybdenum steel blade set in a chromed brass holder with swivel cap.

Contents:

Crosspoint drivers: No. 1, No. 2

Hexagon keys: 1.5, 2.0, and 2.5mm.



	Order code	1+	10+
Crosspoint screwdriver set	85-0155	0.90	0.80

Precision screwdriver set

A set of seven precision screwdrivers developed for the electronics industry. Notable for their precise fit and ease and comfort in use. Handles are made from impact resistant cellulose-acetate and blades from fine polished steel, chrome plated except at tips which are gun plated to avoid 'chrome peel'.



Contents:

60mm	2.5mm slotted	100mm	4.0mm slotted
75mm	2.5mm slotted	150mm	4.0mm slotted
100mm	3.0mm slotted	60mm	size 0 recessed
150mm	3.0mm slotted		

	Order code	1+	5+
Precision screwdriver set	86-0650	11.65	10.90

Nut spinners

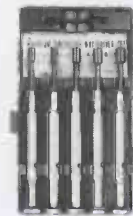


High quality nut spinners featuring hardened steel head on a polished steel shaft. Fluted handles. Range incorporates a potentiometer nut runner to suit 1/16in potentiometer nuts.

Type	ISO nut size	Order code	1+	5+
4mm A/F	M2	86-2000	1.70	1.50
5mm A/F	M2.5	86-2005	1.70	1.50
5.5mm A/F	M3	86-2010	1.70	1.50
6mm A/F	M3.5	86-2015	1.70	1.50
7mm A/F	M4	86-2020	1.70	1.50
8mm A/F	M5	86-2025	1.70	1.50
10mm A/F	M6	86-2030	1.70	1.50
1/16 pot runner		86-2100	3.20	2.80

Miniature nut spinner set

A set of five miniature nut spinners in a hinged plastic case with transparent cover. Each consists of a specially hardened nickel chromed molybdenum steel blade set in a chromed brass holder. Complete with cross bar. Sizes 3, 3.5, 4, 4.5 and 5mm.



	Order code	1+	10+
Nut spinner set	85-0165	0.90	0.80

Trimming tool

All plastic tool moulded in blue acetal, for adjusting 6mm cores with 0.1in A/F hexagon centre hole. Hexagon at each end with screwdriver extension at one end.



	Order code	1+	5+
Trimming tool	85-0100	0.19	0.16

Hexagon key sets

L-shaped hexagon keys (standard length arms) manufactured in best quality chrome vanadium steel. Gun finished. Supplied complete in wallet for safe keeping.



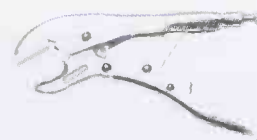
Contents:

Imperial set (in) 1/16, 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4 (8)
Metric set (mm) 1.5, 2, 2.5, 3, 4, 5, 6, 8 (8)

Size	Order code	1+	5+
Imperial key set	86-0680	1.60	1.30
Metric key set	86-0685	1.60	1.30

Self grip wrench

Nickel plated 7in self gripping wrench for all purpose clamping and gripping of sheet materials, etc. Forged steel serrated jaws with straight (upper) and concave (lower) profiles. Powerful locking action. Maximum throat width 30mm.



Type	Order code	1+	5+
Self grip wrench	86-0250	3.30	3.10

Adjustable spanner

6in and 8in adjustable spanner in chromed steel. Smooth and accurate jaw adjustment. Maximum capacity 6in-21mm, 8in-24mm.



Size	Order code	1+	+
6in adjustable spanner	86-0750	2.65	2.45
8in adjustable spanner	86-0755	3.25	3.05

Miniature spanner set

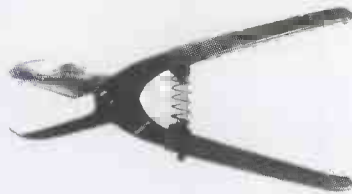
Five miniature spanners in a hinged plastic case with a transparent cover. Each consists of a specially hardened nickel chromed molybdenum steel blade set in a chromed brass holder. Spanner sizes 4, 4.5, 5, 5.5, and 6mm.



Miniature spanner set	Order code	1+	10+
	85-0160	0.90	0.80

Tin snips

10in straight jaw, tinman's shears for cutting sheet metal (aluminium and mild steel to 16 swg, stainless steel to 21 swg). Induction hardened cutting edges. Riveted joint. Stop pin between 'no-nip' handles. Fold away spring. Polished blade and PVC coated handles.



Tin snips	Order code	1+	5+
	86-1010	4.65	4.40

Junior hacksaw

Bright chrome plated hacksaw. Frame 2 1/4in deep. Both legs of frame are cross slotted so that the pins of the blades are sunk in and do not protrude. Blade fitted.



Type	Order code	1+	5+
Hacksaw and blade	86-0900	0.70	0.65
Set of 10 blades	86-0905	0.85	0.80

Adjustable hacksaw

An extremely versatile hacksaw in which the cutting angle of the blade can be adjusted by simply unscrewing the tension screw and locking into a new position. The aluminium alloy frame incorporates a large comfortable handle. Supplied complete with 3 spare blades.



Adjustable hacksaw	Order code	1+	10+	25+
	86-0880	1.90	1.70	1.55

Standard hacksaw

Standard size, adjustable 10 or 12 inch, adjustable tension frame complete with 10in HSS blade. Tension adjustment by front wingnut.



Standard hacksaw	Order code	1+	5+
	86-0925	3.50	3.10

Standard hacksaw blades

High speed steel toothed edge, bi-metal blade edge welded to a tough and flexible back provides a combination of superior cutting efficiency with the maximum of safety. 24 tpi type. Supplied in wallets of 3 blades.

Type	Order code	1+	5+
Pack of 3 12in blades	86-0920	2.20	2.05

Pick-up tool

An extremely useful tool for picking up components and hardware that have fallen into areas of difficult access. Overall reach 550mm. Flexible chrome plated tubing allows the user easy access to difficult positions.



Pick-up tool	Order code	1+	10+
	86-0940	1.60	1.45

Needle files

A set of 6 needle files in a plastic wallet for safe keeping. Contains one of each flat, hand, half round, round, square and three square.



Needle file set	Order code	1+	5+
	86-1300	5.80	5.40

Hand file set

An economical set of five hand files supplied in a PVC wallet. Each file is supplied with PVC handle.



Hand file set	Order code	1+	10+	25+
	86-1305	3.95	3.40	3.05

Deburring tool

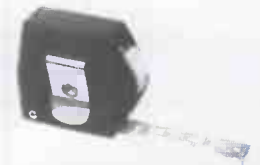
A crank shaped tool held in a quick release chuck for deburring inside and outside edges of tubing and sheet metal, etc. after cutting or sawing. Replacement blades are available.



Deburring tool	Order code	1+	5+
Spare blade	86-0990	4.10	3.70
	86-0995	1.60	1.50

Measuring tape

Retractable measuring tape for accurate measurement up to 3.5M. Complete with power return in robust case. Supplied with belt clip. Blade width 13mm.



3.5M measuring tape	Order code	1+	5+
	86-1450	2.20	2.00

Tapered reamers

Tapered reamers designed for finishing or repairing holes in panels, sheet metal, etc., while maintaining concentricity and circularity. Manufactured from carbon chrome alloy steel.



Type	Order code	1+	10+
3-12mm reamer	85-0435	8.30	7.50
10-25mm reamer	85-0440	15.00	13.50

Cone cut

High speed steel tapered cutters to be used in power tools for fast and clean drilling of holes in thin materials, e.g. PCB, plastics and sheet metal up to 2mm thick. The cutter drills its own pilot hole and the conical shape of the tool enables a wide range of hole sizes to be drilled from the bottom to the top of the taper. Shank diameter 3/8in. Directions are supplied with each cutter. We recommend 'Conecut' cutting compound available in 60cc pots as an ideal lubricating paste for prolonged tool life.



Type	Order code	1+	5+
6-20mm	85-0445	6.60	5.95
9.5-22.5mm	85-0446	7.60	6.80
16-30.5mm	85-0447	11.90	10.70
25-40mm	85-0448	18.30	16.40
60cc cutting compound	85-0449	0.60	0.55

Hand drill

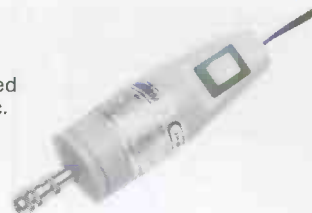
An engineer's hand drill for general use. Double pinion. Machine cut gear. Comfortable grip and side handle. Three spring self-centering chuck. Maximum capacity 8mm.



Type	Order code	1+	5+
Hand drill	85-0351	6.50	5.80

Miniature PCB drill

A miniature drill suitable for a wide range of drilling and associated applications. Suitable for drilling printed circuit boards and thin sheet metal, etc. Supplied with 3 collets. Supplied in plastic case with integral rocker switch and 1M of lead.



Technical specification

No load current	200mA
Full load current	1.5A
Supply voltage	9-16V DC
Speed	18,000 rpm
Chuck capacity	2.4mm
Body dimensions	92x34mm

Type	Order code	1+	5+
Miniature PCB drill	85-0340	8.70	8.10

Power supply for miniature PCB drill

A power supply suitable for use with the above drill. Power requirement 240V AC. Output 12V 1A DC. 2 pin socket termination matching that supplied with miniature PCB drill.



Type	Order code	1+	5+
Miniature drill supply	85-0345	9.85	9.25

PCB precision drill

A high quality precision PCB drill with DC motor and drive shaft extension with independent bearing for low shaft eccentricity which provides a smooth, powerful drilling performance. Drill is supplied complete with an automatic 3 jaw chuck which accepts drill sizes from 0.6mm to 3.2mm. NOTE: stall current will depend upon internal resistance of power supply used and it is recommended that the speed control/supply unit is used to provide protection and optimum torque throughout the range.



Technical specification

No load current	600mA
Full load current	2A (9A stalled)
Stall torque	830g/cm at 12V DC
Supply voltage	12-18V DC
Speed	18,000 rpm
Chuck capacity	3.2mm
Body dimensions	140x40mm

Type	Order code	1+	5+
Precision drill with automatic chuck	85-0354	20.90	19.90
Spare 3 jaw chuck	85-0355	2.50	2.30

TOOLS

Speed control/supply for PCB precision drill

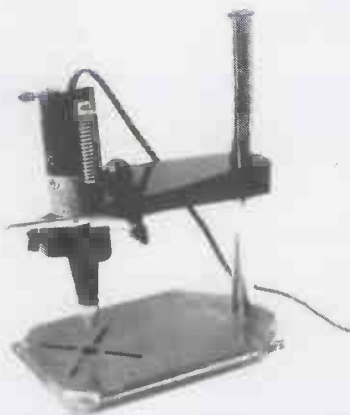
A transformer and rectified power supply unit for the PCB precision drill from 240V AC mains to provide variable speed control. Features electronically controlled output which ensures maximum torque throughout the speed range. Supplied complete with circuit breaker and LED indicator and 1.5M mains lead.



Type	Order code	1+	5+
Precision drill power supply	85-0365	19.50	18.50

Precision drill stand

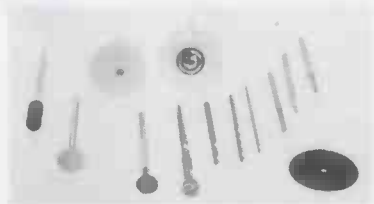
A high quality heavy duty metal pillar stand for use with the precision PCB drill. Double pillar support to ensure accurate alignment for precise drilling of PCBs. Depth stop adjustment. Mounted on heavy cast baseplate (170x120mm) which may be screwed to a bench. Overall height 250mm. Lever operated drill feed. Note: this stand is not suitable for use with our miniature PCB drill (85-0340).



Type	Order code	1+	5+
Precision drill stand	85-0360	19.50	18.70

Drill accessories

A range of miniature drill accessories for use with our miniature electric drills. Suitable for a wide variety of applications including cutting, polishing and finishing.



All types have common shank diameter of 2.4mm.

Type	Order code	1+	5+
Burr	85-0465	0.50	0.45
Wire brush	85-0466	0.55	0.50
Polishing mop	85-0467	0.50	0.45
Mandrel plus 16mm saw	85-0468	1.20	1.10

Saw attachment for precision drill

A miniature jig saw attachment suitable for use with our precision drill (Order code 85-0354) which will cut through printed circuit boards and light gauge metals. A hexagon key fixing locates the mainshaft of the drill and clamps the drill extension into position. A gearbox housing in the jig saw reduces drill speed by a factor of 3. Sawing action is at right angle to drill axis. Supplied complete with one HSS fine blade and a coarse alloy blade (available separately). Fine blade is capable of cutting PCBs and aluminium sheet up to 18 swg. Coarse blades are suitable for softer materials, e.g. wood.



Type	Order code	1+	5+
Jigsaw attachment	85-0361	13.50	12.80
Spare fine blade	85-0362	0.40	0.35
Spare coarse blade	85-0363	0.40	0.35

Shapersaw

An improved design of this well established tool which permits the accurate, fast cutting of a variety of materials including wood, laminates and metal. The vibratory cutting action ensures even inexperienced operators are completely safe from accidental injury. A large work area of 300x150mm now includes a cutting guide. Blades are inserted and removed with a hexagon screwdriver supplied with the unit. Supplied complete with spare standard fret blades, moulded mains lead and plug and comprehensive instruction sheet. Blades are supplied in packs of 12.



Material	Max. thickness (mm)	Blade type	Order code
Hardwood	8.0	Medium fret	85-0955
Plywood, chipboard	10.0	Medium fret	85-0955
Plastics, perspex	8.0	Standard fret	85-0950
Softwoods	25.0	Coarse fret	85-0960
Balsa, EPS	60.0	Standard fret	85-0950
Melamine	4.0	Standard fret	85-0950
Metals (general)	up to 0.8	Fine piercing	85-0965
Metals (general)	0.8-3.0	Med. piercing	85-0970
Mild steel	1.5	Fine piercing	85-0965
Aluminium	2.5	Med. piercing	85-0970

Description	Order code	1+	10+
Shapersaw	85-0980	42.50	39.50
Pack standard fret blades	85-0950	1.50	1.30
Pack medium fret blades	85-0955	1.50	1.30
Pack coarse fret blades	85-0960	1.50	1.30
Pack fine piercing blades	85-0965	1.50	1.30
Pack medium piercing blades	85-0970	1.50	1.30
Hexagon driver	85-0985	1.50	1.30

Pin vice

A hand held drop forged steel vice for gripping small components, e.g. pins, wire leads, tags, etc. Includes polished jaws and knurled handle. Maximum jaw opening 6mm. Overall length 115mm.



	Order code	1+	5+
Pin vice	85-0385	5.90	5.40

Miniature electronics vice

Miniature clamp fixing vice ideal for use for small electronics work. Maximum jaw capacity 60mm. Manufactured in aluminium alloy. N.B. Please note this vice is intended for light work only. Grease well before use.



	Order code	1+	5+
Miniature vice	85-0380	2.90	2.60

Retractable trimming knife

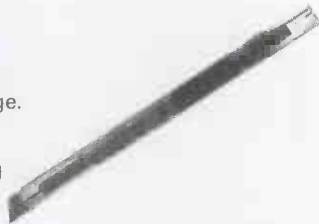
Heavy duty pattern with retractable blade. Diecast handle containing 5 standard blades. Black finish.



	Order code	1+	10+
Retractable trimming knife	86-1200	1.90	1.70
5 spare blades	86-1205	0.45	0.40

Snap-off blade knife

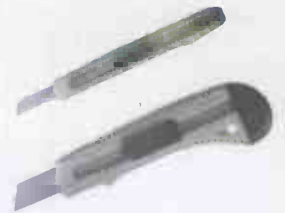
A general purpose knife/cutter. The blade is scored in 12 places and permits the end to be neatly broken to expose a new unused cutting edge. Housed in a lightweight stainless steel handle which includes a detachable device for safe snapping of each blade segment. Suitable for many light cutting, scoring and scraping jobs.



	Order code	1+	10+
Snap-off blade knife	86-1210	1.60	1.50
Replacement blades (10)	86-1215	0.80	0.75

Snap-off blade knives

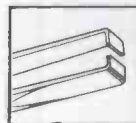
A pair of general purpose disposable snap-off blade knives. Both types incorporate fully retractable blades which can be locked into position. The blades are scored in 7 places permitting the end to be broken to expose a new unused cutting edge. Suitable for many light cutting jobs. Spare blades are available in packs of 12.



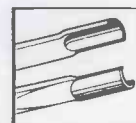
	Order code	1+	25+	100+
Small knife	86-1250	0.35	0.30	0.22
Large knife	86-1255	0.50	0.42	0.32
Pack blades for 86-1250	86-1260	0.60	0.52	0.47
Pack blades for 86-1255	86-1265	0.80	0.70	0.60

Tweezers

Hand finished tweezers, individually inspected to perform perfectly the most delicate of operations. Balanced and sensitive. Manufactured from high quality steel. Nickel plated and fine polished.



desoldering



horizontal



vertical



universal

Type	Length	Order code	1+	10+
Universal tweezer	145	86-1500	2.25	2.10
Horizontal tweezer	140	86-1505	2.15	2.00
Vertical position tweezer	145	86-1510	2.15	2.00
Desoldering tweezer	140	86-1515	2.15	2.00

Tweezer set

A set of high quality stainless steel tweezers in a soft plastic wallet. All 110mm long. Set contains 1 each straight nosed, straight nosed reverse action, 1 pair bent nosed and 1 pair flat nosed.

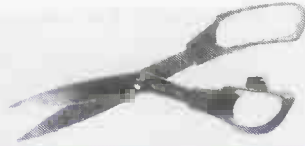


	Order code	1+	10+
Tweezer set	86-1550	2.90	2.50

TOOLS

Standard scissors

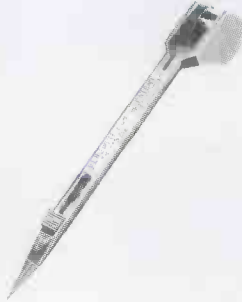
Modern style drop forged 215mm trimmer scissor with comfortable finger moulded bow. Brushed steel blades and shanks. A good general purpose scissor.



	Order code	1+	5+
Standard scissors	86-1005	5.50	4.95

Wiring pen

The wiring pen enables the rapid construction of PCBs requiring large numbers of wire links. Easy to use: simply wrap the wire around the terminal pin or component wire, set the tension on the pen and take the pen to the next component and wrap the wire there. The wire is insulated with a polyurethane coat. Now simply solder the connections; the heat of the iron melts away the insulation. Pen supplied complete with one spool of wire. Pen has an integral wire clamp for wire retention, advancement and retraction.



	Order code	1+
Wiring pen	85-0300	4.80

Spare spool

Replacement spools for pen. Contains 40M of 38swg copper wire with a covering of self fluxing polyurethane.



	Order code	1+
Spare pool	85-0305	0.80

Wiring combs

These can be fitted to any 0.1in matrix board. The combs are fitted to the wiring side of the board between the leads of the integrated circuits.



	Order code	1+
Wiring comb	85-0310	0.07

**Remember!
Our change
of address,
new telephone and
fax numbers**

TRANSFORMERS

Miniature transformers

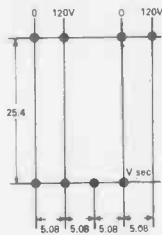
A range of miniature mains transformers ideal for use in small equipment. All secondaries are rated at 100mA. C clamp type construction with flying leads.



Output	Dimensions	Order code	1+	25+	100+
6-0-6V	37x30x25	88-0100	1.20	1.05	0.95
9-0-9V	37x30x25	88-0105	1.20	1.05	0.95
12-0-12V	40x30x28	88-0110	1.30	1.20	1.10

Miniature PCB transformers

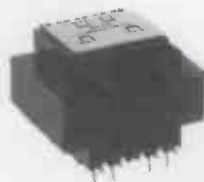
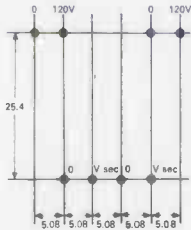
3VA type



A range of miniature mains transformers for mounting directly onto printed circuit boards. Pins suit 0.1in pitch boards. 3VA output. Regulation typically 21%.

Output	Order code	1+	25+	100+
0-6, 0-6V @ 0.25A	88-0150	1.60	1.40	1.30
0-12, 0-12V @ 0.12A	88-0160	1.60	1.40	1.30
0-15, 0-15V @ 0.1A	88-0165	1.60	1.40	1.30
0-20, 0-20V @ 0.07A	88-0170	1.60	1.40	1.30

6VA type



A range of miniature mains transformers for mounting directly onto printed circuit boards. Pins suit 0.1in pitch boards. 6VA output. Regulation typically 15%.

Output	Order code	1+	25+	100+
0-6, 0-6V @ 0.5A	88-0200	1.90	1.60	1.40
0-9, 0-9V @ 0.33A	88-0205	1.90	1.60	1.40
0-12, 0-12V @ 0.25A	88-0210	1.90	1.60	1.40
0-15, 0-15V @ 0.2A	88-0215	1.90	1.60	1.40
0-20, 0-20V @ 0.15A	88-0220	1.90	1.60	1.40

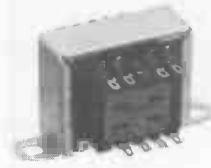
Chassis transformers

A range of clamp mounting low voltage transformers in four power rating from 6 to 50VA. Each transformer has two independent primary windings which may be connected in series for 240V or parallel for 120V input. All versions have dual secondary windings to provide a flexible output range or centre tap working. Double bobbin construction.

6VA miniature

3VA per secondary winding. Regulation typically 25%

W. 43 H. 36 D. 35
FC 54x4BA

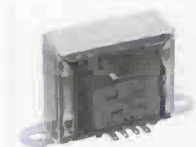


Output	Order code	1+	25+	100+
0-6, 0-6V @ 0.5A	88-0250	2.10	1.90	1.60
0-9, 0-9V @ 0.33A	88-0255	2.10	1.90	1.60
0-12, 0-12V @ 0.25A	88-0260	2.10	1.90	1.60
0-15, 0-15V @ 0.2A	88-0265	2.10	1.90	1.60
0-20, 0-20V @ 0.15A	88-0370	2.10	1.90	1.60

12VA type

6VA per secondary winding. Regulation typically 10%.

W. 55 H. 42 D. 46
FC 68x2BA



Output	Order code	1+	25+	100+
0-6, 0-6V @ 1A	88-0270	3.30	3.00	2.75
0-9, 0-9V @ 0.6A	88-0275	3.30	3.00	2.75
0-12, 0-12V @ 0.5A	88-0280	3.30	3.00	2.75
0-15, 0-15V @ 0.4A	88-0285	3.30	3.00	2.75
0-20, 0-20V @ 0.3A	88-0375	3.30	3.00	2.75

25VA type

12.5VA per winding. Regulation 7%.

W. 69 H. 53 D. 58
FC 80x2BA



Output	Order code	1+	25+	100+
0-6, 0-6V @ 2A	88-0315	4.25	3.80	3.35
0-9, 0-9V @ 1.3A	88-0290	4.25	3.80	3.35
0-12, 0-12V @ 1A	88-0295	4.25	3.80	3.35
0-15, 0-15V @ 0.8A	88-0300	4.25	3.80	3.35

50VA type

25VA per winding. Regulation 10%.

W. 79 H. 58 D. 65
FC 92x2BA



Output	Order code	1+	10+
0-6, 0-6V @ 4.1A	88-0405	5.30	4.70
0-9, 0-9V @ 2.7A	88-0410	5.30	4.70
0-12, 0-12V @ 2A	88-0305	5.30	4.70
0-15, 0-15V @ 1.6A	88-0310	5.30	4.70
0-20, 0-20V @ 1.2A	88-0415	5.30	4.70

ORDER CODE INDEX

Code	Product Description	Unit	Price 1+	Page No.	Code	Product Description	Unit	Price 1+	Page No.
01-0100	20m single core cable pack	Each	0.50	10	03-0315	4.8mm heat shrink sleeve blue	1.2m	0.80	14
01-0105	20m stranded cable pack	Each	0.48	10	03-0320	6.4mm heat shrink sleeve blue	1.2m	0.90	14
01-0110	10m miniature stranded black	Each	0.40	10	03-0325	9.5mm heat shrink sleeve blue	1.2m	1.10	14
01-0115	10m miniature stranded blue	Each	0.40	10	03-0330	12.7mm heat shrink sleeve blue	1.2m	1.25	14
01-0120	10m miniature stranded brown	Each	0.40	10	03-0335	19.0mm heat shrink sleeve blue	1.2m	1.60	14
01-0125	10m miniature stranded green	Each	0.40	10	03-0400	1.6mm heat shrink sleeve red	1.2m	0.55	14
01-0130	10m miniature stranded red	Each	0.40	10	03-0405	2.4mm heat shrink sleeve red	1.2m	0.60	14
01-0135	10m miniature stranded white	Each	0.40	10	03-0410	3.2mm heat shrink sleeve red	1.2m	0.60	14
01-0140	10m miniature stranded yellow	Each	0.40	10	03-0415	4.8mm heat shrink sleeve red	1.2m	0.80	14
01-0145	10m miniature stranded orange	Each	0.40	10	03-0420	6.4mm heat shrink sleeve red	1.2m	0.90	14
01-0150	Red extra-flex	Each	0.13	10	03-0425	9.5mm heat shrink sleeve red	1.2m	1.10	14
01-0155	Black extra-flex	Each	0.13	10	03-0430	12.7mm heat shrink sleeve red	1.2m	1.25	14
01-0160	Speaker cable	Each	0.10	11	03-0435	19.0mm heat shrink sleeve red	1.2m	1.60	14
01-0162	100m reel speaker cable	Each	4.60	11	03-0500	1.6mm heat shrink sleeve black	1.2m	0.55	14
01-0165	Discontinued - see 01-0167				03-0505	2.4mm heat shrink sleeve black	1.2m	0.60	14
01-0167	100ft reel 10 way grey ribbon	Reel	5.35	11	03-0510	3.2mm heat shrink sleeve black	1.2m	0.60	14
01-0170	Discontinued - see 01-0172				03-0515	4.8mm heat shrink sleeve black	1.2m	0.80	14
01-0172	100ft reel 16 way grey ribbon	Reel	8.60	11	03-0520	6.4mm heat shrink sleeve black	1.2m	0.90	14
01-0175	Discontinued - see 01-0177				03-0525	9.5mm heat shrink sleeve black	1.2m	1.10	14
01-0177	100ft reel 20 way grey ribbon	Reel	10.80	11	03-0530	12.7mm heat shrink sleeve black	1.2m	1.25	14
01-0180	Discontinued - see 01-0182				03-0535	19.0mm heat shrink sleeve black	1.2m	1.60	14
01-0182	100ft reel 26 way grey ribbon	Reel	14.00	11	03-0800	Heat shrink sleeve kit	Each	34.50	14
01-0185	Discontinued - see 01-0187				04-0050	75mm nylon cable tie	Each	0.02	13
01-0187	100ft reel 34 way grey ribbon	Reel	18.30	11	04-0100	100mm nylon cable tie	Each	0.02	13
01-0190	Discontinued - see 01-0192				04-0105	142mm nylon cable tie	Each	0.03	13
01-0192	100ft reel 40 way grey ribbon	Reel	21.50	11	04-0110	203mm nylon cable tie	Each	0.04	13
01-0195	Discontinued - see 01-0197				04-0115	21mm cable tie base	Each	0.05	13
01-0197	100ft reel 50 way grey ribbon	Reel	26.90	11	04-0120	6.3mm moulded PVC grommet	Each	0.02	13
01-0200	Discontinued - see 01-0202				04-0125	9.5mm moulded PVC grommet	Each	0.03	13
01-0202	100ft reel 60 way grey ribbon	Reel	32.30	11	04-0130	28mm cable tie base	Each	0.07	13
01-0205	Discontinued - see 01-0207				04-0150	292mm nylon cable tie	Each	0.05	13
01-0207	100ft reel 10 way rainbow	Reel	9.60	11	04-0155	385mm nylon cable tie	Each	0.06	13
01-0210	Discontinued - see 01-0210				04-0185	Cable tie gun	Each	4.90	13
01-0212	100ft reel 20 way rainbow	Reel	19.20	11	04-0200	Sleeved PVC grommet	Each	0.03	13
01-0215	Miniature mains cable	Metre	0.23	11	04-0250	11mm strain relief bush	Each	0.03	13
01-0220	100m Miniature mains cable	Reel	10.50	11	04-0255	12.7mm strain relief bush	Each	0.03	13
01-0300	100m reel black 1/0.6 wire	Reel	1.70	10	04-0260	16mm strain relief bush	Each	0.04	13
01-0305	100m reel blue 1/0.6 wire	Reel	1.70	10	05-0200	500g reel 35/36swg enamelled wire	Each	4.65	14
01-0310	100m reel brown 1/0.6 wire	Reel	1.70	10	05-0205	500g reel 34/35swg enamelled wire	Each	4.50	14
01-0315	100m reel green 1/0.6 wire	Reel	1.70	10	05-0210	500g reel 33swg enamelled wire	Each	4.40	14
01-0320	100m reel grey 1/0.6 wire	Reel	1.70	10	05-0215	500g reel 30swg enamelled wire	Each	4.10	14
01-0325	100m reel orange 1/0.6 wire	Reel	1.70	10	05-0220	500g reel 27swg enamelled wire	Each	3.90	14
01-0330	100m reel pink 1/0.6 wire	Reel	1.70	10	05-0225	500g reel 25swg enamelled wire	Each	3.75	14
01-0335	100m reel red 1/0.6 wire	Reel	1.70	10	05-0230	500g reel 24swg enamelled wire	Each	3.65	14
01-0340	100m reel violet 1/0.6 wire	Reel	1.70	10	05-0235	500g reel 22swg enamelled wire	Each	3.50	14
01-0345	100m reel white 1/0.6 wire	Reel	1.70	10	05-0240	500g reel 20swg enamelled wire	Each	3.20	14
01-0350	100m reel yellow 1/0.6 wire	Reel	1.70	10	05-0300	500g reel 16swg tinned wire	Each	3.10	14
01-0380	11 reels 1/0.6 equipment wire	Set	17.90	10	05-0305	500g reel 18swg tinned wire	Each	3.10	14
01-0400	100m reel black 7/0.2 wire	Reel	1.65	10	05-0310	500g reel 20swg tinned wire	Each	3.15	14
01-0405	100m reel blue 7/0.2 wire	Reel	1.65	10	05-0315	500g reel 22swg tinned wire	Each	3.25	14
01-0410	100m reel brown 7/0.2 wire	Reel	1.65	10	05-0320	500g reel 24swg tinned wire	Each	3.35	14
01-0415	100m reel green 7/0.2 wire	Reel	1.65	10	08-0140	100pF ceramic disc capacitor	Each	0.03	15
01-0420	100m reel grey 7/0.2 wire	Reel	1.65	10	08-0145	120pF ceramic disc capacitor	Each	0.03	15
01-0425	100m reel orange 7/0.2 wire	Reel	1.65	10	08-0150	150pF ceramic disc capacitor	Each	0.03	15
01-0430	100m reel pink 7/0.2 wire	Reel	1.65	10	08-0155	180pF ceramic disc capacitor	Each	0.03	15
01-0435	100m reel red 7/0.2 wire	Reel	1.65	10	08-0160	220pF ceramic disc capacitor	Each	0.03	15
01-0440	100m reel violet 7/0.2 wire	Reel	1.65	10	08-0165	270pF ceramic disc capacitor	Each	0.03	15
01-0445	100m reel white 7/0.2 wire	Reel	1.65	10	08-0170	330pF ceramic disc capacitor	Each	0.03	15
01-0450	100m reel yellow 7/0.2 wire	Reel	1.65	10	08-0175	390pF ceramic disc capacitor	Each	0.03	15
01-0480	11 reels 7/0.2 equipment wire	Set	17.40	10	08-0180	470pF ceramic disc capacitor	Each	0.03	15
01-0600	25m reel red extra-flex	Reel	1.50	10	08-0185	560pF ceramic disc capacitor	Each	0.03	15
01-0605	25m reel black extra-flex	Reel	1.50	10	08-0190	680pF ceramic disc capacitor	Each	0.03	15
01-0610	25m reel blue extra-flex	Reel	1.50	10	08-0195	820pF ceramic disc capacitor	Each	0.03	15
01-0615	25m reel green extra-flex	Reel	1.50	10	08-0200	1n ceramic disc capacitor	Each	0.03	15
01-0620	25m reel brown extra-flex	Reel	1.50	10	08-0205	1n5 ceramic disc capacitor	Each	0.03	15
01-0625	25m reel white extra-flex	Reel	1.50	10	08-0210	2n2 ceramic disc capacitor	Each	0.03	15
01-0630	25m reel yellow extra-flex	Reel	1.50	10	08-0215	3n3 ceramic disc capacitor	Each	0.03	15
01-0700	Signal cable 4 core	Reel	8.50	11	08-0220	4n7 ceramic disc capacitor	Each	0.03	15
01-0705	Signal cable 6 core	Reel	10.50	11	08-0225	6n8 ceramic disc capacitor	Each	0.03	15
01-0710	Signal cable 8 core	Reel	15.00	11	08-0230	10n ceramic disc capacitor	Each	0.03	15
02-0100	Miniature screened cable	Metre	0.12	12	08-0235	100n ceramic disc capacitor	Each	0.04	15
02-0105	Standard screened cable	Metre	0.16	12	08-0250	1n high voltage disc ceramic	Each	0.04	15
02-0110	Stereo screened cable	Metre	0.24	12	08-0255	10n high voltage disc ceramic	Each	0.06	15
02-0115	Four core screened cable	Metre	0.35	12	08-0265	47n 50V 5mm multilayer ceramic	Each	0.05	15
02-0185	100m 10 core screened cable	Reel	19.00	12	08-0270	100n dipped multilayer ceramic capacitor	Each	0.05	15
02-0190	100m 15 core screened cable	Reel	24.50	12	08-0275	100n 50V 2.5mm multilayer ceramic	Each	0.05	15
02-0200	RG58C/U RF cable	Metre	0.25	12	08-0280	220n 50V 5mm multilayer ceramic	Each	0.09	15
02-0205	RG59B/U RF cable	Metre	0.35	12	08-0300	1.8pF ceramic plate capacitor	Each	0.04	15
02-0220	100m reel RG58C/U RF cable	Reel	16.50	12	08-0305	2.2pF ceramic plate capacitor	Each	0.04	15
02-0225	100m reel RG59B/U RF cable	Reel	18.00	13	08-0310	3.3pF ceramic plate capacitor	Each	0.04	15
02-0230	RG62A/U RF cable	Reel	22.50	13	08-0315	4.7pF ceramic plate capacitor	Each	0.04	15
03-0100	1.6mm heat shrink sleeve clear	1.2m	0.55	14	08-0320	6.8pF ceramic plate capacitor	Each	0.04	15
03-0105	2.4mm heat shrink sleeve clear	1.2m	0.60	14	08-0325	10pF ceramic plate capacitor	Each	0.04	15
03-0110	3.2mm heat shrink sleeve clear	1.2m	0.60	14	08-0330	15pF ceramic plate capacitor	Each	0.04	15
03-0115	4.8mm heat shrink sleeve clear	1.2m	0.80	14	08-0335	22pF ceramic plate capacitor	Each	0.04	15
03-0120	6.4mm heat shrink sleeve clear	1.2m	0.90	14	08-0340	33pF ceramic plate capacitor	Each	0.04	15
03-0125	9.5mm heat shrink sleeve clear	1.2m	1.10	14	08-0345	47pF ceramic plate capacitor	Each	0.04	15
03-0130	12.7mm heat shrink sleeve clear	1.2m	1.25	14	08-0350	56pF ceramic plate capacitor	Each	0.04	15
03-0135	19.0mm heat shrink sleeve clear	1.2m	1.60	14	08-0355	68pF ceramic plate capacitor	Each	0.04	15
03-0200	1.6mm heat shrink sleeve yellow	1.2m	0.55	14	08-0360	82pF ceramic plate capacitor	Each	0.04	15
03-0205	2.4mm heat shrink sleeve yellow	1.2m	0.60	14	08-0365	100pF ceramic plate capacitor	Each	0.04	15
03-0210	3.2mm heat shrink sleeve yellow	1.2m	0.60	14	09-0130	47pF polystyrene capacitors	Each	0.06	15
03-0215	4.8mm heat shrink sleeve yellow	1.2m	0.80	14	09-0135	56pF polystyrene capacitors	Each	0.06	15
03-0220	6.4mm heat shrink sleeve yellow	1.2m	0.90	14	09-0140	68pF polystyrene capacitors	Each	0.06	15
03-0225	9.5mm heat shrink sleeve yellow	1.2m	1.10	14	09-0145	82pF polystyrene capacitors	Each	0.06	15
03-0230	12.7mm heat shrink sleeve yellow	1.2m	1.25	14	09-0150	100pF polystyrene capacitors	Each	0.06	15
03-0235	19.0mm heat shrink sleeve yellow	1.2m	1.60	14	09-0155	120pF polystyrene capacitors	Each	0.06	15
03-0300	1.6mm heat shrink sleeve blue	1.2m	0.55	14	09-0160	150pF polystyrene capacitors	Each	0.06	15
03-0305	2.4mm heat shrink sleeve blue	1.2m	0.60	14	09-0165	180pF polystyrene capacitors	Each	0.06	15
03-0310	3.2mm heat shrink sleeve blue	1.2m	0.60	14	09-0170	220pF polystyrene capacitors	Each	0.06	15

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Code	Product Description	Unit	Price 1+	Page No.	Code	Product Description	Unit	Price 1+	Page No.
09-0175	270pF polystyrene capacitors	Each	0.06	15	11-0275	470µ 16V radial electrolytic	Each	0.07	17
09-0180	330pF polystyrene capacitors	Each	0.06	15	11-0280	470µ 25V radial electrolytic	Each	0.10	17
09-0185	390pF polystyrene capacitors	Each	0.06	15	11-0290	1000µ 16V radial electrolytic	Each	0.11	17
09-0190	470pF polystyrene capacitors	Each	0.06	15	11-0295	1000µ 25V radial electrolytic	Each	0.18	17
09-0195	560pF polystyrene capacitors	Each	0.06	15	11-0300	2200µ 16V radial electrolytic	Each	0.19	17
09-0200	680pF polystyrene capacitors	Each	0.06	15	11-0305	47µ 10V radial electrolytic	Each	0.04	17
09-0205	820pF polystyrene capacitors	Each	0.06	15	11-0310	100µ 10V radial electrolytic	Each	0.04	17
09-0210	1n polystyrene capacitors	Each	0.06	15	11-0315	1000µ 10V radial electrolytic	Each	0.08	17
09-0215	1n5 polystyrene capacitors	Each	0.06	15	11-0320	2200µ 10V radial electrolytic	Each	0.16	17
09-0220	2n2 polystyrene capacitors	Each	0.06	15	11-0325	47µ 16V radial electrolytic	Each	0.04	17
09-0225	3n3 polystyrene capacitors	Each	0.06	15	11-0330	2200µ 25V radial electrolytic	Each	0.32	17
09-0230	4n7 polystyrene capacitors	Each	0.06	15	11-0335	22µ 63V radial electrolytic	Each	0.05	17
09-0235	6n8 polystyrene capacitors	Each	0.07	15	11-0340	22µ 35V radial electrolytic	Each	0.04	17
09-0240	10n polystyrene capacitors	Each	0.07	15	11-0345	47µ 35V radial electrolytic	Each	0.05	17
10-0200	10n metallised polyester capacitors	Each	0.05	16	11-0350	100µ 35V radial electrolytic	Each	0.06	17
10-0205	15n metallised polyester capacitors	Each	0.05	16	11-0355	220µ 35V radial electrolytic	Each	0.08	17
10-0210	22n metallised polyester capacitors	Each	0.05	16	11-0360	470µ 35V radial electrolytic	Each	0.13	17
10-0215	33n metallised polyester capacitors	Each	0.05	16	11-0385	220µ 63V radial electrolytic	Each	0.14	17
10-0220	47n metallised polyester capacitors	Each	0.05	16	11-0390	470µ 63V radial electrolytic	Each	0.21	17
10-0225	68n metallised polyester capacitors	Each	0.05	16	11-0400	2200µ 63V power supply electrolytics	Each	1.50	18
10-0230	100n metallised polyester capacitors	Each	0.06	16	11-0405	4700µ 35V power supply electrolytics	Each	1.50	18
10-0235	150n metallised polyester capacitors	Each	0.07	16	11-0410	4700µ 63V power supply electrolytics	Each	2.10	18
10-0240	220n metallised polyester capacitors	Each	0.09	16	11-0500	0.1µ 35V tantalum bead capacitor	Each	0.07	18
10-0245	330n metallised polyester capacitors	Each	0.11	16	11-0505	0.22µ 35V tantalum bead capacitor	Each	0.07	18
10-0250	470n metallised polyester capacitors	Each	0.13	16	11-0510	0.33µ 35V tantalum bead capacitor	Each	0.07	18
10-0300	1n miniature polyester capacitors	Each	0.05	16	11-0515	0.47µ 35V tantalum bead capacitor	Each	0.07	18
10-0305	2n2 miniature polyester capacitors	Each	0.05	16	11-0520	1µ 35V tantalum bead capacitor	Each	0.07	18
10-0310	4n7 miniature polyester capacitors	Each	0.05	16	11-0525	2.2µ 25V tantalum bead capacitor	Each	0.08	18
10-0315	10n miniature polyester capacitors	Each	0.05	16	11-0530	3.3µ 25V tantalum bead capacitor	Each	0.10	18
10-0320	22n miniature polyester capacitors	Each	0.05	16	11-0535	4.7µ 25V tantalum bead capacitor	Each	0.10	18
10-0325	47n miniature polyester capacitors	Each	0.05	16	11-0540	6.8µ 25V tantalum bead capacitor	Each	0.12	18
10-0330	100n miniature polyester capacitors	Each	0.06	16	11-0545	10µ 25V tantalum bead capacitor	Each	0.14	18
10-0335	220n miniature polyester capacitors	Each	0.08	16	11-0550	15µ 16V tantalum bead capacitor	Each	0.19	18
10-0340	470n miniature polyester capacitors	Each	0.11	16	11-0555	22µ 16V tantalum bead capacitor	Each	0.19	18
10-0400	1n metallised polyester capacitors	Each	0.06	16	11-0560	33µ 16V tantalum bead capacitor	Each	0.36	18
10-0405	1n5 metallised polyester capacitors	Each	0.07	16	11-0565	47µ 6V tantalum bead capacitor	Each	0.16	18
10-0410	2n2 metallised polyester capacitors	Each	0.07	16	11-0570	47µ 16V tantalum bead capacitor	Each	0.40	18
10-0415	3n3 metallised polyester capacitors	Each	0.07	16	11-0575	68µ 6V tantalum bead capacitor	Each	0.50	18
10-0480	4n7 metallised polyester capacitors	Each	0.06	16	11-0580	100µ 10V tantalum bead capacitor	Each	0.90	18
10-0485	6n8 metallised polyester capacitors	Each	0.06	16	11-0585	100µ 16V tantalum bead capacitor	Each	1.00	18
10-0490	10n metallised polyester capacitors	Each	0.06	16	12-0100	2-10pF miniature trimmer capacitor	Each	0.22	18
10-0550	15n metallised polyester capacitors	Each	0.06	16	12-0105	2-22pF miniature trimmer capacitor	Each	0.24	18
10-0555	22n metallised polyester capacitors	Each	0.06	16	12-0110	5.5-65pF miniature trimmer capacitor	Each	0.25	18
10-0560	33n metallised polyester capacitors	Each	0.06	16	12-0200	0-300pF Jackson variable capacitor	Each	3.90	18
10-0600	47n metallised polyester capacitors	Each	0.06	16	12-0205	0-500pF Jackson variable capacitor	Each	3.90	18
10-0605	68n metallised polyester capacitors	Each	0.06	16	12-0210	0.365pF Jackson variable capacitor	Each	4.10	18
10-0610	100n metallised polyester capacitors	Each	0.07	16	12-0215	0.365pF×2 Jackson variable capacitor	Each	4.80	18
10-0620	150n metallised polyester capacitors	Each	0.10	16	12-0220	0.10pF Jackson variable capacitor	Each	3.80	18
10-0625	220n metallised polyester capacitors	Each	0.10	16	12-0225	0.25pF Jackson variable capacitor	Each	4.30	18
10-0630	330n metallised polyester capacitors	Each	0.12	16	12-0230	0.50pF Jackson variable capacitor	Each	4.30	18
10-0635	470n metallised polyester capacitors	Each	0.20	16	12-0235	0.100pF Jackson variable capacitor	Each	4.80	18
10-0640	680n metallised polyester capacitors	Each	0.23	16	12-0250	Miniature tuning capacitor	Each	0.90	18
10-0645	1µ metallised polyester capacitors	Each	0.30	16	13-0200	CR25 carbon film resistor kit	Kit	6.90	21
11-0010	47µ 16V axial electrolytic	Each	0.05	17	13-0205	Ceramic capacitor kit	Kit	6.90	22
11-0015	100µ 16V axial electrolytic	Each	0.05	17	13-0210	Metallised polyester capacitor kit	Kit	6.90	22
11-0020	220µ 16V axial electrolytic	Each	0.06	17	13-0215	Miniature polyester capacitor kit	Kit	5.20	22
11-0025	470µ 16V axial electrolytic	Each	0.10	17	13-0220	Electrolytic capacitor kit	Kit	6.20	22
11-0030	1000µ 16V axial electrolytic	Each	0.14	17	13-0225	Preset potentiometer kit	Kit	5.90	22
11-0035	2200µ 16V axial electrolytic	Each	0.25	17	13-0230	Nut and bolt kit	Kit	3.20	23
11-0040	4700µ 16V axial electrolytic	Each	0.55	17	13-0235	No. 4 self tapping screw kit	Kit	1.95	23
11-0045	10µ 35V axial electrolytic	Each	0.05	17	13-0240	No. 6 self tapping screw kit	Kit	1.70	23
11-0050	22µ 35V axial electrolytic	Each	0.05	17	13-0245	No. 10 self tapping screw kit	Kit	2.20	23
11-0055	47µ 35V axial electrolytic	Each	0.06	17	13-0260	CR50 Carbon film resistor kit	Each	8.50	21
11-0060	100µ 35V axial electrolytic	Each	0.08	17	13-0270	MR25 Metal film resistor kit	Each	10.80	21
11-0065	220µ 35V axial electrolytic	Each	0.11	17	13-0300	20mm quick blow fuse kit	Kit	4.40	23
11-0070	470µ 35V axial electrolytic	Each	0.20	17	14-0100	16 drawer small storage unit	Each	15.00	103
11-0075	10µ 63V axial electrolytic	Each	0.06	17	14-0105	30 drawer small storage unit	Each	15.00	103
11-0080	22µ 63V axial electrolytic	Each	0.06	17	14-0110	32 drawer large storage unit	Each	25.50	103
11-0085	47µ 63V axial electrolytic	Each	0.08	17	14-0115	60 drawer large storage unit	Each	25.50	103
11-0090	100µ 63V axial electrolytic	Each	0.11	17	14-0120	48 drawer large storage unit	Each	25.50	103
11-0105	1µ 63V axial electrolytic	Each	0.05	17	14-0125	24 drawer large storage unit	Each	25.50	103
11-0110	2.2µ 63V axial electrolytics	Each	0.05	17	14-0200	Storage cabinet turntable unit	Each	56.50	103
11-0115	4.7µ 63V axial electrolytics	Each	0.06	17	14-0300	Pack of 10 dividers	Pack	0.45	103
11-0120	10µ 25V axial electrolytic	Each	0.05	17	14-0305	Pack of 10 dividers	Pack	0.70	103
11-0125	22µ 25V axial electrolytics	Each	0.05	17	14-0310	Pack of 10 dividers	Each	1.00	103
11-0130	47µ 25V axial electrolytics	Each	0.06	17	14-0400	Bench top component dispenser	Each	9.80	102
11-0135	100µ 25V axial electrolytics	Each	0.06	17	14-0410	Red 99 picking bin	Each	0.90	102
11-0140	220µ 25V axial electrolytics	Each	0.09	17	14-0415	Green 198 picking bin	Each	1.10	102
11-0145	470µ 25V axial electrolytics	Each	0.14	17	14-0420	Green 198 3 comp. picking bin	Each	1.50	102
11-0150	1000µ 25V axial electrolytics	Each	0.22	17	14-0425	Blue 297 picking bin	Each	1.50	102
11-0155	2200µ 25V axial electrolytics	Each	0.36	17	15-0100	9 way commercial 'D' plug	Each	0.17	29
11-0160	4700µ 25V axial electrolytic	Each	0.65	17	15-0105	15 way commercial 'D' plug	Each	0.24	29
11-0170	47µ 10V axial electrolytic	Each	0.05	17	15-0110	25 way commercial 'D' plug	Each	0.27	29
11-0175	100µ 10V axial electrolytic	Each	0.05	17	15-0135	25 way R/A PCB plug	Each	0.55	29
11-0180	1000µ 10V axial electrolytic	Each	0.13	17	15-0150	9 way commercial 'D' socket	Each	0.19	29
11-0185	2200µ 10V axial electrolytic	Each	0.22	17	15-0155	15 way commercial 'D' socket	Each	0.25	29
11-0205	1µ 63V radial electrolytics	Each	0.04	17	15-0160	25 way commercial 'D' socket	Each	0.29	29
11-0210	2.2µ 63V radial electrolytics	Each	0.04	17	15-0185	25 way R/A solder lug socket	Each	0.48	29
11-0215	4.7µ 63V radial electrolytics	Each	0.04	17	15-0200	9 way cover	Each	0.75	30
11-0220	10µ 25V radial electrolytics	Each	0.04	17	15-0205	15 way cover	Each	0.80	30
11-0225	10µ 63V radial electrolytics	Each	0.05	17	15-0210	25 way cover	Each	0.80	30
11-0230	22µ 25V radial electrolytics	Each	0.04	17	15-0215	37 way cover	Each	0.95	30
11-0235	47µ 25V radial electrolytics	Each	0.04	17	15-0230	9 way D connector cover	Each	0.20	30
11-0240	47µ 63V radial electrolytics	Each	0.07	17	15-0235	15 way D connector cover	Each	0.22	30
11-0245	100µ 16V radial electrolytics	Each	0.04	17	15-0240	25 way D connector cover	Each	0.24	30
11-0250	100µ 25V radial electrolytics	Each	0.05	17	15-0245	37 way D connector cover	Each	0.40	30
11-0255	100µ 63V radial electrolytic	Each	0.09	17	15-0300	9 way screwlock D cover	Each	0.95	30
11-0260	220µ 16V radial electrolytic	Each	0.05	17	15-0305	15 way screwlock D cover	Each	1.00	30
11-0265	220µ 25V radial electrolytic	Each	0.06	17	15-0310	25 way screwlock D cover	Each	1.00	30
11-0270	470µ 10V radial electrolytic	Each	0.07	17	15-0315	37 way screwlock D cover	Each	1.20	30

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15-0320	Cover with short screws	Each	0.60	30	17-0336	Miniature yellow crocodile clip	Each	0.05	35
15-0325	Cover with long screws	Each	0.75	30	17-0340	Standard crocodile clip	Each	0.10	35
15-0340	Pair jack posts	Each	0.25	30	17-0350	Crocodile lead pack	Each	1.30	35
15-0360	Pair male screwlock assemblies	Each	0.30	30	17-0355	Heavy duty crocodile pack	Each	1.50	35
15-0365	Pair female 8mm screwlock assemblies	Each	0.32	30	17-0370	Red spade terminal	Each	0.13	35
15-0370	Pair female 13mm screwlock assemblies	Each	0.32	30	17-0375	Black spade terminal	Each	0.13	35
15-0500	9 way solder lug plug	Each	0.27	29	17-0380	Red 0.5m 4mm stackable lead	Each	0.65	34
15-0505	15 way solder lug plug	Each	0.40	29	17-0381	Blue 0.5m 4mm stackable lead	Each	0.65	34
15-0510	25 way solder lug plug	Each	0.62	29	17-0383	Brown 0.5m 4mm stackable lead	Each	0.65	34
15-0515	37 way solder lug plug	Each	0.95	29	17-0384	White 0.5m 4mm stackable lead	Each	0.65	34
15-0525	9 way solder lug plug	Each	0.31	29	17-0385	Black 0.5m 4mm stackable lead	Each	0.65	34
15-0530	15 way solder lug socket	Each	0.62	29	17-0386	Yellow 0.5m 4mm stackable lead	Each	0.65	34
15-0535	25 way solder lug socket	Each	0.70	29	17-0400	Black 4mm stackable plug	Each	0.25	34
15-0540	37 way solder lug socket	Each	1.30	29	17-0405	Blue 4mm stackable plug	Each	0.25	34
15-0550	9 way PCB mount plug	Each	0.27	29	17-0410	Green 4mm stackable plug	Each	0.25	34
15-0555	15 way PCB mount plug	Each	0.40	29	17-0415	Brown 4mm stackable plug	Each	0.25	34
15-0560	25 way PCB mount plug	Each	0.62	29	17-0420	Red 4mm stackable plug	Each	0.25	34
15-0565	37 way PCB mount plug	Each	0.95	29	17-0425	White 4mm stackable plug	Each	0.25	34
15-0575	9 way PCB mount socket	Each	0.31	29	17-0430	Yellow 4mm stackable plug	Each	0.25	34
15-0580	15 way PCB mount socket	Each	0.62	29	17-0500	Discontinued - see 17-0560			
15-0585	25 way PCB mount socket	Each	0.70	29	17-0505	Discontinued - see 17-0565			
15-0590	37 way PCB mount socket	Each	1.30	29	17-0510	Discontinued - see 17-0570			
15-0600	9 way R/A PCB mount plug	Each	0.63	29	17-0515	Discontinued - see 17-0575			
15-0605	15 way R/A PCB mount plug	Each	0.82	29	17-0520	Discontinued - see 17-0580			
15-0610	25 way R/A PCB mount plug	Each	1.06	29	17-0525	Discontinued - see 17-0585			
15-0615	37 way R/A PCB mount plug	Each	1.60	29	17-0530	Discontinued - see 17-0590			
15-0625	9 way R/A PCB mount socket	Each	0.74	29	17-0550	Red standard probe	Each	0.38	36
15-0630	15 way R/A PCB mount socket	Each	0.91	29	17-0555	Black standard probe	Each	0.38	36
15-0635	25 way R/A PCB mount socket	Each	1.20	29	17-0560	Black 4mm low cost socket	Each	0.14	34
15-0640	37 way R/A PCB mount socket	Each	1.75	29	17-0565	Blue 4mm low cost socket	Each	0.14	34
16-0100	Free BNC plug	Each	0.55	37	17-0570	Green 4mm low cost socket	Each	0.14	34
16-0105	50 ohm square BNC socket	Each	0.70	37	17-0575	Brown 4mm low cost socket	Each	0.14	34
16-0110	50 ohm round BNC socket	Each	0.40	37	17-0580	Red 4mm low cost socket	Each	0.14	34
16-0125	D/E BNC coupler	Each	1.30	37	17-0585	White 4mm low cost socket	Each	0.14	34
16-0130	Solderless 50 ohm BNC plug	Each	0.50	38	17-0590	Yellow 4mm low cost socket	Each	0.14	34
16-0140	PL 259 UHF plug	Each	0.40	38	17-0600	3mm red plug	Each	0.12	33
16-0145	Small reducer UHF connector	Each	0.14	38	17-0605	3mm black plug	Each	0.12	33
16-0150	Square UHF socket	Each	0.40	38	17-0610	3mm red socket	Each	0.12	33
16-0155	Round UHF socket	Each	0.40	38	17-0615	3mm black socket	Each	0.12	33
16-0180	75 ohm BNC plug	Each	0.55	37	17-0700	Pair 2mm test leads	Each	0.65	36
16-0185	50 ohm BNC elbow plug	Each	1.50	37	17-0705	Transistor test leads	Each	0.70	36
16-0190	75 ohm elbow BNC plug	Each	1.50	37	17-0720	Pair 4mm test leads	Each	0.75	36
16-0200	Crimp BNC plug	Each	0.55	37	17-0725	705A transistor leads	Each	0.90	36
16-0205	75 ohm BNC crimp plug	Each	0.55	37	17-0730	705A capacitor leads	Each	0.90	36
16-0295	BNC to 4mm terminal adaptor	Each	1.60	38	17-0750	Universal test lead set	Each	1.50	36
16-0300	BNC plug to 4mm plugs lead	Each	1.80	38	17-0800	Red 4mm 30 amp terminal	Each	0.80	35
16-0315	BNC plug to croc clips lead	Each	1.80	38	17-0805	Black 4mm 30 amp terminal	Each	0.80	35
16-0330	1m BNC plug to BNC plug lead	Each	1.70	38	17-0810	Green 4mm 30 amp terminal	Each	0.80	35
16-0340	2m BNC plug to BNC plug	Each	1.80	38	17-0830	Twin mounting 30 amp spacer	Each	0.10	35
16-0360	5 pin DIN-DIN audio lead	Each	0.90	25	17-0850	Black 4mm socket - single	Each	0.25	35
16-0365	5 pin DIN-DIN 'mirror' lead	Each	0.90	25	17-0855	Blue 4mm socket - single	Each	0.25	35
16-0370	Phono to phono lead	Each	0.85	25	17-0860	Green 4mm socket - single	Each	0.25	35
16-0400	Standard aluminium coax plug	Each	0.16	38	17-0865	Brown 4mm socket - single	Each	0.25	35
16-0405	Flush mounting coax socket	Each	0.16	38	17-0870	Red 4mm socket - single	Each	0.25	35
16-0410	Cable mounting coax line socket	Each	0.28	38	17-0875	White 4mm socket - single	Each	0.25	35
16-0415	Coax line connector	Each	0.14	38	17-0880	Yellow 4mm socket - single	Each	0.25	35
16-0450	Scart cable plug	Each	0.75	38	17-0900	Black 4mm socket - double	Each	0.35	35
16-0455	Scart PCB socket	Each	0.40	38	17-0905	Blue 4mm socket - double	Each	0.35	35
17-0100	Red 1mm plug	Each	0.12	33	17-0910	Green 4mm socket - double	Each	0.35	35
17-0105	Black 1mm plug	Each	0.12	33	17-0915	Brown 4mm socket - double	Each	0.35	35
17-0110	Red 1mm socket	Each	0.09	33	17-0920	Red 4mm socket - double	Each	0.35	35
17-0115	Black 1mm socket	Each	0.09	33	17-0925	White 4mm socket - double	Each	0.35	35
17-0130	Low cost 4mm red plug	Each	0.12	34	17-0930	Yellow 4mm socket - double	Each	0.35	35
17-0135	Low cost 4mm black plug	Each	0.12	34	18-0080	Moulded PP3, PP6 battery clips	Each	0.07	9
17-0140	Low cost 4mm red socket	Each	0.12	34	18-0100	PP1, PP9 battery clip	Each	0.12	9
17-0145	Low cost 4mm black socket	Each	0.12	34	18-0105	PP3, PP6 battery clip	Each	0.06	9
17-0150	Solderless 4mm red plug	Each	0.16	34	18-0110	4xAA long battery holder	Each	0.16	9
17-0155	Solderless 4mm black plug	Each	0.16	34	18-0115	4xAA short battery holder	Each	0.16	9
17-0170	Black 4mm plug	Each	0.17	34	18-0120	6xAA short battery holder	Each	0.22	9
17-0175	Blue 4mm plug	Each	0.17	34	18-0125	2xAA press stud battery holder	Each	0.12	9
17-0180	Green 4mm plug	Each	0.17	34	18-0130	2xC solder tag battery holder	Each	0.20	9
17-0185	Brown 4mm plug	Each	0.17	34	18-0135	4xC solder tag battery holder	Each	0.24	9
17-0190	Red 4mm plug	Each	0.17	34	18-0140	2xD solder tag battery holder	Each	0.20	9
17-0195	White 4mm plug	Each	0.17	34	18-0145	4xD solder tag battery holder	Each	0.30	9
17-0200	Yellow 4mm plug	Each	0.17	34	18-0160	PP3 rechargeable battery	Each	3.95	8
17-0215	Low cost red 4mm terminal	Each	0.28	35	18-0165	AA rechargeable battery	Each	0.98	8
17-0220	Low cost green 4mm terminal	Each	0.28	35	18-0180	C rechargeable battery	Each	2.00	8
17-0225	Low cost black 4mm terminal	Each	0.28	35	18-0185	D rechargeable battery	Each	2.30	8
17-0230	Red 4mm terminal	Each	0.36	35	18-0190	AAA rechargeable battery	Each	1.40	8
17-0235	Green 4mm terminal	Each	0.36	35	18-0192	2.4V memory protection battery	Each	1.40	8
17-0240	Blue 4mm terminal	Each	0.36	35	18-0195	3.6V memory protection battery	Each	1.95	8
17-0245	Black 4mm terminal	Each	0.36	35	18-0200	PP3 9V alkaline battery	Each	1.50	8
17-0250	Brown 4mm terminal	Each	0.36	35	18-0205	AAA 1.5V alkaline battery	Each	0.37	8
17-0255	White 4mm terminal	Each	0.36	35	18-0210	AA 1.5V alkaline battery	Each	0.37	8
17-0260	Yellow 4mm terminal	Each	0.36	35	18-0215	C 1.5V alkaline battery	Each	0.70	8
17-0270	Red miniature probe	Each	0.18	36	18-0220	D 1.5V alkaline battery	Each	0.76	8
17-0290	Black miniature probe	Each	0.18	36	18-0250	PP9 zinc-carbon battery	Each	1.25	8
17-0295	Low cost red microminiature probe	Each	0.15	36	18-0300	Universal Ni-cad charger	Each	4.20	9
17-0300	Low cost black microminiature probe	Each	0.15	36	18-0310	Fast charge battery charger	Each	3.90	9
17-0305	Red microminiature probe	Each	0.46	36	18-0400	LR43 alkaline button cell	Each	0.10	8
17-0310	Black microminiature probe	Each	0.46	36	19-0100	23 way ZX81 edge connector	Each	1.50	26
17-0315	Blue microminiature probe	Each	0.46	36	19-0120	64 way A+B plug DIN 41612	Each	1.10	27
17-0320	Green microminiature probe	Each	0.46	36	19-0125	64 way A+B socket DIN 41612	Each	1.70	27
17-0325	Yellow microminiature probe	Each	0.46	36	19-0130	64 way A+C plug DIN 41612	Each	1.15	27
17-0330	Miniature red crocodile clip	Each	0.05	35	19-0135	64 way A+C socket DIN 41612	Each	1.75	27
17-0331	Miniature blue crocodile clip	Each	0.05	35	19-0140	96 way A+B+C plug DIN 41612	Each	1.50	27
17-0332	Miniature green crocodile clip	Each	0.05	35	19-0145	96 way A+B+C socket DIN 41612	Each	2.45	27
17-0333	Miniature brown crocodile clip	Each	0.05	35	19-0150	Economy 20W right angle plug	Each	0.60	28
17-0334	Miniature white crocodile clip	Each	0.05	35	19-0155	Economy 26W right angle plug	Each	0.75	28
17-0335	Miniature black crocodile clip	Each	0.05	35	19-0160	Economy 34W right angle plug	Each	0.95	28

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
19-0165	Economy 40W right angle plug	Each	1.10	28	20-0200	Red phono plug	Each	0.09	25
19-0180	Economy 20 way straight plug	Each	0.50	28	20-0205	Black phono plug	Each	0.09	25
19-0185	Economy 26 way straight plug	Each	0.65	28	20-0210	Screened phono plug	Each	0.18	25
19-0190	Economy 34 way straight plug	Each	0.85	28	20-0212	PCB mounted phono socket	Each	0.12	25
19-0195	Economy 40 way straight plug	Each	1.00	28	20-0215	Single phono socket black	Each	0.13	25
19-0200	10 way R/A plug IDC connector	Each	0.70	27	20-0220	Twin socket	Each	0.15	25
19-0205	16 way R/A plug IDC connector	Each	0.85	27	20-0225	Single phono socket red	Each	0.13	25
19-0210	20 way R/A plug IDC connector	Each	0.95	27	20-0230	DIN speaker plug	Each	0.08	24
19-0215	26 way R/A plug IDC connector	Each	1.10	27	20-0235	DIN speaker socket	Each	0.08	24
19-0220	34 way R/A plug IDC connector	Each	1.30	27	20-0240	3 pin DIN plug	Each	0.12	24
19-0225	40 way R/A plug IDC connector	Each	1.50	27	20-0245	3 pin DIN socket	Each	0.14	24
19-0230	50 way R/A plug IDC connector	Each	1.80	27	20-0250	5 pin 180 DIN plug	Each	0.13	24
19-0235	60 way R/A plug IDC connector	Each	2.10	27	20-0255	5 pin 180 DIN socket	Each	0.15	24
19-0250	10 way STR IDC connector	Each	0.70	27	20-0260	4 way insulated DIN plug	Each	0.14	24
19-0255	16 way STR IDC connector	Each	0.80	27	20-0265	5 way 240 insulated DIN plug	Each	0.15	24
19-0260	20 way STR IDC connector	Each	0.90	27	20-0270	5 way domino insulated DIN plug	Each	0.15	24
19-0265	26 way STR IDC connector	Each	1.10	27	20-0280	6 way insulated DIN plug	Each	0.15	24
19-0270	34 way STR IDC connector	Each	1.20	27	20-0290	7 way insulated DIN plug	Each	0.16	24
19-0275	40 way STR IDC connector	Each	1.40	27	20-0295	8 way insulated DIN plug	Each	0.20	24
19-0280	50 way STR IDC connector	Each	1.70	27	20-0300	3 way screened DIN plug	Each	0.65	24
19-0285	60 way STR IDC connector	Each	2.10	27	20-0315	5 way 180 screened DIN plug	Each	0.68	24
19-0300	10 way cable mounting socket	Each	0.70	28	20-0320	5 way 240 screened DIN plug	Each	0.70	24
19-0305	16 way cable mounting socket	Each	0.90	28	20-0325	5 way domino screened DIN plug	Each	0.80	24
19-0310	20 way cable mounting socket	Each	0.90	28	20-0330	6 way screened DIN plug	Each	0.80	24
19-0315	26 way cable mounting socket	Each	1.05	28	20-0335	7 way screened DIN plug	Each	0.90	24
19-0320	34 way cable mounting socket	Each	1.30	28	20-0340	8 way screened DIN plug	Each	1.00	24
19-0325	40 way cable mounting socket	Each	1.45	28	20-0360	4 way DIN chassis socket	Each	0.15	24
19-0330	50 way cable mounting socket	Each	1.70	28	20-0365	5 way 240 DIN chassis socket	Each	0.15	24
19-0335	60 way cable mounting socket	Each	2.00	28	20-0370	5 way domino DIN chassis socket	Each	0.15	24
19-0340	Economy 20 way IDC socket	Each	0.20	28	20-0375	6 way DIN chassis socket	Each	0.16	24
19-0345	Economy 26 way IDC socket	Each	0.25	28	20-0380	7 way DIN chassis socket	Each	0.18	24
19-0350	Economy 34 way IDC socket	Each	0.25	28	20-0385	8 way DIN chassis socket	Each	0.20	24
19-0355	Economy 40 way IDC socket	Each	0.55	28	20-0400	3 way XLR cable socket 3-11C	Each	1.60	24
19-0370	34 way edge connector	Each	1.65	28	20-0405	3 way XLR cable plug 3-12C	Each	1.20	24
19-0390	34 way economy edge connector	Each	0.28	28	20-0410	3 way XLR chassis socket 3-31	Each	1.75	24
19-0400	25 way 'D' IDC plug	Each	0.80	29	20-0415	3 way XLR chassis plug 3-32	Each	1.00	24
19-0405	25 way 'D' IDC socket	Each	0.80	29	20-0440	5 way XLR cable socket 5-11C	Each	2.80	24
19-0415	15 way 'D' IDC D plug	Each	0.70	29	20-0445	5 way XLR cable plug 5-12C	Each	2.30	24
19-0420	9 way 'D' IDC socket	Each	0.65	29	20-0450	5 way XLR chassis socket 5-31	Each	3.00	24
19-0425	15 way 'D' IDC socket	Each	0.70	29	20-0455	5 way XLR chassis plug 5-32	Each	1.85	24
19-0600	36 way Centronics data cable	Each	5.00	30	20-0480	3 way XLR cable socket	Each	1.00	24
19-0605	25 way RS232 data cable	Each	5.00	31	20-0485	3 way XLR cable plug	Each	0.90	24
19-0610	BBC printer lead	Each	3.50	30	20-0490	3 way XLR chassis socket	Each	0.50	24
19-0620	2 metre IBM printer cable	Each	5.00	30	20-0495	3 way XLR chassis plug	Each	0.40	24
19-0625	3 metre IBM printer cable	Each	5.50	30	20-0500	3 way DIN chassis socket	Each	0.85	25
19-0650	2 port RS232 data switch	Each	11.45	31	20-0505	5 way 180 DIN chassis socket	Each	1.00	25
19-0655	4 port RS232 data switch	Each	18.25	31	20-0510	5 way 240 DIN chassis socket	Each	1.05	25
19-0660	2 port centronics data switch	Each	14.75	31	20-0515	6 way DIN chassis socket	Each	1.10	25
19-0665	4 port centronics data switch	Each	21.25	31	20-0520	7 way DIN chassis socket	Each	1.20	25
19-0670	3 port RS232 data switch	Each	15.50	31	20-0550	5 way 180 DIN PCB socket	Each	0.14	25
19-0675	2 port RS232 changeover switch	Each	18.50	31	20-0560	6 way DIN PCB socket	Each	0.25	25
19-0680	3 port centronics data switch	Each	19.60	31	20-0565	7 way DIN PCB socket	Each	0.26	25
19-0685	2 port centronics changeover switch	Each	21.25	31	20-0570	8 way DIN PCB socket	Each	0.30	25
19-0750	M-M 25 way 'D' gender changers	Each	2.15	31	20-0800	Mains cable plug male LNE-11C	Each	2.50	24
19-0755	F-F 25 way 'D' gender changers	Each	2.15	31	20-0805	Mains cable plug female LNE-12C	Each	2.00	24
19-0770	RS232 patch box	Each	2.50	31	20-0810	Mains chassis socket LNE-32	Each	1.70	24
19-0775	RS232 tester	Each	4.50	31	20-0815	Mains chassis plug LNE-31	Each	2.50	24
19-0780	RS232 surge protector	Each	3.50	31	21-0100	2A terminal block	Each	0.26	42
19-0805	36 way IEEE-488 IDC cable plug	Each	1.10	31	21-0145	2 way PCB terminal block	Each	0.12	41
19-0810	36 way IDC cable socket	Each	1.10	31	21-0150	3 way PCB terminal block	Each	0.17	41
19-0830	36 way IEEE-488 cable plug	Each	1.10	31	21-0155	4 way PCB terminal block	Each	0.21	41
19-0835	36 way cable mounting socket	Each	1.10	31	21-0160	6 way PCB terminal block	Each	0.32	41
19-0840	36 way IEEE-488 PCB socket	Each	1.10	31	21-0165	12 way PCB terminal block	Each	0.60	41
19-0860	36 way R/A IEEE-488 PCB socket	Each	1.10	31	21-0175	2 way 45° terminal block	Each	0.20	42
1N4001	1A 50V silicon rectifier diode	Each	0.03	76	21-0180	3 way 45° terminal block	Each	0.24	42
1N4002	1A 100V silicon rectifier diode	Each	0.04	76	21-0185	4 way 45° terminal block	Each	0.28	42
1N4003	1A 200V silicon rectifier diode	Each	0.04	76	21-0200	2 way PCB terminal block	Each	0.17	42
1N4004	1A 400V silicon rectifier diode	Each	0.05	76	21-0205	3 way PCB terminal block	Each	0.25	42
1N4006	1A 800V silicon rectifier diode	Each	0.05	76	21-0260	36 way PCB terminal block	Each	2.90	42
1N4007	1A 1000V silicon rectifier diode	Each	0.06	76	21-0300	36 way male+female term block	Each	3.60	42
1N4148	75V 75mA signal diode	Each	0.03	76	21-0305	Pair polarising clips	Each	0.10	42
1N5401	3A 100V silicon rectifier diode	Each	0.06	76	22-0100	3 pin TO18 transistor and IC holder	Each	0.15	32
1N5402	3A 200V silicon rectifier diode	Each	0.07	76	22-0105	3 pin TO5 transistor and IC holder	Each	0.17	32
1N5404	3A 400V silicon rectifier diode	Each	0.08	76	22-0110	8 pin TO99 transistor and IC holder	Each	0.38	32
1N5406	3A 600V silicon rectifier diode	Each	0.09	76	22-0115	10 pin TO100 transistor and IC holder	Each	0.42	32
1N5408	3A 1000V silicon rectifier diode	Each	0.10	76	22-0150	8 pin DIL socket	Each	0.04	32
1N914	75V signal diode	Each	0.04	76	22-0155	14 pin DIL socket	Each	0.07	32
20-0050	2.5mm screened jack plug	Each	0.18	26	22-0160	16 pin DIL socket	Each	0.08	32
20-0055	3.5mm screened jack plug	Each	0.18	26	22-0165	18 pin DIL socket	Each	0.09	32
20-0060	3.5mm stereo screened jack plug	Each	0.23	26	22-0170	20 pin DIL socket	Each	0.10	32
20-0070	Standard screened mono jack plug	Each	0.25	26	22-0180	24 pin DIL socket	Each	0.12	32
20-0080	Standard screened stereo jack plug	Each	0.28	26	22-0185	28 pin DIL socket	Each	0.13	32
20-0100	2.5mm jack connector	Each	0.10	26	22-0190	40 pin DIL socket	Each	0.16	32
20-0105	3.5mm jack connector	Each	0.10	26	22-0210	8 pin wirewrap DIL socket	Each	0.28	32
20-0110	Standard mono jack connector	Each	0.16	26	22-0215	14 pin wirewrap DIL socket	Each	0.48	32
20-0120	Standard stereo jack connector	Each	0.24	26	22-0220	16 pin wirewrap DIL socket	Each	0.55	32
20-0125	3.5mm stereo jack plug	Each	0.15	26	22-0225	18 pin wirewrap DIL socket	Each	0.65	32
20-0130	2.5mm jack sockets	Each	0.08	26	22-0230	20 pin wirewrap DIL socket	Each	0.75	32
20-0135	3.5mm jack sockets	Each	0.08	26	22-0235	22 pin wirewrap DIL socket	Each	0.80	32
20-0140	3.5mm PCB jack socket	Each	0.20	26	22-0240	24 pin wirewrap DIL socket	Each	0.85	32
20-0145	Standard mono jack sockets	Each	0.20	26	22-0245	28 pin wirewrap DIL socket	Each	1.00	32
20-0150	Standard stereo jack socket	Each	0.25	26	22-0250	40 pin wirewrap DIL socket	Each	1.40	32
20-0155	3.5mm stereo jack socket	Each	0.11	26	22-0260	32 pin SIL connector	Each	1.20	32
20-0160	Standard mono PCB jack socket	Each	0.20	26	22-0300	24 pin ZIF socket	Each	4.30	32
20-0165	Standard stereo PCB jack socket	Each	0.25	26	22-0305	28 pin ZIF socket	Each	4.80	32
20-0175	2.5mm jack line socket	Each	0.14	26	22-0310	40 pin ZIF socket	Each	5.95	32
20-0180	3.5mm jack line socket	Each	0.14	26	22-0320	IC extraction tool	Each	0.42	32
20-0185	3.5mm stereo jack line socket	Each	0.20	26	22-0360	68 way chip carrier socket	Each	0.90	32
20-0190	Standard mono jack line socket	Each	0.22	26	22-0400	8 pin turned pin DIL socket	Each	0.13	32
20-0195	Standard stereo jack line socket	Each	0.28	26	22-0405	14 pin turned pin DIL socket	Each	0.22	32

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
22-0410	16 pin turned pin DIL socket	Each	0.25	32	26-0190	Low profile 20mm fuseholder	Each	0.28	52
22-0415	18 pin turned pin DIL socket	Each	0.29	32	26-0195	Pack of fuse clips	Each	1.10	52
22-0420	20 pin turned pin DIL socket	Each	0.32	32	26-0200	20mm time delay 50mA fuse	Each	0.20	52
22-0430	24 pin turned pin DIL socket	Each	0.38	32	26-0205	20mm time delay 100mA fuse	Each	0.13	52
22-0435	28 pin turned pin DIL socket	Each	0.45	32	26-0230	20mm time delay 250mA fuse	Each	0.08	52
22-0440	40 pin turned pin DIL socket	Each	0.65	32	26-0250	20mm time delay 500mA fuse	Each	0.08	52
22-0500	3 way single row PCB header plug	Each	0.04	33	26-0260	20mm time delay 1A fuse	Each	0.08	52
22-0505	4 way single row PCB header plug	Each	0.05	33	26-0270	20mm time delay 1.6A fuse	Each	0.08	52
22-0510	5 way single row PCB header plug	Each	0.06	33	26-0275	20mm time delay 2A fuse	Each	0.08	52
22-0515	10 way single row PCB header plug	Each	0.09	33	26-0280	20mm time delay 2.5A fuse	Each	0.08	52
22-0550	3+3 way double row PCB header plug	Each	0.08	33	26-0285	20mm time delay 3.15A fuse	Each	0.08	52
22-0555	4+4 way double row PCB header plug	Each	0.10	33	26-0290	20mm time delay 4A fuse	Each	0.08	52
22-0560	5+5 way double row PCB header plug	Each	0.12	33	26-0295	20mm time delay 5A fuse	Each	0.08	52
22-0565	10+10 way double row PCB header plug	Each	0.18	33	26-0300	20mm time delay 6.3A fuse	Each	0.08	52
22-0600	3 way single row PCB socket	Each	0.10	33	26-0400	2A 1in mains fuse	Each	0.09	52
22-0605	4 way single row PCB socket	Each	0.13	33	26-0405	3A 1in mains fuse	Each	0.09	52
22-0610	5 way single row PCB socket	Each	0.16	33	26-0410	5A 1in mains fuse	Each	0.09	52
22-0615	10 way single row PCB socket	Each	0.30	33	26-0415	13A 1in mains fuse	Each	0.09	52
22-0625	3 way right angle PCB single row socket	Each	0.10	33	27128-250	128K 250ns EPROM	Each	3.60	99
22-0630	4 way right angle PCB single row socket	Each	0.13	33	2716	16K 450ns EPROM	Each	3.50	99
22-0635	5 way right angle PCB single row socket	Each	0.16	33	27256-250	256K 250ns EPROM	Each	4.50	99
22-0640	10 way right angle PCB single row socket	Each	0.30	33	2732A	32K 450ns EPROM	Each	3.80	99
22-0650	3+3 way double row PCB socket	Each	0.16	33	2732P	32K 450ns one time prog. prom.	Each	2.80	99
22-0655	4+4 way double row PCB socket	Each	0.21	33	27512	512K 250ns EPROM	Each	10.50	99
22-0660	5+5 way double row PCB socket	Each	0.26	33	2764-250	64K 250ns EPROM	Each	2.80	99
22-0665	10+10 way double row PCB socket	Each	0.50	33	27C256-250	256K 250ns CMOS EPROM	Each	3.90	99
22-0670	3+3 way right angle double row socket	Each	0.19	33	27C64-250	64K 250ns CMOS EPROM	Each	2.70	99
22-0675	4+4 way right angle double row socket	Each	0.25	33	2N1613	NPN general purpose audio	Each	0.30	80
22-0680	5+5 way right angle double row socket	Each	0.30	33	2N2219A	NPN general purpose	Each	0.30	80
22-0685	10+10 way right angle PCB socket	Each	0.60	33	2N2222A	NPN general purpose RF	Each	0.15	80
22-0690	Jumper link	Each	0.03	33	2N2369	NPN general purpose RF	Each	0.15	80
22-0700	3 way single row 90° header plug	Each	0.05	33	2N2484	NPN audio low noise	Each	0.15	80
22-0705	4 way single row 90° header plug	Each	0.06	33	2N2646	Unijunction transistor	Each	0.60	80
22-0710	5 way single row 90° header plug	Each	0.07	33	2N2904	PNP general purpose audio	Each	0.25	80
22-0715	10 way single row 90° header plug	Each	0.11	33	2N2904A	PNP general purpose audio	Each	0.25	80
23-0050	7.6mm pin centre mains lead	Each	0.55	39	2N2905	PNP general purpose audio	Each	0.25	80
23-0055	8.5mm pin centre mains lead	Each	0.55	39	2N2905A	PNP general purpose audio	Each	0.25	80
23-0070	4 way jack plug and lead	Each	0.70	39	2N2906A	PNP general purpose audio	Each	0.15	80
23-0100	IEC Chassis plug	Each	0.40	39	2N2907	PNP general purpose audio	Each	0.15	80
23-0105	IEC socket	Each	0.50	39	2N2907A	PNP general purpose audio	Each	0.15	80
23-0110	IEC socket + 2m lead	Each	1.25	39	2N2926	NPN general	Each	0.10	80
23-0115	IEC female chassis socket	Each	0.45	39	2N3053	NPN general purpose audio	Each	0.23	80
23-0125	Black rubber 13A plug	Each	0.95	40	2N3054	NPN general purpose audio	Each	0.55	80
23-0130	White rubber 13A plug	Each	0.95	40	2N3055	NPN audio power	Each	0.45	80
23-0135	13A plug with 2m lead	Each	2.10	40	2N3442	NPN audio high voltage	Each	1.00	80
23-0145	Bakelite 13A plug	Each	0.50	40	2N3702	PNP general purpose audio	Each	0.07	80
23-0150	Free black 13A mains socket	Each	1.40	40	2N3703	PNP general purpose audio	Each	0.07	80
23-0155	Free white 13A mains socket	Each	1.40	40	2N3704	NPN general purpose audio	Each	0.07	80
23-0175	White distribution board with lead	Each	8.90	40	2N3705	NPN general purpose audio	Each	0.07	80
23-0180	Black 4 way distribution board	Each	6.40	40	2N3706	NPN general purpose audio	Each	0.07	80
23-0185	White 4 way distribution board	Each	6.90	40	2N3773	NPN audio high voltage	Each	1.90	80
23-0195	Quickest mains connector	Each	5.90	40	2N3819	Field effect transistor	Each	0.32	80
23-0200	6m 6A extension lead	Each	6.95	40	2N3820	Field effect transistor	Each	0.45	80
23-0205	12m 6A extension lead	Each	9.50	40	2N3866	NPN UHF power amplifier	Each	0.90	80
23-0210	18m 6A extension lead	Each	12.90	40	2N3903	NPN general purpose audio	Each	0.07	80
23-0215	9m 13A extension lead	Each	10.80	41	2N3904	NPN audio low noise	Each	0.07	80
23-0240	Heavy duty 18m 13A extension	Each	20.80	41	2N3905	PNP general purpose audio	Each	0.07	80
23-0250	Empty cable reel	Each	20.50	41	2N3906	PNP general purpose audio	Each	0.07	80
23-0300	Plug-in mains filter	Each	16.80	41	2N4062	PNP audio low noise	Each	0.10	80
23-0310	IEC chassis plug	Each	0.75	39	2N5457	Field effect transistor	Each	0.35	80
23-0315	110V/240V fuse drawer	Each	0.12	39	2N5458	Field effect transistor	Each	0.35	80
23-0320	115V/230V fuse drawer	Each	0.12	39	2N5459	Field effect transistor	Each	0.35	80
23-0325	220V/240V fuse drawer	Each	0.12	39	2N5485	Field effect transistor	Each	0.35	80
23-0330	Plain fuse drawer	Each	0.12	39	2N697	NPN general purpose audio	Each	0.20	80
23-0350	Boot to suit 23-0100	Each	0.18	39	2N698	NPN general purpose audio	Each	0.40	80
23-0355	Boot to suit 23-0310	Each	0.36	39	2N706A	NPN RF switch	Each	0.20	80
23-0400	Right angle socket + 2m lead	Each	1.25	39	2N918	NPN VHF amplifier	Each	0.35	80
23-0410	Right angle CEE22 + 2m lead	Each	1.95	39	30-0260	155x81x35mm hand held box	Each	2.70	19
23-0420	IEC/CEE22 2m cord set	Each	2.60	39	30-0300	55x40x25 aluminium box	Each	0.65	19
23-0450	Straight socket + 13A plug	Each	2.95	40	30-0305	75x55x25 aluminium box	Each	0.90	19
23-0455	Right angle socket + 13A plug	Each	2.95	40	30-0310	105x75x35 aluminium box	Each	1.40	19
23-0500	1A standard IEC chassis filter	Each	4.80	41	30-0315	105x125x35 aluminium box	Each	1.75	19
23-0505	3A standard IEC chassis filter	Each	4.80	41	30-0320	125x85x60 aluminium box	Each	2.40	19
23-0510	6A standard IEC chassis filter	Each	4.80	41	30-0325	155x105x45 aluminium box	Each	2.60	19
24-0100	4 way BT line plug	Each	0.16	37	30-0330	175x125x45 aluminium box	Each	3.00	19
24-0150	BT 4/500 4 way line cord	Each	1.50	37	30-0380	74x73x54 miniature case	Each	2.20	19
24-0155	BT 6/500 6 way line cord	Each	2.30	37	30-0385	104x73x54 miniature case	Each	2.55	19
24-0170	BT 4/502 4 way line cord	Each	1.20	37	30-0390	134x73x54 miniature case	Each	2.90	19
24-0175	BT 6/502 6 way line cord	Each	3.30	37	30-0400	90x45x37mm hand held box	Each	1.10	19
24-0200	BT LJU10/3A dual outlet	Each	2.60	37	30-0405	110x55x43mm hand held box	Each	1.30	19
24-0250	BT LJU2/4A master line jack	Each	2.50	37	30-0410	125x70x49mm hand held box	Each	1.70	19
24-0260	BT LJU2/6A secondary line jack	Each	1.60	37	30-0415	155x90x61mm hand held box	Each	2.20	19
24-0300	BT LJU3/4A master line jack	Each	2.60	37	30-0420	190x110x74mm hand held box	Each	2.80	19
24-0310	BT LJU3/6A secondary line jack	Each	1.60	37	30-0425	220x135x92mm hand held box	Each	3.40	19
24-0510	IDC telephone connector tool	Each	3.95	37	30-0500	71x46x22mm black ABS box	Each	0.48	19
2532A	32K 450ns EPROM	Each	4.90	99	30-0505	95x71x35mm black ABS box	Each	0.70	19
26-0090	20mm quick blow 50mA fuse	Each	0.18	52	30-0510	140x95x55mm black ABS box	Each	1.30	19
26-0100	20mm quick blow 100mA fuse	Each	0.11	52	30-0515	207x122x77mm ABS box	Each	2.90	19
26-0110	20mm quick blow 250mA fuse	Each	0.05	52	30-0520	107x53x18mm ABS box	Each	0.58	19
26-0115	20mm quick blow 500mA fuse	Each	0.05	52	30-0540	30x20x15mm black potting box	Each	0.05	19
26-0120	20mm quick blow 1A fuse	Each	0.05	52	30-0545	40x40x20mm black potting box	Each	0.10	19
26-0125	20mm quick blow 1.6A fuse	Each	0.05	52	30-0550	50x50x30mm black potting box	Each	0.14	19
26-0130	20mm quick blow 2A fuse	Each	0.05	52	30-0555	75x50x30mm potting box	Each	0.18	19
26-0135	20mm quick blow 3A fuse	Each	0.05	52	30-0560	100x60x25mm black potting box	Each	0.25	19
26-0140	20mm quick blow 4A fuse	Each	0.05	52	30-0700	57x161x96mm sloping case	Each	2.12	20
26-0150	20mm quick blow 5A fuse	Each	0.05	52	30-0705	73x215x130mm sloping case	Each	3.20	20
26-0155	20mm quick blow 6.3A fuse	Each	0.05	52	30-0900	90x41x145mm instrument case	Each	4.00	20
26-0160	20mm panel fuseholders	Each	0.20	52	30-0905	171x56x145mm instrument case	Each	5.30	20
26-0165	Chassis fuseholders	Each	0.07	52	30-0910	1x77x181mm instrument case	Each	8.60	20
26-0170	Hood for 20mm chassis holder	Each	0.04	52	30-0915	247x102x220mm instrument case	Each	10.90	20

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
30-0950	190x100x62mm console case	Each	4.55	20	34-0225	100x160 economy photoetch	Each	1.75	64
30-0955	262x160x78mm console case	Each	7.20	20	34-0230	100x220 economy photoetch	Each	2.15	64
30-0960	260x185x117mm console case	Each	8.00	20	34-0235	203x114 economy photoetch	Each	2.20	64
30-0965	400x180x85mm console case	Each	10.00	20	34-0240	233.4x220 economy photoetch	Each	4.90	64
30-0970	400x230x145mm console case	Each	12.60	20	34-0245	305x457 economy photoetch	Each	9.80	64
30-1000	114x64x30mm diecast aluminium box	Each	1.95	19	34-0250	305x457 economy photoetch	Each	12.00	64
30-1005	114x64x55mm diecast aluminium box	Each	2.35	19	34-0280	Dalo etch resist pen	Each	1.15	45
30-1010	114x89x55mm diecast aluminium box	Each	2.85	19	34-0285	Artwork spatula	Each	0.60	46
30-1015	171x121x55mm diecast aluminium box	Each	4.30	19	34-0290	Brass wire brush	Each	0.60	64
30-1020	222x146x55mm diecast aluminium box	Each	7.10	19	34-0295	Polifix block	Each	1.10	64
31-0100	15.5mm diameter cabinet foot	Each	0.05	53	34-0300	Etch resist pen	Each	0.45	44
31-0105	22mm diameter cabinet foot	Each	0.06	53	34-0305	100x160mm SS photoetch PCB	Each	1.80	64
31-0110	12.5mm square self adhesive feet	Each	0.04	53	34-0310	100x220mm SS photoetch PCB	Each	2.60	64
31-0115	20mm square self adhesive feet	Each	0.05	53	34-0315	203x114mm SS photoetch PCB	Each	2.60	64
32-0100	25mm black serrated knob	Each	0.36	51	34-0320	233.4x220mm SS photoetch PCB	Each	5.60	64
32-0105	32mm black serrated knob	Each	0.40	51	34-0325	100x160mm DS photoetch PCB	Each	2.00	64
32-0110	30mm arrow control knob	Each	0.34	51	34-0330	100x220mm DS photoetch PCB	Each	2.90	64
32-0115	30mm calibrated control knob	Each	0.34	51	34-0335	203x114mm DS photoetch PCB	Each	3.02	64
32-0120	37mm arrow control knob	Each	0.36	51	34-0340	233.4x220mm DS photoetch PCB	Each	6.40	64
32-0125	37mm calibrated control knob	Each	0.36	51	34-0345	305x457mm SS photoetch PCB	Each	11.80	64
32-0145	Red mixer control knob	Each	0.18	51	34-0350	305x457mm DS photoetch PCB	Each	13.20	64
32-0150	Yellow mixer control knob	Each	0.18	51	34-0360	203x95mm SS fibre glass board	Each	0.80	64
32-0155	Green mixer control knob	Each	0.18	51	34-0365	203x305mm SS fibre glass board	Each	2.00	64
32-0160	Grey mixer control knob	Each	0.18	51	34-0385	Seno GS etching system	Each	5.70	64
32-0165	Blue mixer control knob	Each	0.18	51	34-0390	Ferric chloride etchant	Each	1.10	64
32-0170	Black mixer control knob	Each	0.18	51	34-0395	Developer crystals	Each	0.50	64
32-0175	Black pointer control knob	Each	0.16	51	34-0400	50 0.1in uninsulated jumpers	Each	0.28	63
32-0180	Red slide control knob	Each	0.12	51	34-0401	50 0.2in red jumper wires	Each	0.40	63
32-0185	Yellow slide control knob	Each	0.12	51	34-0402	50 0.3in orange jumper wires	Each	0.40	63
32-0190	Green slide control knob	Each	0.12	51	34-0403	50 0.4in yellow jumper wires	Each	0.40	63
32-0195	Grey slide control knob	Each	0.12	51	34-0404	50 0.5in green jumper wires	Each	0.45	63
32-0200	Blue slide control knob	Each	0.12	51	34-0405	50 0.6in blue jumper wires	Each	0.48	63
32-0205	Black slide control knob	Each	0.12	51	34-0406	50 0.7in violet jumper wires	Each	0.48	63
32-0250	23mm arrow control knob	Each	0.32	51	34-0407	50 0.8in grey jumper wires	Each	0.50	63
32-0255	23mm calibrated control knob	Each	0.32	51	34-0408	50 0.9in white jumper wires	Each	0.50	63
33-0200	Pack of 100 6BA 0.25in bolts	Each	0.55	53	34-0409	50 1.0in brown jumper wires	Each	0.65	63
33-0205	Pack of 100 6BA 0.5in bolts	Each	0.50	53	34-0410	50 2.0in red jumper wires	Each	0.68	63
33-0210	Pack of 100 6BA full nuts	Each	0.45	53	34-0411	50 3.0in orange jumper wires	Each	1.00	63
33-0215	Pack of 100 6BA washers	Each	0.10	53	34-0412	50 4.0in yellow jumper wires	Each	1.05	63
33-0220	Pack of 100 6BA solder tags	Each	0.70	53	34-0413	50 5.0in green jumper wires	Each	1.10	63
33-0250	Pack of 100 4BA 0.25in bolts	Each	0.60	53	34-0450	50mm jumper link	Each	1.20	63
33-0255	Pack of 100 4BA 0.5in bolts	Each	0.70	53	34-0455	70mm jumper link	Each	1.40	63
33-0260	Pack of 100 4BA full nuts	Each	0.50	53	34-0460	100mm jumper link	Each	1.50	63
33-0265	Pack of 100 4BA washers	Each	0.12	53	34-0465	150mm jumper link	Each	1.70	63
33-0270	Pack of 100 4BA solder tags	Each	0.60	53	34-0470	200mm jumper link	Each	1.90	63
33-0500	100 No. 4 6.4mm self tap screws	Each	0.75	53	34-0495	Jumper wire kit	Each	4.55	63
33-0505	100 No. 4 9.5mm self tap screws	Each	0.65	53	34-0500	25x64mm stripboard	Each	0.16	61
33-0510	100 No. 4 12.7mm self tap screws	Each	0.65	53	34-0505	64x95mm stripboard	Each	0.50	61
33-0515	100 No. 6 6.4mm self tap screws	Each	0.75	53	34-0515	95x127mm stripboard	Each	0.95	61
33-0520	100 No. 6 9.5mm self tap screws	Each	0.65	53	34-0535	95x432mm stripboard	Each	3.75	61
33-0525	100 No. 6 12.7mm self tap screws	Each	0.70	53	34-0540	119x455mm stripboard	Each	4.50	61
33-0530	100 No. 10 9.5mm self tap screws	Each	1.20	53	34-0585	95x127mm matrix board	Each	0.70	61
33-0535	100 No. 10 12.7mm self tap screws	Each	1.20	53	34-0590	95x432mm matrix board	Each	2.60	61
33-0540	100 No. 10 19.1mm self tap screws	Each	1.30	53	34-0595	119x455mm matrix board	Each	3.25	61
33-0545	100 No. 10 25.4mm self tap screws	Each	1.60	53	34-0600	Stripboard cutter	Each	1.30	61
33-0550	100 No. 6 19.1mm self tap screws	Each	0.85	53	34-0610	Pack of 100 SS terminal pins	Each	0.35	61
33-0600	100 red sleeve 3.2mm eyelets	Each	1.50	42	34-0615	Pack of 100 DS terminal pins	Each	0.65	61
33-0605	100 red sleeve 3.7mm eyelets	Each	1.80	42	34-0630	Box of 500 track pins	Each	3.90	61
33-0610	100 red sleeve 4.3mm eyelets	Each	1.80	42	34-0635	Box of 2500 track pins	Each	15.80	61
33-0615	100 red sleeve 5.3mm eyelets	Each	2.00	42	34-0640	Track pin insertion tool	Each	17.70	61
33-0620	100 red sleeve 3.7mm spade	Each	1.60	42	34-0642	RS232 stand alone connector	Each	6.80	63
33-0625	100 red sleeve 4.3mm spade	Each	1.90	42	34-0645	28 pin PLCC test board	Each	5.30	63
33-0630	100 red sleeve 5.3mm spade	Each	2.20	42	34-0646	44 pin PLCC test board	Each	7.20	63
33-0635	100 red sleeve 0.11in receptacle	Each	2.20	42	34-0647	68 pin PLCC test board	Each	10.70	63
33-0640	100 red sleeve 0.25in receptacle	Each	2.50	42	34-0650	Protobloc 1 breadboard	Each	1.90	61
33-0900	100 blue sleeve 3.2mm eyelets	Each	1.60	42	34-0655	Protobloc 2 breadboard	Each	3.15	62
33-0905	100 blue sleeve 3.7mm eyelets	Each	1.90	42	34-0660	Protobloc 2A breadboard	Each	5.50	62
33-0910	100 blue sleeve 4.3mm eyelets	Each	1.90	42	34-0665	Protobloc 3 breadboard	Each	18.20	62
33-0915	100 blue sleeve 5.3mm eyelets	Each	2.00	42	34-0670	2T socket set	Each	2.10	62
33-0920	100 blue sleeve 6.4mm eyelets	Each	2.20	42	34-0675	2D socket set	Each	0.60	62
33-0925	100 blue sleeve 3.7mm spade	Each	1.60	42	34-0680	Protobloc 4 breadboard	Each	23.90	62
33-0930	100 blue sleeve 4.3mm spade	Each	1.90	42	34-0682	Protobloc 5 breadboard	Each	33.50	63
33-0935	100 blue sleeve 5.3mm spade	Each	2.20	42	34-0685	Kit A PCB production kit	Each	21.30	65
33-0940	100 blue 0.11in receptacle	Each	2.30	42	34-0690	Kit B PCB production kit	Each	82.50	65
33-0945	100 blue 0.25in receptacle	Each	2.60	42	34-0695	Kit C PCB production kit	Each	145.00	65
33-1200	100 yellow sleeve 3.7mm eyelet	Each	2.90	42	34-0700	229x152mm exposure unit	Each	61.50	67
33-1205	100 yellow sleeve 4.3mm eyelet	Each	3.20	42	34-0705	Large UV exposure unit	Each	152.00	68
33-1210	100 yellow sleeve 5.3mm eyelet	Each	3.20	42	34-0730	Tubes in lid UV unit	Each	198.00	68
33-1215	100 yellow sleeve 6.4mm eyelet	Each	3.80	42	34-0735	Vacuum UV exposure unit	Each	380.00	68
33-1220	100 yellow sleeve 4.3mm spades	Each	3.20	42	34-0740	Double sided vacuum UV unit	Each	495.00	68
33-1225	100 yellow sleeve 5.3mm spades	Each	3.20	42	34-0745	Polypropylene etching tray	Each	1.10	64
33-1230	100 yellow 0.25in receptacle	Each	3.20	42	34-0755	Bubble etch tank system	Each	69.50	66
33-2020	5.0mm standard PCB pillar	Each	0.02	53	34-0760	PCB bubble etch tank	Each	162.00	66
33-2025	9.6mm standard PCB pillar	Each	0.03	53	34-0761	Replacement heater	Each	23.50	66
33-2030	12.7mm standard PCB pillar	Each	0.03	53	34-0762	Replacement lead/basket	Each	5.00	66
34-0050	SN110 seno developer	Each	4.65	67	34-0764	Bubble etch/spray wash tank	Each	202.00	66
34-0055	SN111 seno soft developer	Each	4.65	67	34-0765	PCB tri-tank system	Each	330.00	66
34-0060	SN100 seno photo-resist	Each	5.85	67	34-0770	Universal tank	Each	132.00	66
34-0065	SN120 seno resist strip	Each	4.65	67	34-0775	Immerse tin crystals	Each	8.90	65
34-0070	SN130 seno de-ox	Each	4.65	67	34-0778	Universal solvent	Each	1.30	65
34-0090	Seno PCB workstation	Each	45.00	67	34-0780	PCB resist strip solution	Each	13.05	65
34-0180	EC801 panel transfer	Each	0.50	45	34-0785	PCB etchant solution	Each	9.00	65
34-0185	EC802 panel transfer	Each	0.50	45	34-0790	PCB developer solution	Each	12.25	65
34-0190	EC803 panel transfer	Each	0.50	45	34-0795	Small drafting pack	Each	1.90	46
34-0195	EC804 panel transfer	Each	0.50	45	34-0798	Large drafting pack	Each	3.20	46
34-0200	Electronics drawing template	Each	2.50	47	34-0800	100x160mm SS fibre glass board	Each	0.70	63
34-0205	100x160 economy photoetch	Each	1.45	64	34-0805	233.4x160mm SS fibre glass board	Each	1.20	63
34-0210	100x220 economy photoetch	Each	1.80	64	34-0810	100x220mm SS fibre glass board	Each	0.85	63
34-0215	203x114 economy photoetch	Each	1.85	64	34-0815	233.4x220mm SS fibre glass board	Each	1.60	63
34-0220	233.4x220 economy photoetch	Each	4.00	64	34-0820	100x160mm DS fibre glass board	Each	0.75	63

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
34-0825	233.4x160mm DS fibre glass board	Each	1.30	63	34-2400	1:1 PCB design template	Each	10.90	47
34-0830	100x220mm DS fibre glass board	Each	0.95	63	34-2405	2:1 PCB design template	Each	16.90	47
34-0835	233.4x220mm DS fibre glass board	Each	1.75	63	34-2430	1139 logic template	Each	5.10	47
34-0840	203x95mm DS fibre glass board	Each	0.90	63	34-2450	Circle template	Each	4.50	47
34-0845	203x305mm DS fibre glass board	Each	2.20	63	34-2600	Mars 661A3 A3 drawing board	Each	20.60	48
34-0850	1.5mm round pads PCB transfer	Each	0.50	45	34-2605	Mars 960 A2 drawing board	Each	40.90	48
34-0855	2.5mm round pads PCB transfer	Each	0.50	45	34-2650	Artwork light box	Each	58.00	48
34-0860	3.5mm round pads PCB transfer	Each	0.50	45	34-3500	PCSS-1 PCB assembly jig	Each	49.50	68
34-0865	4.5mm round pads PCB transfer	Each	0.50	45	34-3505	PCSS-4 PCB assembly jig	Each	69.50	68
34-0880	3.0mm teardrop PCB transfer	Each	0.50	45	34-4000	0.015in precision drafting tape	Each	0.95	46
34-0885	4.0mm teardrop PCB transfer	Each	0.50	45	34-4005	0.02in precision drafting tape	Each	0.95	46
34-0890	3.0mm teardrop PCB transfer	Each	0.50	45	34-4010	0.025in precision drafting tape	Each	0.95	46
34-0895	4.0mm teardrop PCB transfer	Each	0.50	45	34-4015	0.031in precision drafting tape	Each	0.95	46
34-0900	3.0mm oval pad PCB transfer	Each	0.50	45	34-4020	0.04in precision drafting tape	Each	0.95	46
34-0905	4.0mm oval pad PCB transfer	Each	0.50	45	34-4025	0.05in precision drafting tape	Each	0.95	46
34-0910	0.5mm straight PCB transfer	Each	0.50	45	34-4030	0.062in precision drafting tape	Each	0.95	46
34-0915	0.8mm straight PCB transfer	Each	0.50	45	34-4040	0.08in precision drafting tape	Each	1.00	46
34-0920	1.0mm straight PCB transfer	Each	0.50	45	34-4050	0.1in precision drafting tape	Each	1.00	46
34-0925	1.2mm straight PCB transfer	Each	0.50	45	34-4055	0.125in precision drafting tape	Each	1.00	46
34-0930	2.0mm straight PCB transfer	Each	0.50	45	34-4105	1.91mm precision transfer film	Each	4.50	46
34-0935	3.0mm straight PCB transfer	Each	0.50	45	34-4110	2.03mm precision transfer film	Each	4.50	46
34-0940	0.8mm tees PCB transfer	Each	0.50	45	34-4115	2.54mm precision transfer film	Each	4.50	46
34-0945	1.0mm tees PCB transfer	Each	0.50	45	34-4120	2.54mm precision transfer film	Each	4.50	46
34-0950	2.0mm tees PCB transfer	Each	0.50	45	34-4125	3.05mm precision transfer film	Each	4.50	46
34-0960	0.8mm curves PCB transfer	Each	0.50	45	34-4160	3.96mm precision transfer film	Each	4.50	46
34-0965	1.0mm curves PCB transfer	Each	0.50	45	34-4165	4.06mm precision transfer film	Each	4.50	46
34-0970	Rectangular dil pad transfer	Each	0.50	45	34-4195	Oval pad precision transfer film	Each	4.50	46
34-0975	Oval dil pads PCB transfer	Each	0.50	45	34-4200	1:1 14 pin precision transfer film	Each	4.50	46
34-0980	Interleaved dil pads transfer	Each	0.50	45	34-4205	2:1 14 pin precision transfer film	Each	4.50	46
34-0990	Etch resist transfer pack	Each	5.90	45	34-4210	1:1 16 pin precision transfer film	Each	4.50	46
34-1050	0.3mm fineline clutch pencil	Each	1.50	43	34-4215	2:1 16 pin precision transfer film	Each	4.50	46
34-1055	0.5mm fineline clutch pencil	Each	1.30	43	34-4220	1:1 24 pin precision transfer film	Each	4.50	46
34-1060	0.7mm fineline clutch pencil	Each	1.30	43	34-4225	2:1 24 pin precision transfer film	Each	4.50	46
34-1080	0.5mm retractable pencil	Each	1.40	43	34-4230	1:1 28 pin precision transfer film	Each	4.50	46
34-1200	0.3mm HB replacement leads	Tube	0.85	43	34-4235	2:1 28 pin precision transfer film	Each	4.50	46
34-1205	0.3mm H replacement leads	Tube	0.85	43	35-0100	Miniature 6V buzzer	Each	0.50	50
34-1210	0.3mm 2H replacement leads	Tube	0.85	43	35-0105	Miniature 12V buzzer	Each	0.50	50
34-1215	0.3mm 3H replacement leads	Tube	0.85	43	35-0110	Sounder	Each	0.45	49
34-1220	0.5mm HB replacement leads	Tube	0.48	43	35-0115	Miniature 12V piezo buzzer	Each	0.50	49
34-1225	0.5mm H replacement leads	Tube	0.48	43	35-0125	8 ohm mini speaker	Each	0.50	50
34-1230	0.5mm 2H replacement leads	Tube	0.48	43	35-0130	Miniature 2.5in 8 ohm speaker	Each	0.50	50
34-1235	0.5mm 3H replacement leads	Tube	0.48	43	35-0135	Miniature 2.5in 64 ohm speaker	Each	0.55	50
34-1240	0.7mm HB replacement leads	Tube	0.30	43	35-0145	6x4in speaker	Each	2.20	50
34-1245	0.7mm H replacement leads	Tube	0.30	43	35-0160	Magnetic 8 ohm earphone	Each	0.15	50
34-1250	0.7mm 2H replacement leads	Tube	0.30	43	35-0165	Crystal 2m earphone	Each	0.50	50
34-1255	0.7mm 3H replacement leads	Tube	0.30	43	35-0170	Crystal microphone insert	Each	0.45	50
34-1270	Rotary action lead pointer	Each	2.20	43	35-0175	Ultrasonic transmitter	Each	1.80	50
34-1275	2mm clutch pencil	Each	1.55	43	35-0180	Ultrasonic receiver	Each	1.80	50
34-1280	HB replacement leads	Tube	1.75	43	35-0200	Subminiature transducer (leads)	Each	0.40	49
34-1285	H replacement leads	Tube	1.75	43	35-0205	Subminiature transducer (PCB)	Each	0.40	49
34-1290	2H replacement leads	Tube	1.75	43	35-0210	Piezo transducer (leads)	Each	0.45	49
34-1295	3H replacement leads	Tube	1.75	43	35-0215	Piezo transducer (PCB)	Each	0.45	49
34-1300	Graphite eraser	Each	0.30	43	35-0250	6V PCB transistor buzzer	Each	0.55	50
34-1305	Ink eraser	Each	0.45	43	35-0255	12V PCB transistor buzzer	Each	0.55	50
34-1400	0.25mm Marsmatic 700 pen	Each	5.70	44	36-0100	T018 push fit heatsink	Each	0.17	51
34-1405	0.35mm Marsmatic 700 pen	Each	5.70	44	36-0105	T05 push fit heatsink	Each	0.16	51
34-1410	0.5mm Marsmatic pen	Each	5.70	44	36-0110	Clip on T0220 heatsink	Each	0.16	51
34-1415	0.7mm Marsmatic 700 pen	Each	5.70	44	36-0115	Bolt on T0220 heatsink	Each	0.15	51
34-1430	0.25mm replacement point	Each	3.10	44	36-0120	Compact T03 heatsink	Each	0.35	52
34-1435	0.35mm replacement point	Each	3.10	44	36-0125	Heavy duty heatsink	Each	4.90	52
34-1440	0.5mm replacement point	Each	3.10	44	37-0100	Miniature DC motor	Each	0.30	53
34-1445	0.7mm replacement point	Each	3.10	44	37-0110	Medium torque DC motor	Each	0.40	54
34-1490	Discontinued				37-0120	High torque DC motor	Each	0.50	54
34-1495	Marsmatic 700 pen set	Each	20.90	44	37-0200	Pack of 50 9mm miniature gears	Each	0.65	54
34-1500	0.25mm Marsmatic 709 pen	Each	14.50	44	37-0205	Pack of 50 16mm miniature gear	Each	0.85	54
34-1505	0.35mm Marsmatic 709 pen	Each	12.20	44	37-0210	Pack of 50 22mm miniature gear	Each	1.10	54
34-1510	0.5mm Marsmatic pen	Each	12.20	44	37-0215	Pack of 50 31mm miniature gear	Each	1.50	54
34-1515	0.7mm Marsmatic pen	Each	12.20	44	37-0220	Pack of 50 16mm miniature gear	Each	0.85	54
34-1530	0.25mm replacement point	Each	11.90	44	37-0225	Pack of 50 22mm miniature gear	Each	1.10	54
34-1535	0.35mm replacement point	Each	10.00	44	37-0300	Pack of 50 6mm worm gears	Each	0.70	54
34-1540	0.5mm replacement point	Each	10.00	44	37-0305	Pack of 50 10mm worm gears	Each	0.95	54
34-1545	0.7mm replacement point	Each	10.00	44	37-0350	Pack of 50 steel shafts	Each	0.50	54
34-1600	745R9 ink for paper	Each	0.98	44	38-0200	10 T03 mounting kits	Each	0.60	53
34-1605	745M2 ink for film or paper	Each	1.16	44	38-0205	10 T066 mounting kits	Each	0.60	53
34-1610	Technical pen cleaner	Each	1.78	44	38-0210	10 T0220 mounting kits	Each	0.45	53
34-1650	Yellow highlighter	Each	0.65	44	38-0215	10 M13055 mounting kits	Each	0.45	53
34-1655	Green highlighter	Each	0.65	44	40-0100	Red LES panel lampholder	Each	0.30	59
34-1660	Pink highlighter	Each	0.65	44	40-0105	Blue LES panel lampholder	Each	0.30	59
34-1680	Yellow/red highlighter pen	Each	0.80	44	40-0110	Green LES panel lampholder	Each	0.30	59
34-1685	Yellow/blue highlighter pen	Each	0.80	44	40-0115	Orange LES panel lampholder	Each	0.30	59
34-1690	Yellow/green highlighter pen	Each	0.80	44	40-0120	Miniature 6V LES lamp	Each	0.16	59
34-1700	0.1mm black ultra-fine pen	Each	0.50	43	40-0125	Miniature 12V LES lamp	Each	0.16	59
34-1705	0.1mm blue ultra-fine pen	Each	0.50	43	4000B	Dual 3-input NOR gate + invert	Each	0.15	94
34-1710	0.1mm red ultra-fine pen	Each	0.50	43	4001B	Quad 2-input NOR gate	Each	0.15	94
34-1720	0.3mm black ultra-fine pen	Each	0.50	43	4002B	Dual 4-input NOR gate	Each	0.15	94
34-1725	0.3mm blue ultra-fine pen	Each	0.50	43	4006B	18 stage static shift register	Each	0.40	94
34-1730	0.3mm red ultra-fine pen	Each	0.50	43	4007UB	Dual compl. pair + inverter	Each	0.15	94
34-1740	0.5mm black ultra-fine pen	Each	0.50	43	4008B	4-bit binary full adder	Each	0.40	94
34-1745	0.5mm blue ultra-fine pen	Each	0.50	43	4009UB	Hex inverter/buffer	Each	0.25	94
34-1750	0.5mm red ultra-fine pen	Each	0.50	43	40109B	Quad level shifter	Each	1.30	94
34-2000	Staedtler 551 compass	Each	5.50	46	4010B	Hex buffer	Each	0.25	94
34-2005	Staedtler 553 compass	Each	9.90	46	4011B	Quad 2-input NAND gate	Each	0.15	94
34-2100	Staedtler geometry set	Each	1.95	47	4012B	Quad 4-input NAND gate	Each	0.15	94
34-2200	300mm Linex super ruler	Each	1.25	47	4013B	Quad D-type flip-flop	Each	0.22	94
34-2205	400mm Linex super ruler	Each	2.00	47	4014B	8-bit shift register	Each	0.20	94
34-2300	2.5mm lettering guide	Each	2.60	47	4015B	Dual 4-bit shift register	Each	0.20	94
34-2305	3.5mm lettering guide	Each	2.60	47	40163B	Full sync. binary counter	Each	0.40	94
34-2310	5.0mm lettering guide	Each	2.70	47	4016B	Quad bilateral switches	Each	0.20	94
34-2315	7.0mm lettering guide	Each	2.70	47	40173B	Dual 2-wide 2-in AND-OR-INVERT	Each	0.40	94
34-2350	Lettering joint	Each	1.15	47	40175B	Quad D-type flip-flop	Each	0.40	94

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Code	Product Description	Unit	Price 1+	Page No.	Code	Product Description	Unit	Price 1+	Page No.
4017B	Decade counter/diver	Each	0.32	94	4553B	3-digit BCD counter	Each	1.30	94
4018B	Presetable divide by N counter	Each	0.32	94	4555B	Dual binary-to-1 of 4 decoder	Each	0.40	94
40193B	Binary up/down counter	Each	0.55	94	4556B	Dual binary-to-1 of 4 decoder (inv)	Each	0.38	94
4019B	Quad 2-input multiplexers	Each	0.28	94	4559B	Successive approximation register	Each	3.90	94
4020B	14 stage binary counter	Each	0.33	94	4560B	BCD adder	Each	1.20	94
4021B	8-bit shift register	Each	0.40	94	4584B	Hex schmitt trigger (equiv 40106B)	Each	0.25	94
4022B	Divide by 8 counter/divider	Each	0.36	94	4585B	4-bit magnitude comparator	Each	0.50	94
4023B	Triple 3-input NAND gates	Each	0.15	94	4724B	8-bit addressable latch	Each	0.90	94
4024B	7 stage binary counter	Each	0.26	94	48-0100	0-50µA 2in panel meter	Each	4.50	60
4025B	Triple 3-input NOR gates	Each	0.15	94	48-0105	0-100µA 2in panel meter	Each	4.50	60
4026B	Decade counter with decoded 7 seg output	Each	0.65	94	48-0110	0-500µA 2in panel meter	Each	4.50	60
4027B	Dual J-K master-slave flip-flop	Each	0.20	94	48-0115	0-1mA 2in panel meter	Each	4.50	60
4028B	BCD to decimal decoder	Each	0.30	94	48-0120	0-10mA 2in panel meter	Each	4.50	60
4029B	Syn presetable binary/decade/counter	Each	0.36	94	48-0125	0-50mA 2in panel meter	Each	4.50	60
4030UB	Quad EXCLUSIVE-OR gate	Each	0.15	94	48-0130	0-100mA 2in panel meter	Each	4.50	60
4031B	64 stage static shift register	Each	1.25	94	48-0135	0-500mA 2in panel meter	Each	4.50	60
4034B	MSI 8 stage static shift register	Each	1.45	94	48-0140	0-1A 2in panel meter	Each	4.50	60
4036UB	4 word×8 bit RAM	Each	2.70	94	48-0145	VU 2in panel meter	Each	4.50	60
4039UB	4 word×8 bit RAM	Each	2.70	94	48-0150	0-300V AC 2in panel meter	Each	4.50	60
4040B	12 stage ripple carry binary counter	Each	0.35	94	48-0155	0-50V AC 2in panel meter	Each	4.50	60
4041UB	Quad true/complement buffers	Each	0.40	94	48-0160	0-25V DC 2in panel meter	Each	4.50	60
4042B	Quad clocked D-type latches	Each	0.26	94	48-0165	0-30V DC 2in panel meter	Each	4.50	60
4043B	Quad NOR R/S latches	Each	0.40	94	55-0100	Miniature 3mm red LED	Each	0.06	55
4044B	Quad NAND R/S latches	Each	0.40	94	55-0105	Miniature 3mm green LED	Each	0.08	55
4046B	Micropower phase locked loop	Each	0.50	94	55-0110	Miniature 3mm yellow LED	Each	0.08	55
4047B	Monostable/astable	Each	0.45	94	55-0115	Standard 5mm red LED	Each	0.06	55
4048B	Expandable 8-input gate	Each	0.35	94	55-0120	Standard 5mm green LED	Each	0.08	55
4049UB	Hex inverter/buffer	Each	0.18	94	55-0125	Standard 5mm yellow LED	Each	0.08	55
4050B	Hex buffer	Each	0.18	94	55-0130	5mm 250mcd superbright LED	Each	0.14	55
4051B	Analogue multiplexer/demultiplexer	Each	0.35	94	55-0135	5mm superbright green LED	Each	0.14	55
4052B	Analogue multiplexer/demultiplexer	Each	0.35	94	55-0140	Flashing 5mm red LED	Each	0.30	55
4053B	Analogue multiplexer/demultiplexer	Each	0.35	94	55-0150	3mm high intensity red LED	Each	0.11	55
4054B	4 line LCD driver	Each	0.70	94	55-0155	5mm high intensity red LED	Each	0.11	55
4055B	BCD to 7 segment LCD decoder/divider	Each	0.70	94	55-0160	Panel clip to suit 3mm LED	Each	0.03	55
4059UB	Programmable divide by N counter	Each	3.70	94	55-0165	Panel clip to suit 5mm LED	Each	0.03	55
4060B	12 stage ripple carry binary counter	Each	0.45	94	55-0170	5mm tri-colour LED	Each	0.18	55
4063B	4-bit magnitude comparator	Each	0.67	94	55-0175	2×5mm rectangular red LED	Each	0.10	56
4066B	Quad bilateral switches	Each	0.20	94	55-0180	2×5mm rectangular green LED	Each	0.12	56
4067B	16 channel multiplexer/demultiplexer	Each	1.80	94	55-0185	2×5mm rectangular yellow LED	Each	0.12	56
4068B	8-input NAND gate	Each	0.15	94	55-0190	Red 10 bar DIL LED array	Each	0.95	56
4069UB	Hex inverters	Each	0.14	94	55-0195	Green 10 bar DIL LED array	Each	1.00	56
4070UB	Quad 2-input exclusive OR gate	Each	0.15	94	55-0250	5mm bezel panel clip	Each	0.03	55
4071B	Quad 2-input OR buffer/gate	Each	0.15	94	57-0100	0.3in common anode display	Each	0.80	56
4072B	Dual 4-input OR gate	Each	0.15	94	57-0105	0.3in common cathode display	Each	0.80	56
4073B	Triple 3-input AND gate	Each	0.15	94	57-0110	0.5in common anode display	Each	0.85	56
4075B	Triple 3-input OR gate	Each	0.15	94	57-0115	0.5in common cathode display	Each	0.85	56
4076B	Quad D-type flip-flop	Each	0.45	94	57-0120	0.56in common anode display	Each	0.85	57
4077B	Quad EXCLUSIVE NOR gate	Each	0.29	94	57-0125	0.56in common cathode display	Each	0.85	57
4081B	Quad 2-input AND gate	Each	0.14	94	57-0130	0.56in dual common anode display	Each	1.20	57
4082B	Dual 4-input AND gate	Each	0.15	94	57-0135	0.56in dual common cathode display	Each	1.20	57
4085B	Dual 2-wide 2-input AND-OR-INVERT	Each	0.33	94	57-0155	2in red alphanumeric display	Each	3.20	57
4086B	4-wide 2-input AND-OR-INVERT	Each	0.36	94	57-0160	3.5 digit LCD display	Each	4.80	57
4089B	Binary rate multiplier	Each	1.10	94	57-0165	4 digit LCD display	Each	4.80	57
4093B	Quad 2-input NAND schmitt trigger	Each	0.18	94	57-0170	LCD bezel with PCB	Each	4.40	57
4094B	8 stage shift + store bus register	Each	0.55	94	57-0175	LCD bezel	Each	1.40	57
4095B	J-K flip-flop	Each	0.80	94	58-0100	TIL32 Infra red source	Each	0.25	58
4097B	8 channel differential multiplexer	Each	1.30	94	58-0105	TIL78 Infra red sensor	Each	0.25	58
4098B	Retriggerable dual monostable	Each	0.70	94	58-0110	TIL38 Infra red emitter	Each	0.25	58
4099B	8-bit addressable latch	Each	0.48	94	58-0115	TIL100 Infra red sensor	Each	0.65	58
41-0090	MES lamp base	Each	0.06	59	58-0130	ORP12 light dependent resistor	Each	0.60	58
41-0100	MES battenholder	Each	0.20	59	58-0140	IS-74 single optoisolator	Each	0.35	58
41-0105	Miniature 6V 0.06A MES lamp	Each	0.09	60	58-0145	ISD-74 dual optoisolator	Each	0.80	58
41-0110	Miniature 12V 2.2W MES lamp	Each	0.09	60	58-0150	ISO-74 quad optoisolator	Each	1.40	58
41-0120	Miniature 2.5V 0.2A MES lamp	Each	0.10	60	58-0180	H11C4 opto isolated SCR	Each	1.50	58
41-0125	Miniature 3.5V 0.3A MES lamp	Each	0.10	60	58-0185	MOC3020 opto isolated triac	Each	0.90	58
41-0150	Miniature 6V 60mA w/e lamp	Each	0.15	60	58-0300	Slotted opto switch	Each	0.75	59
41-0160	Red MES lampholder	Each	0.42	60	60-0120	6V DPDT 1A ultraminiature relay	Each	1.20	70
41-0165	Orange MES lampholder	Each	0.42	60	60-0125	12V DPDT 1A ultraminiature relay	Each	1.20	70
41-0170	Green MES lampholder	Each	0.42	60	60-0160	6V SPDT 10A miniature relay	Each	1.10	71
41-0175	Blue MES lampholder	Each	0.42	60	60-0165	12V SPDT 10A miniature relay	Each	1.10	71
4116N4	16K 250ns dynamic RAM	Each	0.70	100	60-0170	6V DPDT 5A miniature relay	Each	1.30	71
41256	256K 150ns dynamic RAM	Each	POA	100	60-0175	12V DPDT 5A miniature relay	Each	1.30	71
4164-15	64K 150ns dynamic RAM	Each	1.80	100	60-0250	6V SPDT 16A miniature relay	Each	1.40	71
42-0110	Miniature red neon	Each	0.28	59	60-0255	12V SPDT 16A miniature relay	Each	1.40	71
42-0115	Miniature amber neon	Each	0.28	59	60-0300	6V SPDT 3A ultraminiature relay	Each	0.50	70
42-0150	Red panel mounting neon	Each	0.30	59	60-0310	12V SPDT 3A ultraminiature relay	Each	0.50	70
42-0155	Amber panel mounting neon	Each	0.30	59	60-0350	6V SPDT 5A miniature relay	Each	0.55	70
4502B	Strobed hex inverter/buffer	Each	0.45	94	60-0360	12V SPDT 5A miniature relay	Each	0.55	70
4503B	Tri-state hex buffer	Each	0.45	94	60-0400	6V DPDT 5A miniature relay	Each	0.90	71
4507B	Quad exclusive or gate	Each	0.45	94	60-0410	12V DPDT 5A miniature relay	Each	0.90	71
4508B	Dual 4-bit latch	Each	0.90	94	61-0170	GL16 bead type thermistor	Each	3.50	73
4510B	BCD up/down counter	Each	0.35	94	61-0175	RA53 bead type thermistor	Each	4.30	73
4511B	BCD to 7 segment decoder/divider	Each	0.45	94	61-0200	4K7 NTC disc thermistor	Each	0.12	73
4512B	8 channel data selector	Each	0.45	94	61-0205	22K NTC disc thermistor	Each	0.12	73
4514B	4-bit latch/4 to 16 line high	Each	0.80	94	61-0210	47K NTC disc thermistor	Each	0.12	73
4515B	4-bit latch/4 to 16 line low	Each	0.80	94	61-0220	300 ohms NTC disc thermistor	Each	0.12	73
4516B	Binary up/down counter	Each	0.35	94	61-0225	1K NTC disc thermistor	Each	0.12	73
4518B	Dual BCD up counter	Each	0.35	94	6116LP3	16K 150ns LP static RAM	Each	POA	100
4520B	Dual binary up counter	Each	0.35	94	62-0100	0.22 ohms 2.5W wirewound	Each	0.12	72
4521B	24 stage frequency divider	Each	1.00	94	62-0105	0.33 ohms 2.5W wirewound	Each	0.12	72
4526B	Divide by N counter (binary)	Each	0.40	94	62-0110	0.47 ohms 2.5W wirewound	Each	0.12	72
4527B	BCD rate/multiplier	Each	0.45	94	62-0115	1 ohm 2.5W wirewound	Each	0.12	72
4528B	Retriggerable dual monostable	Each	0.40	94	62-0120	2.2 ohms 2.5W wirewound	Each	0.12	72
4529B	Dual 4 channel data selector	Each	0.60	94	62-0125	4.7 ohms 2.5W wirewound	Each	0.12	72
4532B	8-input priority encoder	Each	0.50	94	62-0130	10 ohms 2.5W wirewound	Each	0.12	72
4534B	Real time 5-decade counter	Each	2.60	94	62-0135	22 ohms 2.5W wirewound	Each	0.12	72
4538B	Dual monostable	Each	0.45	94	62-0140	47 ohms 2.5W wirewound	Each	0.18	72
4543B	BCD to 7 segment latch/decoder for LCD	Each	0.50	94	62-0145	100 ohms 2.5W wirewound	Each	0.18	72
4549B	Successive approximation register	Each	3.90	94	62-0150	150 ohms 2.5W wirewound	Each	0.18	72
					62-0155	220 ohms 2.5W wirewound	Each	0.18	72

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Code	Product Description	Unit	Price 1+	Page No.	Code	Product Description	Unit	Price 1+	Page No.
62256	256k 150ns static RAM (D43256)	Each	POA	100	65C02	8-bit CPU 2MHz	Each	4.50	98
6264LP15	64k 150ns static RAM-5565PL15	Each	POA	100	65C21	Peripheral interface adaptor	Each	3.90	98
63-0100	100 ohms SIL resistor	Each	0.10	73	65C22	Versatile interface adaptor	Each	3.70	98
63-0105	680 ohms SIL resistor	Each	0.10	73	66-0100	5k LIN slide potentiometer	Each	0.80	74
63-0110	1k SIL resistor	Each	0.10	73	66-0105	10k LIN slide potentiometer	Each	0.80	74
63-0115	2k2 SIL resistor	Each	0.10	73	66-0110	25k LIN slide potentiometer	Each	0.80	74
63-0120	4k7 SIL resistor	Each	0.10	73	66-0115	50k LIN slide potentiometer	Each	0.80	74
63-0125	10k SIL resistor	Each	0.10	73	66-0120	100k LIN slide potentiometer	Each	0.80	74
63-0200	150 ohms 8 commoned SIL resistor	Each	0.11	73	66-0125	250k LIN slide potentiometer	Each	0.80	74
63-0210	330 ohms 8 commoned SIL resistor	Each	0.11	73	66-0130	500k LIN slide potentiometer	Each	0.80	74
63-0215	1k 8 commoned SIL resistor	Each	0.11	73	66-0135	5k LOG slide potentiometer	Each	0.80	74
63-0220	2k2 8 commoned SIL resistor	Each	0.11	73	66-0140	10k LOG slide potentiometer	Each	0.80	74
63-0225	4k7 8 commoned SIL resistor	Each	0.11	73	66-0145	25k LOG slide potentiometer	Each	0.80	74
63-0230	10k 8 commoned SIL resistor	Each	0.11	73	66-0150	50k LOG slide potentiometer	Each	0.80	74
63-0235	22k 8 commoned SIL resistor	Each	0.11	73	66-0155	100k LOG slide potentiometer	Each	0.80	74
63-0240	47k 8 commoned SIL resistor	Each	0.11	73	66-0160	250k LOG slide potentiometer	Each	0.80	74
63-0245	100k 8 commoned SIL resistor	Each	0.11	73	66-0165	500k LOG slide potentiometer	Each	0.80	74
65-0100	1k LIN potentiometers	Each	0.38	73	67-0100	100 ohms carbon preset potentiometer	Each	0.06	74
65-0105	4k7 LIN potentiometer	Each	0.38	73	67-0105	220 ohms carbon preset potentiometer	Each	0.06	74
65-0110	10k LIN potentiometer	Each	0.38	73	67-0110	470 ohms carbon preset potentiometer	Each	0.06	74
65-0115	22k LIN potentiometer	Each	0.38	73	67-0115	1k carbon preset potentiometer	Each	0.06	74
65-0120	47k LIN potentiometer	Each	0.38	73	67-0120	2k2 carbon preset potentiometer	Each	0.06	74
65-0125	100k LIN potentiometer	Each	0.38	73	67-0125	4k7 carbon preset potentiometer	Each	0.06	74
65-0130	220k LIN potentiometer	Each	0.38	73	67-0130	10k carbon preset potentiometer	Each	0.06	74
65-0135	470k LIN potentiometer	Each	0.38	73	67-0135	22k carbon preset potentiometer	Each	0.06	74
65-0140	1M LIN potentiometer	Each	0.38	73	67-0140	47k carbon preset potentiometer	Each	0.06	74
65-0145	2M2 LIN potentiometer	Each	0.38	73	67-0145	100k carbon preset potentiometer	Each	0.06	74
65-0150	1k LOG potentiometer	Each	0.38	73	67-0150	220k carbon preset potentiometer	Each	0.06	74
65-0155	4k7 LOG potentiometer	Each	0.38	73	67-0155	470k carbon preset potentiometer	Each	0.06	74
65-0160	10k LOG potentiometer	Each	0.38	73	67-0160	1M carbon preset potentiometer	Each	0.06	74
65-0165	22k LOG potentiometer	Each	0.38	73	67-0200	100 ohms enclosed preset	Each	0.08	74
65-0170	47k LOG potentiometer	Each	0.38	73	67-0205	220 ohms enclosed preset	Each	0.08	74
65-0175	100k LOG potentiometer	Each	0.38	73	67-0210	470 ohms enclosed preset	Each	0.08	74
65-0180	220k LOG potentiometer	Each	0.38	73	67-0215	1K enclosed preset	Each	0.08	74
65-0185	470k LOG potentiometer	Each	0.38	73	67-0220	2K2 enclosed potentiometer	Each	0.08	74
65-0190	1M LOG potentiometer	Each	0.38	73	67-0225	4K7 enclosed potentiometer	Each	0.08	74
65-0195	2M2 LOG potentiometer	Each	0.38	73	67-0230	10K enclosed potentiometer	Each	0.08	74
65-0200	1k LIN stereo potentiometer	Each	1.10	74	67-0235	22K enclosed potentiometer	Each	0.08	74
65-0205	4k7 LIN stereo potentiometer	Each	1.10	74	67-0240	47K enclosed potentiometer	Each	0.08	74
65-0210	10k LIN stereo potentiometer	Each	1.10	74	67-0245	100K enclosed potentiometer	Each	0.08	74
65-0215	22k LIN stereo potentiometer	Each	1.10	74	67-0250	220K enclosed potentiometer	Each	0.08	74
65-0220	47k LIN stereo potentiometer	Each	1.10	74	67-0255	470K enclosed potentiometer	Each	0.08	74
65-0225	100k LIN stereo potentiometer	Each	1.10	74	67-0260	1M enclosed potentiometer	Each	0.08	74
65-0230	220k LIN stereo potentiometer	Each	1.10	74	67-0300	100 ohms single turn cermet	Each	0.18	75
65-0235	470k LIN stereo potentiometer	Each	1.10	74	67-0305	220 ohms single turn cermet	Each	0.18	75
65-0240	1M LIN stereo potentiometer	Each	1.10	74	67-0310	470 ohms single turn cermet	Each	0.18	75
65-0245	2M2 stereo potentiometer	Each	1.10	74	67-0315	1k single turn cermet	Each	0.18	75
65-0250	1k LOG stereo potentiometer	Each	1.10	74	67-0320	2k2 single turn cermet	Each	0.18	75
65-0255	4k7 LOG stereo potentiometer	Each	1.10	74	67-0325	4k7 single turn cermet	Each	0.18	75
65-0260	10k LOG stereo potentiometer	Each	1.10	74	67-0330	10k single turn cermet	Each	0.18	75
65-0265	22k LOG stereo potentiometer	Each	1.10	74	67-0335	22k single turn cermet	Each	0.18	75
65-0270	47k LOG stereo potentiometer	Each	1.10	74	67-0340	47k single turn cermet	Each	0.18	75
65-0275	100k LOG stereo potentiometer	Each	1.10	74	67-0345	100k single turn cermet	Each	0.18	75
65-0280	220k LOG stereo potentiometer	Each	1.10	74	67-0350	220k single turn cermet	Each	0.18	75
65-0285	470k LOG stereo potentiometer	Each	1.10	74	67-0355	470k single turn cermet	Each	0.18	75
65-0290	1M LOG stereo potentiometer	Each	1.10	74	67-0360	1M single turn cermet	Each	0.18	75
65-0295	2M2 LOG stereo potentiometer	Each	1.10	74	68-0100	100 ohms 1/4in m/turn cermet	Each	0.48	75
65-0300	1k LIN switched potentiometer	Each	1.05	74	68-0105	22 ohms 1/4in m/turn cermet	Each	0.48	75
65-0305	4k7 LIN switched potentiometer	Each	1.05	74	68-0110	470 ohms 1/4in m/turn cermet	Each	0.48	75
65-0310	10k LIN switched potentiometer	Each	1.05	74	68-0115	1k 1/4in m/turn cermet	Each	0.48	75
65-0315	22k LIN switched potentiometer	Each	1.05	74	68-0120	2k 1/4in m/turn cermet	Each	0.48	75
65-0320	47k LIN switched potentiometer	Each	1.05	74	68-0125	5k 1/4in m/turn cermet	Each	0.48	75
65-0325	100k LIN switched potentiometer	Each	1.05	74	68-0130	10k 1/4in m/turn cermet	Each	0.48	75
65-0330	220k LIN switched potentiometer	Each	1.05	74	68-0135	20k 1/4in m/turn cermet	Each	0.48	75
65-0335	470k LIN switched potentiometer	Each	1.05	74	68-0140	50k 1/4in m/turn cermet	Each	0.48	75
65-0340	1M LIN switched potentiometer	Each	1.05	74	68-0145	100k 1/4in m/turn cermet	Each	0.48	75
65-0345	2M2 LIN switched potentiometer	Each	1.05	74	68-0150	200k 1/4in m/turn cermet	Each	0.48	75
65-0350	1k LOG switched potentiometer	Each	1.05	74	68-0155	500k 1/4in m/turn cermet	Each	0.48	75
65-0355	4k7 LOG switched potentiometer	Each	1.05	74	68-0160	10 ohms 1/4in m/turn cermet	Each	0.48	75
65-0360	10k LOG switched potentiometer	Each	1.05	74	68-0165	20 ohms 1/4in m/turn cermet	Each	0.48	75
65-0365	22k LOG switched potentiometer	Each	1.05	74	68-0170	50 ohms 1/4in m/turn cermet	Each	0.48	75
65-0370	47k LOG switched potentiometer	Each	1.05	74	68-0300	100 ohms 3/4in m/turn cermet	Each	0.80	75
65-0375	100k LOG switched potentiometer	Each	1.05	74	68-0305	200 ohms 3/4in m/turn cermet	Each	0.80	75
65-0380	220k LOG switched potentiometer	Each	1.05	74	68-0310	500 ohms 3/4in m/turn cermet	Each	0.80	75
65-0385	470k LOG switched potentiometer	Each	1.05	74	68-0315	1k 3/4in m/turn cermet	Each	0.80	75
65-0390	1M LOG switched potentiometer	Each	1.05	74	68-0320	2k 3/4in m/turn cermet	Each	0.80	75
65-0395	2M2 LOG switched potentiometer	Each	1.05	74	68-0325	5k 3/4in m/turn cermet	Each	0.80	75
65-0400	470 ohms LIN potentiometer	Each	0.38	73	68-0330	10k 3/4in m/turn cermet	Each	0.80	75
65-0405	470 ohms LOG potentiometer	Each	0.38	73	68-0335	20k 3/4in m/turn cermet	Each	0.80	75
65-0500	470R LIN commercial potentiometer	Each	0.30	73	68-0340	50k 3/4in m/turn cermet	Each	0.80	75
65-0505	1K LIN commercial potentiometer	Each	0.30	73	68-0345	100k 3/4in m/turn cermet	Each	0.80	75
65-0510	4K7 LIN commercial potentiometer	Each	0.30	73	68-0350	200k 3/4in m/turn cermet	Each	0.80	75
65-0515	10K LIN commercial potentiometer	Each	0.30	73	68-0355	500k 3/4in m/turn cermet	Each	0.80	75
65-0520	22K LIN commercial potentiometer	Each	0.30	73	68-0360	1M 3/4in m/turn cermet	Each	0.80	75
65-0525	47K LIN commercial potentiometer	Each	0.30	73	6800	8-bit CPU 1MHz	Each	2.50	98
65-0530	100K LIN commercial potentiometer	Each	0.30	73	6802	Improved 8-bit CPU 1MHz	Each	1.70	98
65-0535	220K LIN commercial potentiometer	Each	0.30	73	6809	High performance 8-bit CPU	Each	2.20	98
65-0540	470K LIN commercial potentiometer	Each	0.30	73	6810	128x8 static RAM 450ns	Each	1.40	98
65-0545	1M LIN commercial potentiometer	Each	0.30	73	6821	Peripheral interface adaptor	Each	0.80	98
65-0550	2M2 LIN commercial potentiometer	Each	0.30	73	6840	Programmable timer module	Each	1.50	98
65-0610	4K7 LOG commercial potentiometer	Each	0.30	73	6850	Asynchronous comm interface	Each	1.50	98
65-0615	10K LOG commercial potentiometer	Each	0.30	73	6852	Synchronous serial data adaptor	Each	2.40	98
65-0625	47K LOG commercial potentiometer	Each	0.30	73	6875	Two phase clock generator	Each	5.00	98
65-0630	100K LOG commercial potentiometer	Each	0.30	73	6880	Quad tri-state inv trans	Each	1.00	98
65-0645	1M LOG commercial potentiometer	Each	0.30	73	709	Operational amplifier	Each	0.30	82
65-0650	2M2 LOG commercial potentiometer	Each	0.30	73	7400	Quad 2-input positive NAND gate	Each	0.25	96
6502	8-bit CPU 1MHz	Each	3.30	98	7401	Quad 2-input positive NAND O/C op	Each	0.28	96
6522	Versatile interface adaptor	Each	3.30	98	7402	Quad 2-input NOR gate	Each	0.25	96
6532	RAM, I/O, interval timer	Each	4.50	98	7403	Quad 2-input NAND gate O/C op	Each	0.28	96
6551	Asynchronous comm interface	Each	4.70	98	7404	Hex inverters	Each	0.25	96

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
7405	Hex inverters with O/C outputs	Each	0.28	96	74HC00	Quad 2-input NAND gate	Each	0.18	95
7406	Hex inverters/buffers/drivers 30V	Each	0.40	96	74HC02	Quad 2-input NOR gate	Each	0.18	95
7407	Hex buffer/drivers with O/C 30V op	Each	0.40	96	74HC03	Quad 2-input NAND gate O/C	Each	0.18	95
7408	Quad 2-input positive AND gate	Each	0.28	96	74HC04	Hex inverter	Each	0.18	95
7409	Quad 2-input AND gate O/C op	Each	0.28	96	74HC08	Quad 2-input positive AND gate	Each	0.18	95
741	Compensated operational amp	Each	0.16	82	74HC10	Triple 3-input NAND gate	Each	0.18	95
7410	Triple 3-input positive NAND gate	Each	0.28	96	74HC107	Dual J-K flip-flop	Each	0.35	95
74100	Quad latch	Each	1.20	96	74HC123	Dual monostable multivibrator	Each	0.40	95
74107	Dual J-K ff with clear	Each	0.40	96	74HC125	Quad bus buffer	Each	0.35	95
74109	Dual J-K positive edge trig ff w/pr	Each	0.50	96	74HC126	Quad bus buffer	Each	0.35	95
7411	Triple 3-input positive AND gate	Each	0.28	96	74HC133	13-input NAND gate	Each	0.30	95
7412	Triple 3-input positive NAND gate O/C	Each	0.28	96	74HC138	3-to-8 decoder/multiplexer	Each	0.35	95
74121	Monostable multivibrator	Each	0.40	96	74HC139	Dual 2-to-4 line decoder	Each	0.45	95
74122	Retriggerable monostable multi+clear	Each	0.50	96	74HC14	Hex schmitt trigger	Each	0.28	95
74123	Dual retriggerable monostable+clear	Each	0.50	96	74HC151	8-input multiplexer	Each	0.40	95
74125	Quad bus buffer driver (tri-state)	Each	0.45	96	74HC153	Dual 4-bit multiplexer	Each	0.40	95
74126	Quad bus buffer driver (tri-state)	Each	0.45	96	74HC154	4-to-16 encoder	Each	0.95	95
7413	Dual 4-input positive NAND schmitt trigger	Each	0.38	96	74HC157	Quad 2-to-1 multiplexer	Each	0.37	95
74132	Quad 2-input positive NAND schmitt	Each	0.50	96	74HC158	Quad 2-to-1 line multiplexer	Each	0.37	95
7414	Hex schmitt trigger inverters	Each	0.48	96	74HC160	4-bit decade counter+clear	Each	0.50	95
74141	BCD to 7 seg cold cathode tube driver	Each	0.90	96	74HC161	Synchronous binary counter	Each	0.50	95
74145	BCD to dec decoder, lamp relay driver	Each	0.75	96	74HC162	4-bit decade counter+clear	Each	0.50	95
74147	10-line decimal to 4-line BCD priority en	Each	1.30	96	74HC163	Synchronous 4-bit binary counter	Each	0.50	95
74148	8-line to 3-line octal priority encoder	Each	1.05	96	74HC164	8-bit serial-in/parallel-out shift register	Each	0.50	95
74150	1 of 16 data demultiplexer	Each	1.35	96	74HC165	8-bit PISO shift register	Each	0.52	95
74153	Dual 4-line to 1-line data decoder	Each	0.70	96	74HC173	Quad D-type register tri-state	Each	0.45	95
74154	4-line to 16-line decoder/multiplexer	Each	1.35	96	74HC174	Hex D-type flip-flop with clear	Each	0.45	95
74157	Quad 2-line to 1-line data selector	Each	0.70	96	74HC175	Quad D-type flip-flop with clear	Each	0.45	95
7416	Hex inv/buf driver with O/C 30	Each	0.38	96	74HC192	Synchronous up/down decade counter	Each	0.50	95
74160	Synchronous 4-bit dec ctr with clear	Each	0.80	96	74HC193	Synchronous up/down binary counter	Each	0.50	95
74161	Synchronous 4-bit bin ctr with clear	Each	0.80	96	74HC194	4-bit PIPO shift register	Each	0.50	95
74162	Synchronous 4-bit dec ctr with syn clear	Each	0.80	96	74HC195	4-bit PIPO shift register	Each	0.50	95
74163	Synchronous 4-bit bin ctr with syn clear	Each	0.80	96	74HC20	Dual 4-input NAND gate	Each	0.18	95
74164	8-bit ser-in par-out shift register	Each	1.10	96	74HC240	Octal tri-state invert/buffer	Each	0.65	95
74165	8-bit par-in ser-out shift register	Each	0.80	96	74HC241	Octal tri-state buffer	Each	0.65	95
74167	Synchronous decade rate multiplier	Each	2.00	96	74HC242	Quad invert bidirectional buffer	Each	0.65	95
7417	Hex buffer/driver with O/C 15V	Each	0.38	96	74HC243	Quad bidirectional buffer	Each	0.65	95
74170	4-by-4 register file	Each	1.80	96	74HC244	Octal tri-state buffer	Each	0.55	95
74173	4-bit D-type reg (tri-state)	Each	0.90	96	74HC245	Quad bidirectional buffer	Each	0.62	95
74174	Hex D-type ff with com dir clear	Each	0.90	96	74HC251	8-to-1 line multiplexer tri-state	Each	0.40	95
74175	Quad D-type ff with com dir clear	Each	0.80	96	74HC253	Dual 4-to-1 line multiplexer	Each	0.40	95
74176	Presettable 35MHz dec ctr/latch	Each	0.80	96	74HC257	Quad 2-to-1 line multiplexer	Each	0.35	95
74177	Presettable 35MHz 4-bit bin ctr	Each	0.80	96	74HC259	8-bit addressable latch/3-to-8	Each	0.53	95
74179	4-bit universal shift register	Each	0.90	96	74HC266	Quad EXCLUSIVE-NOR gate O/C	Each	0.30	95
74180	9-bit odd/even parity gen/checker	Each	0.90	96	74HC27	Triple 3-input NOR gate	Each	0.18	95
74181	Arithmetic logic unit/function gen	Each	2.40	96	74HC273	Octal D-type flip-flop with clear	Each	0.65	95
74182	Look-ahead carry generator	Each	0.80	96	74HC280	9-bit generator	Each	0.60	95
74190	Synchronous decade up/down ctr	Each	0.70	96	74HC299	8-bit PIPO shift register	Each	1.20	95
74191	Synchronous 4-bit bin up/down ctr	Each	0.75	96	74HC30	8-input positive NAND gate	Each	0.18	95
74192	Syn dec up/down with dual clocks	Each	0.75	96	74HC32	Quad 2-input OR gate	Each	0.18	95
74193	Syn 4-bit bin ctr with dual clocks	Each	0.70	96	74HC354	8 channel MUX/register	Each	0.50	95
74194	4-bit bidirectional universal shift register	Each	0.75	96	74HC356	8 channel MUX/register	Each	0.50	95
74195	4-bit parallel access shift register	Each	0.75	96	74HC365	Hex bus buffer	Each	0.36	95
74196	Presettable 50MHz dec ctr/latch	Each	0.75	96	74HC366	Hex inverting buffer	Each	0.36	95
74197	Presettable 50MHz bin ctr/latch	Each	0.75	96	74HC367	Tri-state hex buffer	Each	0.36	95
74198	8-bit directional universal shift register	Each	1.60	96	74HC368	Tri-state hex buffer	Each	0.36	95
74199	8-bit bidirectional universal shift register	Each	1.70	96	74HC373	Tri-state octal D-type latch	Each	0.50	95
7420	Dual 4-input pos NAND gate	Each	0.28	96	74HC374	Tri-state octal D-type flip-flop	Each	0.50	95
7421	Dual 4-input pos AND gate	Each	0.50	96	74HC390	Dual decade ripple counter	Each	0.55	95
7422	Dual 4-input pos NAND gate O/C	Each	0.28	96	74HC393	Dual binary counter	Each	0.55	95
7427	Triple 3-input pos NOR gate	Each	0.30	96	74HC4002	Dual 4-input NOR gate	Each	0.25	95
7428	Quad 2-input pos NOR buffer	Each	0.30	96	74HC4017	Decade counter/divider	Each	0.45	95
7430	8-input pos NAND gate	Each	0.28	96	74HC4020	14 stage binary counter	Each	0.45	95
7432	Quad pos 2-input OR gate	Each	0.30	96	74HC4040	12 stage binary counter	Each	0.45	95
7433	Quad 2-input pos NOR buffer O/C op	Each	0.38	96	74HC4049	Hex inverter buffer	Each	0.30	95
7437	Quad 2-input NAND buffers	Each	0.30	96	74HC4050	Hex buffer	Each	0.30	95
7438	Quad 2-input NAND buffer O/C op	Each	0.35	96	74HC4060	14 stage binary counter	Each	0.45	95
7440	Dual 4-input NAND buffer	Each	0.28	96	74HC4075	Triple 2-input OR gate	Each	0.25	95
7442	BCD to decimal decoder	Each	0.70	96	74HC4078	8-input OR/NOR gate	Each	0.25	95
7444	Excess 3 gray to dec decoder	Each	1.05	96	74HC42	BCD to decimal decoder	Each	0.45	95
7446	BCD to 7 segment 30V O/C dec/driver	Each	1.30	96	74HC423	12 stage binary counter	Each	0.55	95
7447	BCD to 7 segment 15V O/C dec/driver	Each	0.88	96	74HC423	BCD to 7 segment decoder/driver	Each	0.50	95
7448	BCD to 7 segment dec/driver	Each	0.88	96	74HC4511	4-to-16 line decoder	Each	1.10	95
7450	Expandable dual 2 wide 2 ip AND-OR-INV	Each	0.28	96	74HC4514	Dual monostable multivibrator	Each	0.65	95
7451	Dual 2-wide 2-input AND-OR-INVERT	Each	0.28	96	74HC4538	BCD to 7 segment decoder/driver	Each	0.65	95
7453	4-wide 2-input AND-OR-INVERT	Each	0.28	96	74HC4543	Octal inverter D-type latch	Each	0.65	95
7454	4-wide 2-input AND-OR-INVERT	Each	0.28	96	74HC563	Octal inverter D-type latch	Each	0.65	95
7460	Dual 4-input expanders	Each	0.28	96	74HC564	Octal D-type latch	Each	0.65	95
7472	AND gated J-K master-slave ff+clear	Each	0.35	96	74HC573	Octal D-type latch	Each	0.65	95
7473	Dual J-K master-slave ff with clear	Each	0.35	96	74HC574	Octal D-type latch	Each	0.65	95
7474	Dual D-type pos edge trig ff pre	Each	0.35	96	74HC640	Octal bus transceiver	Each	0.90	95
7475	Quad bistable latches	Each	0.45	96	74HC643	Octal bus transceiver	Each	0.90	95
7476	Dual J-K master-slave ff pre+clear	Each	0.40	96	74HC688	8-bit equity comparator	Each	0.70	95
748	Operational amplifier	Each	0.35	82	74HC73	Dual J-K flip-flop	Each	0.30	95
7480	Gated full adder	Each	0.50	96	74HC74	Dual D-type flip-flop with preset clear	Each	0.26	95
7482	2-bit binary full adder	Each	0.50	96	74HC75	Quad bi-stable latch	Each	0.35	95
7483	4-bit binary full adder with fast carry	Each	0.48	96	74HC76	Dual J-K flip-flop with clear	Each	0.35	95
7485	4-bit magnitude comparator	Each	0.80	96	74HC85	4-bit magnitude comparator	Each	0.50	95
7486	Quad 2-input EXCLUSIVE-OR gate	Each	0.38	96	74HC86	Quad EXCLUSIVE-OR gate	Each	0.28	95
7489	64-bit RAM	Each	1.40	96	74HCT00	Quad 2-input NAND gate	Each	0.25	95
7490	Decade counter	Each	0.40	96	74HCT04	Hex inverter	Each	0.25	95
7491	8-bit serial-out shift register	Each	0.70	96	74HCT08	Quad 2-input AND gate	Each	0.25	95
7492	Divide by 12 counter	Each	0.55	96	74HCT10	Triple 3-input NAND gate	Each	0.25	95
7493	4-bit binary counter	Each	0.45	96	74HCT11	Triple 3-input AND gate	Each	0.25	95
7494	4-bit parallel-in serial-out shift register	Each	0.80	96	74HCT138	1 of 8 decoder/multiplexer	Each	0.50	95
7495	4-bit serial/parallel-in/parallel-out shift reg	Each	0.60	96	74HCT139	Dual 1 of 4 decoder/multiplexer	Each	0.50	95
7496	5-bit serial-in parallel-out shift register	Each	0.80	96	74HCT151	8-bit multiplexer	Each	0.45	95
7497	Synchronous 6-bit rate multiplier	Each	1.50	96	74HCT154	1 of 16 decoder/multiplexer	Each	1.30	95
					74HCT164	8-bit serial-in/parallel-out shift register	Each	0.60	95
					74HCT165	8-bit serial/parallel-in/serial-out shift reg	Each	0.60	95
					74HCT174	Hex D-type flip-flop	Each	0.50	95

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74HCT241	Octal tri-state buffer	Each	0.75	95	74LS38	Quad 2-input positive NAND buffer	Each	0.16	97
74HCT244	Octal tri-state buffer	Each	0.75	95	74LS390	Dual decade ripple counter	Each	0.30	97
74HCT251	8-input tri-state multiplexer	Each	0.55	95	74LS393	Dual 4-bit binary ripple counter	Each	0.30	97
74HCT27	Triple 3-input NOR gate	Each	0.25	95	74LS399	Quad 2-input multiplexer	Each	0.65	97
74HCT377	Octal D flip-flop with clock enable	Each	0.80	95	74LS40	Dual 4-input pos NAND buffer	Each	0.16	97
74HCT393	Dual 4-bit binary ripple counter	Each	0.55	95	74LS42	BCD to decimal decoder	Each	0.30	97
74HCT573	Octal tri-state transparent latch	Each	1.50	95	74LS47	BCD to 7 seg 15V O/C dec/driver	Each	0.50	97
74HCT640	Octal tri-state inv bus transceiver	Each	1.30	95	74LS48	BCD to 7 seg decoder/driver	Each	0.50	97
74HCT643	Octal tri-state non inv bus transceiver	Each	0.90	95	74LS51	Dual 2-wide 2-input AND-OR-INVERT	Each	0.16	97
74HCT86	Quad 2-input EXCLUSIVE-OR gate	Each	0.40	95	74LS541	Octal buffer and line DR/RX	Each	0.58	97
74LS00	Quad 2-input positive NAND gate	Each	0.16	97	74LS55	2-wide 4-input AND-OR-INVERT	Each	0.16	97
74LS01	Quad 2-input NAND gate O/C op	Each	0.16	97	74LS670	Tri-state 4x4 register file	Each	0.55	97
74LS02	Quad 2-input positive NOR gate	Each	0.16	97	74LS73	Dual J-K master-slave flip-flops	Each	0.22	97
74LS03	Quad 2-input NAND gate O/C op	Each	0.16	97	74LS74	Dual D-type edge trip flip-flop with clear	Each	0.23	97
74LS04	Hex inverters	Each	0.16	97	74LS75	Quad bistable latches	Each	0.30	97
74LS05	Hex inverters open collector	Each	0.16	97	74LS76	Dual J-K master-slave	Each	0.30	97
74LS08	Quad 2-input pos AND gate	Each	0.16	97	74LS78	Dual J-K master-slave flip-flop+clear	Each	0.30	97
74LS09	Quad 2-input AND gate O/C op	Each	0.16	97	74LS83	4-bit binary full adder with fast carry	Each	0.32	97
74LS10	Triple 3-input pos NAND gate	Each	0.16	97	74LS85	4-bit magnitude comparator	Each	0.32	97
74LS107	Dual J-K flip-flops with clear	Each	0.23	97	74LS86	Quad 2-input EXCLUSIVE-OR gate	Each	0.22	97
74LS109	Dual J-K edge trig ff preset+clear	Each	0.23	97	74LS90	Decade counter	Each	0.30	97
74LS11	Triple 3-input pos AND gate	Each	0.16	97	74LS92	Divide by 12 counter	Each	0.35	97
74LS112	Dual neg edge trig ff preset+clear	Each	0.23	97	74LS93	4-bit binary counter	Each	0.30	97
74LS113	Dual neg edge trig ff preset	Each	0.23	97	74LS95	4-bit ser par-in/par-out shift register	Each	0.30	97
74LS114	Dual J-K neg edge trig ff preset+clear	Each	0.23	97	74LS96	5-bit shift register	Each	0.75	97
74LS12	Triple 3-input NAND gate O/C op	Each	0.16	97	75-0100	SPST sub-miniature toggle switch	Each	0.40	107
74LS122	Retriggerable one shot clear	Each	0.45	97	75-0105	SPDT sub-miniature toggle switch	Each	0.42	107
74LS123	Dual retriggerable mono+clear	Each	0.36	97	75-0110	DPDT sub-miniature toggle switch	Each	0.48	107
74LS125	Quad bus buffer gates tri-state	Each	0.24	97	75-0130	SPDT miniature toggle switch	Each	0.40	107
74LS126	Quad bus buffer gates tri-state	Each	0.24	97	75-0135	SPDT C/O miniature toggle switch	Each	0.45	107
74LS13	Dual 4-input pos schmitt trigger	Each	0.18	97	75-0140	DPDT miniature toggle switch	Each	0.48	107
74LS132	Quad 2-input pos NAND schmitt trigger	Each	0.24	97	75-0145	DPDT C/O miniature toggle switch	Each	0.53	107
74LS136	Quad EXCLUSIVE-OR gate	Each	0.26	97	75-0180	SPST standard toggle switch	Each	0.35	107
74LS138	3-line to 8-line decoder/multiplexer	Each	0.30	97	75-0185	DPDT standard toggle switch	Each	0.48	107
74LS139	Dual 2-line to 4-line dec/multiplexer	Each	0.30	97	75-0190	SPDT ultra-miniature PCB toggle switch	Each	1.02	107
74LS14	Hex schmitt trigger inverters	Each	0.24	97	75-0195	SPDT C/O ultra-miniature toggle switch	Each	1.10	107
74LS145	BCD decimal decoder 15V op	Each	0.60	97	75-0200	DPDT ultra-miniature toggle switch	Each	1.35	107
74LS147	10-line to 4-line priority encoder	Each	0.70	97	75-0205	DPDT C/O ultra-miniature toggle switch	Each	1.45	107
74LS148	8 to 3-line priority encoder	Each	0.55	97	75-0210	SPDT R/A ultra-miniature toggle switch	Each	1.20	107
74LS15	Triple 3-input pos AND gates O/C	Each	0.16	97	75-0215	SPDT C/O R/A ultra-min toggle switch	Each	1.25	107
74LS151	1 of 8 data selector/multiplexer	Each	0.30	97	75-0220	DPDT R/A ultra-miniature toggle switch	Each	1.65	107
74LS153	Dual 4-line data selector/multiplexer	Each	0.30	97	75-0225	DPDT C/O R/A ultra-min toggle switch	Each	1.80	107
74LS154	4 to 16-line decoder/multiplexer	Each	1.20	97	75-0250	SPST high current standard toggle	Each	1.00	107
74LS155	Dual 2-line to 4-line decoder	Each	0.30	97	75-0255	DPDT high current standard toggle	Each	1.20	107
74LS156	Dual 2-line to 4-line decoder	Each	0.30	97	75-0275	SPST miniature rocker switch	Each	0.30	107
74LS157	Quad 2-line to 1-line data selector	Each	0.30	97	75-0280	DPST red illuminated rocker switch	Each	0.75	107
74LS158	Quad 2-line to 1-line data selector	Each	0.30	97	75-0290	DPST 10A amber rocker switch	Each	0.75	107
74LS160	Synchronous decade counter+clear	Each	0.35	97	75-0295	SPST 10A red rocker switch	Each	0.50	107
74LS161	Synchronous 4-bit bin counter+clear	Each	0.35	97	76-0100	Miniature slide switch	Each	0.12	108
74LS162	Synchronous decade ctr with sync clear	Each	0.35	97	76-0105	Standard slide switch	Each	0.14	108
74LS163	Synchronous 4-bit bin ctr with sync clear	Each	0.30	97	76-0110	Standard C/O slide switch	Each	0.16	108
74LS164	8-bit serial-in/parallel-out shift register	Each	0.30	97	76-0200	SPDT vertical PCB slide switch	Each	0.50	108
74LS165	8-bit parallel-in/serial-out shift register	Each	0.45	97	76-0205	SPDT right angle PCB slide switch	Each	0.58	108
74LS166	8-bit shift register PISO	Each	0.45	97	76-0215	DPDT right angle PCB slide switch	Each	0.50	108
74LS170	4 by 4 register file	Each	1.00	97	76-0220	DPDT vertical PCB slide switch	Each	0.65	108
74LS173	4-bit D-type reg (tri-state)	Each	0.45	97	78-0030	Miniature red push switch	Each	0.12	108
74LS174	Hex D-type ff with com dir clear	Each	0.30	97	78-0035	Miniature black push switch	Each	0.12	108
74LS175	Quad D-type ff with com dir clear	Each	0.30	97	78-0040	Miniature green push switch	Each	0.12	108
74LS190	Synchronous decade up/down counter	Each	0.30	97	78-0045	Miniature yellow push switch	Each	0.12	108
74LS191	Synchronous 4-bit bin up/down counter	Each	0.30	97	78-0050	Miniature blue push switch	Each	0.12	108
74LS192	Synchronous dec up/down ctr+dual clocks	Each	0.30	97	78-0055	Miniature white push switch	Each	0.12	108
74LS193	Synchronous 4-bit bin ctr+dual clocks	Each	0.30	97	78-0100	Push to make switch	Each	0.14	108
74LS195	4-bit par access shift register	Each	0.30	97	78-0105	Push to break switch	Each	0.20	108
74LS196	Presetable 30MHz decade counter/latch	Each	0.30	97	78-0110	SPST non latching push switch	Each	0.34	108
74LS197	Presetable 30MHz binary counter/latch	Each	0.30	97	78-0115	SPST latching push switch	Each	0.36	108
74LS20	Dual 4-input pos NAND gate	Each	0.16	97	78-0130	Microminiature push switch	Each	0.95	108
74LS21	Dual 4-input pos AND gate	Each	0.16	97	78-0135	Black cap for microminiature switch	Each	0.04	108
74LS22	Dual 4-input pos NAND gate O/C	Each	0.16	97	78-0140	Green cap for microminiature switch	Each	0.04	108
74LS221	Dual monostable multivibrators	Each	0.45	97	78-0145	Red cap for microminiature switch	Each	0.04	108
74LS240	Octal tri-state inverter buffer	Each	0.44	97	78-0150	Black PCB keyboard switch	Each	0.28	109
74LS241	Octal tri-state buffer	Each	0.44	97	78-0155	Green PCB keyboard switch	Each	0.28	109
74LS242	Quad bus transceiver	Each	0.44	97	78-0160	Red PCB keyboard switch	Each	0.28	109
74LS243	Quad bus transceiver	Each	0.44	97	78-0180	Black miniature PCB keyboard switch	Each	0.26	109
74LS244	Octal tri-state buffer	Each	0.44	97	78-0185	White miniature PCB keyboard switch	Each	0.26	109
74LS245	Octal tri-state bus transceiver	Each	0.50	97	78-0190	Green miniature PCB keyboard switch	Each	0.26	109
74LS247	BCD to 7 segment encoder/driver	Each	0.45	97	78-0195	Red miniature PCB keyboard switch	Each	0.26	109
74LS251	Data selector/multiplexer	Each	0.33	97	78-0200	Blue miniature PCB keyboard switch	Each	0.26	109
74LS257	Tri-state quad 2-input multiplexer	Each	0.30	97	78-0300	Data entry keypad	Each	2.00	110
74LS258	Tri-state quad 2-input multiplexer	Each	0.30	97	78-0305	Data entry keypad	Each	2.00	110
74LS259	8-bit addressable latch	Each	0.30	97	78-0350	Red push to make switch	Each	0.22	108
74LS26	Quad 2-input 15V int pos NAND	Each	0.16	97	78-0355	Yellow push to make switch	Each	0.22	108
74LS266	Quad exclusive NOR gate O/C	Each	0.16	97	78-0360	Green push to make switch	Each	0.22	108
74LS27	Triple 3-input pos NOR gate	Each	0.16	97	78-0365	White push to make switch	Each	0.22	108
74LS273	Octal D-type ff with clear	Each	0.44	97	78-0380	Red push to break switch	Each	0.22	108
74LS279	Quad S-R latch	Each	0.30	97	78-0385	Yellow push to break switch	Each	0.22	108
74LS283	4-bit binary adder	Each	0.30	97	78-0390	Green push to break switch	Each	0.22	108
74LS30	8-input pos NAND gate	Each	0.16	97	78-0395	White push to break switch	Each	0.22	108
74LS32	Quad 2-input pos OR gate	Each	0.16	97	78-0400	2 pole changeover switch	Each	0.60	109
74LS353	Tri-state dual 4-bit multiplexer inverter	Each	0.45	97	78-0405	4 pole changeover switch	Each	0.70	109
74LS365	Tri-state hex buffer	Each	0.25	97	78-0410	6 pole changeover switch	Each	0.90	109
74LS366	Tri-state hex inverter	Each	0.25	97	78-0415	2 pole changeover switch	Each	0.70	109
74LS367	Tri-state hex buffer	Each	0.25	97	78-0420	4 pole changeover switch	Each	0.80	109
74LS368	Tri-state hex inverter	Each	0.25	97	78-0425	6 pole changeover switch	Each	0.90	109
74LS37	Quad 2-input positive NAND buffer	Each	0.16	97	78-0440	Rectangular black knob	Each	0.14	109
74LS373	Tri-state octal transparent latch	Each	0.44	97	78-0445	Round black knob	Each	0.14	109
74LS374	Tri-state octal D-type ff	Each	0.44	97	78-0450	Single switch PCB bracket	Each	0.09	109
74LS375	Quad latch	Each	0.35	97	78-0460	Single switch panel bracket	Each	0.14	109
74LS377	Octal D-type ff with enable	Each	0.50	97	78-0465	2-switch panel bracket	Each	0.16	109
74LS378	Hex D-type ff with enable	Each	0.50	97	78-0470	4-switch panel bracket	Each	0.18	109
					78-0475	6-switch panel bracket	Each	0.27	109

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Code	Product Description	Unit	Price 1+	Page No.	Code	Product Description	Unit	Price 1+	Page No.
78-0480	8-switch panel bracket	Each	0.34	109	85-0468	Mandrel + saw drill accessory	Each	1.20	130
78-0485	10-switch panel bracket	Each	0.49	109	85-0470	1mm HSS twist drill bit	Each	0.35	128
78-0490	10-switch latching bar	Each	0.70	109	85-0471	1.5mm HSS twist drill bit	Each	0.35	128
78-0700	Button microswitch	Each	0.55	111	85-0472	2mm HSS twist drill bit	Each	0.35	128
78-0705	Lever microswitch	Each	0.60	111	85-0473	2.5mm HSS twist drill bit	Each	0.35	128
78-0710	Roller microswitch	Each	0.65	111	85-0474	3mm HSS twist drill bit	Each	0.35	128
78-0715	Short roller microswitch	Each	0.65	111	85-0475	3.5mm HSS twist drill bit	Each	0.35	128
78-0790	Miniature tilt switch	Each	0.45	109	85-0476	4mm HSS twist drill bit	Each	0.40	128
7805	+5V 1A voltage regulator	Each	0.28	77	85-04128	4.5mm HSS twist drill bit	Each	0.45	128
7812	+12V 1A voltage regulator	Each	0.28	77	85-0478	5mm HSS twist drill bit	Each	0.50	128
7815	+15V 1A voltage regulator	Each	0.28	77	85-0479	5.5mm HSS twist drill bit	Each	0.60	128
78L05	+5V voltage regulator	Each	0.20	77	85-0480	6mm HSS twist drill bit	Each	0.60	128
78L12	+12V voltage regulator	Each	0.20	77	85-0481	6.5mm HSS twist drill bit	Each	0.70	128
78L15	+15V voltage regulator	Each	0.20	77	85-0482	7mm HSS twist drill bit	Each	0.85	128
79-0100	1 pole 12 way rotary switch	Each	0.45	110	85-0483	7.5mm HSS twist drill bit	Each	0.88	128
79-0105	2 pole 6 way rotary switch	Each	0.45	110	85-0484	8mm HSS twist drill bit	Each	1.00	128
79-0110	3 pole 4 way rotary switch	Each	0.45	110	85-0485	8.5mm HSS twist drill bit	Each	1.00	128
79-0115	4 pole 3 way rotary switch	Each	0.45	110	85-0486	9mm HSS twist drill bit	Each	1.25	128
7905	-5V 1A voltage regulator	Each	0.30	77	85-0487	10mm HSS twist drill bit	Each	1.25	128
7912	-12V 1A voltage regulator	Each	0.30	77	85-0490	11mm HSS twist drill bit	Each	2.15	128
7915	-15V 1A voltage regulator	Each	0.30	77	85-0492	12mm HSS twist drill bit	Each	2.75	128
79L05	-5V voltage regulator	Each	0.25	77	85-0494	13mm HSS twist drill bit	Each	2.95	128
79L12	-12V voltage regulator	Each	0.25	77	85-0498	11 size metric drill set	Each	4.25	128
79L15	-15V voltage regulator	Each	0.25	77	85-0499	13 size imperial drill set	Each	5.75	128
80-0100	4 way 8 pin DIL switch	Each	0.45	110	85-0500	CS 17W soldering iron	Each	5.00	104
80-0105	6 way 12 pin DIL switch	Each	0.50	110	85-0502	CS 17W 240 V iron + heatproof cable	Each	6.65	104
80-0110	8 way 16 pin DIL switch	Each	0.55	110	85-0505	Spare element to suit CS iron	Each	2.40	104
80-0115	2 way 4 pin LP DIL switch	Each	0.40	111	85-0510	1mm bit to suit CS iron	Each	0.85	104
80-0120	4 way 8 pin LP DIL switch	Each	0.48	111	85-0515	2.3mm bit to suit CS iron	Each	0.85	104
80-0125	8 way 16 pin LP DIL switch	Each	0.64	111	85-0520	4.7mm bit to suit CS iron	Each	0.85	104
80-0160	Footswitch	Each	1.80	110	85-0525	XS 25W soldering iron	Each	5.00	104
80-0170	Horizontal HEX BCD switch	Each	1.80	111	85-0530	Spare element to suit XS iron	Each	2.40	104
80-0175	Horizontal decimal BCD switch	Each	1.70	111	85-0535	2.3mm bit to suit XS iron	Each	0.85	104
80-0180	Vertical HEX BCD switch	Each	1.90	111	85-0540	3mm bit to suit XS iron	Each	0.85	104
80-0185	Vertical decimal BCD switch	Each	1.80	111	85-0545	4.7mm bit to suit XS iron	Each	0.85	104
80-0200	14 pin IDC DIL plug	Each	0.30	28	85-0550	TCS240 temperature controlled iron	Each	25.50	104
80-0205	16 pin IDC DIL plug	Each	0.33	28	85-0551	Element to suit Antex TCS240	Each	14.00	104
80-0210	24 pin IDC DIL plug	Each	0.50	28	85-0556	2.3mm chrome bit suit TCS240	Each	0.95	104
80-0215	40 pin IDC DIL plug	Each	0.80	28	85-0557	4.7mm chrome bit suit TCS240	Each	0.95	104
80-0305	16 way IC test clip	Each	2.90	36	85-0560	Low voltage 18W soldering iron	Each	5.20	104
80-0315	24 way IC test clip	Each	4.90	36	85-0565	Spare 18W element	Each	2.60	104
80-0320	28 way IC test clip	Each	5.20	36	85-0570	Antex 12V CS 17W soldering iron	Each	5.30	104
80-0325	40 way IC test clip	Each	8.20	36	85-0572	CS 17W 12V iron + heatproof cable	Each	6.90	104
8085AC	8-bit CPU 3MHz	Each	3.20	98	85-0575	Antex CS 17W 12V element	Each	2.60	104
8156C	Input/output timer with RAM	Each	3.80	98	85-0585	Soldering iron stand	Each	1.70	104
8251AC	Programmable comm interface	Each	3.50	98	85-0587	Spare sponge	Each	0.30	104
8253C	Programmable interval timer	Each	3.70	98	85-0590	10m pack 60/40 22 swg solder	Each	0.75	106
8255C	Programmable peripheral interface	Each	3.20	98	85-0595	0.5Kg reel 60/40 22 swg solder	Reel	6.00	106
8259AC	Programmable interrupt control	Each	4.00	98	85-0600	Desoldering tool	Each	2.50	106
85-0050	Economy tool kit	Each	6.20	124	85-0605	Spare nozzle	Each	0.50	106
85-0090	Tool case	Each	2.50	124	85-0610	0.5Kg reel 18 swg 60/40 solder	Reel	5.40	106
85-0100	Trimming tool	Each	0.19	126	85-0615	2Kg reel 18 swg 60/40 solder	Reel	21.00	106
85-0150	Jeweller's screwdriver set	Each	0.80	126	85-0620	0.5Kg bar 60/40 solder	Bar	4.50	106
85-0155	Crosspoint screwdriver set	Each	0.90	126	85-0625	Solder remover	Each	0.40	106
85-0160	Miniature spanner set	Each	0.90	127	85-0630	102BZ analogue multimeter	Each	9.50	112
85-0165	Miniature nut spinner set	Each	0.90	126	85-0631	Soldering iron bit cleaner	Each	1.35	106
85-0205	Economy miniature side cutter	Each	1.60	123	85-0632	Soldering aids set	Each	1.20	106
85-0220	Economy top cutters	Each	1.60	123	85-0635	55 digital LCD multimeter	Each	34.50	115
85-0225	Economy miniature snipe nose pliers	Each	1.60	123	85-0645	300 autoranging multimeter	Each	30.50	115
85-0230	Economy light duty cutters	Each	1.40	123	85-0660	921 autoranging pencil meter	Each	22.90	113
85-0235	Economy electricians pliers	Each	2.20	123	85-0665	705A digital LCD multimeter	Each	29.50	114
85-0240	Economy electricians cutters	Each	2.00	123	85-0670	775 autoranging LCD multimeter	Each	28.50	113
85-0245	Economy snipe nose pliers	Each	2.00	124	85-0675	208 LCD digital multimeter	Each	19.80	112
85-0250	Strain relief tool	Each	2.50	114	85-0680	3225 bench digital multimeter	Each	84.50	115
85-0255	Ratchet action crimping tool	Each	10.50	42	85-0681	3225 service manual	Each	5.00	115
85-0260	Crimping tool	Each	1.70	42	85-0685	3210 bench digital multimeter	Each	120.00	116
85-0270	Crimp tool kit	Each	3.20	42	85-0686	3210 service manual	Each	5.00	116
85-0295	Cut and bend tool	Each	5.20	125	85-0690	50A capacitance meter	Each	34.50	116
85-0300	Vero wiring pen	Each	4.80	132	85-0692	TC200 LCR meter	Each	95.00	116
85-0305	Replacement spools for pen	Each	0.80	132	85-0695	Logic probe	Each	7.50	117
85-0310	Wiring combs	Each	0.07	132	85-0700	Short circuit tester	Each	6.50	117
85-0340	Miniature PCB drill	Each	8.70	129	85-0800	XY9D station and 60W iron	Each	69.50	105
85-0345	Miniature drill power supply	Each	9.85	129	85-0805	XY9A station and 60W iron	Each	46.50	105
85-0351	Engineers hand drill	Each	6.50	129	85-0820	821 type bit for 60W iron	Each	1.20	105
85-0354	Precision PCB drill	Each	20.90	129	85-0822	821 bit for XY9 iron-cartridge	Each	1.20	105
85-0355	Spare 3 jaw chuck for drill	Each	2.50	129	85-0825	822 bit for 60W iron	Each	1.20	105
85-0354	Precision PCB drill stand	Each	19.50	130	85-0827	822 bit for XY9 iron-cartridge	Each	1.20	105
85-0361	Jigsaw attachment for drill	Each	13.50	130	85-0830	823 bit for 60W iron	Each	1.20	105
85-0362	Fine blade for jigsaw	Each	0.40	130	85-0832	823 bit for XY9 iron-cartridge	Each	1.20	105
85-0363	Coarse blade for jigsaw	Each	0.40	130	85-0835	824 bit for 60W iron	Each	1.20	105
85-0365	Power supply for precision drill	Each	19.50	130	85-0837	824 bit for XY9 iron-cartridge	Each	1.20	105
85-0380	Miniature electronics vice	Each	2.90	131	85-0840	825 type bit for 60W iron	Each	1.20	105
85-0385	Pin vice	Each	5.90	131	85-0842	825 bit for XY9 iron-cartridge	Each	1.20	105
85-0435	3-12mm tapered reamer	Each	8.30	129	85-0845	826 type bit for 60W iron	Each	1.20	105
85-0440	10-25mm tapered reamer	Each	15.00	129	85-0847	826 bit for XY9 iron-cartridge	Each	1.20	105
85-0445	6-20mm HSS cone cut	Each	6.60	129	85-0850	827 type bit for 60W iron	Each	1.20	105
85-0446	9.5-22.5mm HSS cone cut	Each	7.60	129	85-0852	827 bit for XY9 iron-cartridge	Each	1.20	105
85-0447	16-30.5mm HSS cone cut	Each	11.90	129	85-0900	Electric desoldering tool	Each	10.90	106
85-0448	25-40mm HSS cone cut	Each	18.30	129	85-0905	Spare tip for desoldering tool	Each	1.30	106
85-0449	60cc cone cutting compound	Each Pot	0.60	129	85-0950	12 standard fret blades	Each	1.50	130
85-0450	0.8mm drill (IC leads)	Each	0.60	128	85-0955	12 medium fret blades	Each	1.50	130
85-0451	0.6mm reduced shank drill bit	Each	0.60	128	85-0960	12 coarse fret blades	Each	1.50	130
85-0452	0.9mm reduced shank drill bit	Each	0.60	128	85-0965	12 fine piercing blades	Each	1.50	130
85-0455	1mm PCB drill (most comps)	Each	0.60	128	85-0970	12 medium piercing blades	Each	1.50	130
85-0457	1.2mm reduced shank drill bit	Each	0.60	128	85-0980	Shapersaw	Each	42.50	130
85-0460	1.4mm drill (presets, etc.)	Each	0.60	128	85-0985	Hexagon driver	Each	1.50	130
85-0462	1.6mm reduced shank drill bit	Each	0.60	128	85-1020	Portable gas iron	Each	8.00	105
85-0465	Burr drill accessory	Each	0.50	130	85-1030	2.4mm bit to suit gas iron	Each	3.00	105
85-0466	Wire brush drill accessory	Each	0.55	130	85-1035	3.2mm bit to suit gas iron	Each	3.00	105
85-0467	Polishing mop drill accessory	Each	0.50	130	85-1040	4.8mm bit to suit gas iron	Each	3.00	105

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85-1025	1.0mm bit to suit gas iron	Each	3.00	105	86-1255	Large snap-off blade knife	Each	0.50	131
85-1050	Oryx soldip 60W solder pot	Each	28.30	106	86-1260	Pack of blades for 86-1250	Each	0.60	131
85-1100	Butane gas pencil torch	Each	4.50	105	86-1265	Pack of blades for 86-1265	Each	0.80	131
85-1200	RF signal generator	Each	67.00	118	86-1300	Needle files	Each	5.80	127
85-1205	Audio signal generator	Each	69.00	118	86-1305	Miniature hand file set	Each	3.95	127
85-1250	Jupiter 500 function generator	Each	104.00	118	86-1350	Standard centre punch	Each	1.00	128
85-1251	Jupiter 500 service manual	Each	5.00	118	86-1360	Automatic centre punch	Each	1.30	128
85-1300	Meteor 100 frequency counter	Each	94.00	119	86-1370	3.5oz engineer's hammer	Each	3.20	128
85-1301	Meteor rechargeable batteries	Each	12.00	119	86-1375	8oz engineer's hammer	Each	3.50	128
85-1302	Meteor 100 service manual	Each	5.00	119	86-1450	Retractable measuring tape	Each	2.20	127
85-1303	Meteor 100 telescopic antenna	Each	8.50	119	86-1460	0-1in precision micrometer	Each	21.50	128
85-1350	Apollo 10 universal counter timer	Each	208.00	119	86-1465	0-25mm precision micrometer	Each	21.50	128
85-1351	Apollo 10 service manual	Each	5.00	119	86-1470	Imperial feeler gauges	Each	1.20	128
85-1400	Apollo 100 universal counter timer	Each	270.00	120	86-1475	Metric feeler gauges	Each	1.20	128
85-1401	Apollo 100 service manual	Each	5.00	120	86-1480	300mm rigid steel rule	Each	3.20	128
85-1410	5250 frequency counter	Each	69.70	119	86-1485	300mm flexible steel rule	Each	1.60	128
85-1440	S540 programmable timer	Each	10.00	122	86-1490	150mm/6in rigid steel rule	Each	1.50	128
85-1445	219 hand held electronic timer	Each	4.50	122	86-1495	150mm/6in flexible steel rule	Each	1.25	128
85-1450	220 hand held electronic timer	Each	5.70	122	86-1500	Universal tweezers	Each	2.25	131
85-1460	SC200 digital scale	Each	19.00	122	86-1505	Horizontal position tweezers	Each	2.15	131
85-1470	ST100 digital thermometer	Each	23.00	122	86-1510	Vertical position tweezers	Each	2.15	131
85-1485	Capacitance substitution box	Each	77.50	117	86-1515	Desoldering tweezers	Each	2.15	131
85-1490	Resistance substitution box	Each	5.90	117	86-1550	Tweezer set	Each	2.90	131
85-1495	Resistance Substitution Box	Each	69.50	117	86-2000	4mm A/F nut spinner	Each	1.70	126
85-1590	X10 oscilloscope probe	Each	9.50	38	86-2005	5mm A/F nut spinner	Each	1.70	126
85-1595	Switched X1, X10 probe	Each	11.60	38	86-2010	5.5mm A/F nut spinner	Each	1.70	126
85-1600	0-1A educational meter	Each	4.80	117	86-2015	6mm A/F nut spinner	Each	1.70	126
85-1610	0-2A educational meter	Each	4.80	117	86-2020	7mm A/F nut spinner	Each	1.70	126
85-1615	0-5A educational meter	Each	4.80	117	86-2025	8mm A/F nut spinner	Each	1.70	126
85-1620	0-6V DC educational meter	Each	4.80	117	86-2030	10mm A/F nut spinner	Each	1.70	126
85-1625	0-15V DC educational meter	Each	4.80	117	86-2100	5/16 pot runner	Each	3.20	123
85-1630	0-30V DC educational meter	Each	4.80	117	87-0100	Switch cleaning lubricant	Each	1.10	101
85-1670	5V 1A power supply module	Each	7.50	69	87-0105	Circuit freezer	Each	1.20	101
85-1680	Miniature 300mA regulated PSU	Each	4.80	69	87-0110	Foam cleanser	Each	1.10	101
85-1700	30V 3A regulated power supply	Each	66.00	69	87-0115	Silicone grease	Each	1.40	101
85-1750	Single 2A 30V power supply	Each	159.00	69	87-0120	Anti-static grey mist	Each	1.20	101
85-1755	Dual 2A 30V power supply	Each	299.00	69	87-0125	Plastic seal	Each	1.20	101
85-2000	7020 20MHz dual oscilloscope	Each	235.00	121	87-0130	Aero-klene	Each	1.00	101
85-2050	7305 5MHz single oscilloscope	Each	125.00	120	87-0135	Aero-duster	Each	1.30	101
85-2150	TD201 digital storage unit	Each	195.00	121	87-0200	50g twin pack potting compound	Each	2.00	101
86-0100	High quality side cutters	Each	8.05	123	87-0205	100g twin pack potting compound	Each	2.35	101
86-0105	High quality top cutter	Each	8.50	123	87-0210	250g twin pack potting compound	Each	3.15	101
86-0150	High quality snipe nose pliers	Each	6.20	123	87-0215	500g twin pack potting compound	Each	4.30	101
86-0160	High quality flat nose pliers	Each	6.20	123	87-0300	Fast setting adhesive	Each	0.25	102
86-0165	High quality round nose pliers	Each	6.60	123	87-0305	50 sachets fast setting adhesive	Each	8.40	102
86-0175	Mini top cutters	Each	8.50	123	87-0310	25ml syringe epoxy resin	Each	1.50	102
86-0180	Bent snipe nose pliers	Each	7.85	123	87-0320	Toughened adhesive F241	Each	3.80	102
86-0215	Light duty cutter	Each	4.30	124	87-0350	3g tube C2 superglue	Each	0.80	102
86-0250	Self grip wrench	Each	3.30	126	87-0355	10g bottle C2 superglue	Each	2.40	102
86-0350	Light duty wire stripper	Each	1.40	124	87-0360	50g bottle C2 superglue	Each	10.50	102
86-0355	Standard wire stripper	Each	6.20	124	87-0400	Glue gun	Each	7.50	102
86-0360	Automatic wire stripper	Each	3.95	124	87-0405	12 pack glue sticks	Each	1.00	102
86-0365	Spare blade for wire stripper	Each	1.20	124	87-0500	20m black insulating tape	Each	0.28	102
86-0370	Coax cable stripper	Each	4.20	124	87-0505	20m red insulating tape	Each	0.28	102
86-0375	Spare blade for conductor	Each	0.70	124	87-0510	20m blue insulating tape	Each	0.28	102
86-0380	Spare blade for jacket	Each	0.70	124	87-0515	20m white insulating tape	Each	0.28	102
86-0400	75x3mm flat bladed screwdriver	Each	0.40	125	87-0520	20m yellow insulating tape	Each	0.28	102
86-0405	100x3mm flat bladed screwdriver	Each	0.42	125	87-0525	20m green insulating tape	Each	0.28	102
86-0410	150x5mm flat bladed screwdriver	Each	0.65	125	88-0100	6-0-6V miniature transformer	Each	1.20	133
86-0415	200x5mm flat bladed screwdriver	Each	0.75	125	88-0105	9-0-9V miniature transformer	Each	1.20	133
86-0450	75mmxNo. 0 Pozidriv screwdriver	Each	0.40	125	88-0110	12-0-12 miniature transformer	Each	1.30	133
86-0455	75mmxNo. 1 Pozidriv screwdriver	Each	0.60	125	88-0150	0-6, 0-6 @ 0.25A min PCB transformer	Each	1.60	133
86-0460	100mmxNo. 2 Pozidriv screwdriver	Each	0.75	125	88-0160	0-12, 0-12 @ 0.12A min PCB transformer	Each	1.60	133
86-0465	150mmxNo. 3 Pozidriv screwdriver	Each	1.20	125	88-0165	0-15, 0-15 @ 0.1A min PCB transformer	Each	1.60	133
86-0470	250 No. 1 Pozidriv screwdriver	Each	1.70	125	88-0170	0-20, 0-20 @ 0.07A min PCB transformer	Each	1.60	133
86-0530	6mm slotted ratchet screwdriver	Each	2.90	125	88-0200	0-6, 0-6 @ 0.5A min PCB transformer	Each	1.90	133
86-0535	No. 2 Pozidriv ratchet screwdriver	Each	2.90	125	88-0205	0-9, 0-9 @ 0.33A min PCB transformer	Each	1.90	133
86-0555	80x3mm pocket screwdriver	Each	0.14	125	88-0210	0-12, 0-12 @ 0.25A min PCB transformer	Each	1.90	133
86-0560	75mmxNo. 0 Pozidriv screwdriver	Each	0.15	125	88-0215	0-15, 0-15 @ 0.2A min PCB transformer	Each	1.90	133
86-0565	Flat bladed screw grip driver	Each	1.00	125	88-0220	0-20, 0-20 @ 0.15A min PCB transformer	Each	1.90	133
86-0570	Pozidriv screw grip driver	Each	1.00	125	88-0250	0-6, 0-6 @ 0.5A chassis transformer	Each	2.10	133
86-0600	Mains tester screwdriver	Each	0.45	125	88-0255	0-9, 0-9 @ 0.33A chassis transformer	Each	2.10	133
86-0605	TX6 Torx screwdriver	Each	2.30	125	88-0260	0-12, 0-12 @ 0.25A chassis transformer	Each	2.10	133
86-0610	TX7 Torx screwdriver	Each	2.30	125	88-0265	0-15, 0-15 @ 0.2A chassis transformer	Each	2.10	133
86-0615	TX8 Torx screwdriver	Each	2.30	125	88-0270	0-6, 0-6 @ 1A chassis transformer	Each	3.30	133
86-0620	TX9 Torx screwdriver	Each	2.30	125	88-0275	0-9, 0-9 @ 0.6A chassis transformer	Each	3.30	133
86-0625	TX10 Torx screwdriver	Each	2.05	125	88-0280	0-12, 0-12 @ 0.5A chassis transformer	Each	3.30	133
86-0630	TX15 Torx screwdriver	Each	2.05	125	88-0285	0-15, 0-15 @ 0.4A chassis transformer	Each	3.30	133
86-0635	TX20 Torx screwdriver	Each	2.05	125	88-0290	0-9, 0-9V @ 1.3A 25VA transformer	Each	4.25	133
86-0650	Precision screwdriver set	Each	11.65	126	88-0295	0-12, 0-12V @ 1A transformer	Each	4.25	133
86-0680	Imperial hexagon key set	Each	1.60	126	88-0300	0-15, 0-15V @ 0.8A transformer	Each	4.25	133
86-0685	Metric hexagon key set	Each	1.60	126	88-0305	0-12, 0-12 @ 2A chassis transformer	Each	5.30	133
86-0750	6in adjustable spanner	Each	2.65	126	88-0310	0-15, 0-15 @ 1.6A chassis transformer	Each	5.30	133
86-0755	8in adjustable spanner	Each	3.25	126	88-0315	0-6, 0-6V @ 2A 25VA chassis transformer	Each	4.25	133
86-0880	Adjustable hacksaw	Each	1.90	127	88-0370	0-20, 0-20 @ 0.15A chassis transformer	Each	2.10	133
86-0900	Junior hacksaw+blades	Each	0.70	127	88-0375	0-20, 0-20 @ 0.3A chassis transformer	Each	3.30	133
86-0905	Set of 10 blades	Each	0.85	127	88-0405	0-6, 0-6 @ 4.1A chassis transformer	Each	5.30	133
86-0915	3x10in 24 TPI blades	Each	2.10	127	88-0410	0-9, 0-9 @ 2.7A chassis transformer	Each	5.30	133
86-0920	3x12in 24 TPI blades	Each	2.20	127	88-0415	0-20, 0-20 @ 1.2A chassis transformer	Each	5.30	133
86-0925	Economy hacksaw	Each	3.50	127	90-0105	200kHz crystal	Each	2.70	100
86-0940	Pick-up tool	Each	1.60	127	90-0110	1MHz crystal	Each	2.75	100
86-0990	Deburring tool	Each	4.10	127	90-0120	1.8432MHz crystal	Each	1.80	100
86-0995	Spare blade for deburring tool	Each	1.60	127	90-0125	2MHz crystal	Each	1.80	100
86-1005	Standard scissors	Each	5.50	132	90-0130	2.4576MHz crystal	Each	0.80	100
86-1010	Tin snips	Each	4.65	127	90-0135	3.276MHz crystal	Each	0.85	100
86-1200	Trimming knife	Each	1.90	131	90-0140	3.579MHz crystal	Each	0.60	100
86-1205	5 spare blades	Each	0.45	131	90-0145	4MHz crystal	Each	0.60	100
86-1210	Snap off blade knife	Each	1.60	131	90-0150	4.194MHz crystal	Each	0.80	100
86-1215	Replacement blades for knife	Each	0.80	131	90-0155	4.43MHz crystal	Each	1.30	100
86-1250	Small snap-off blade knife	Each	0.35	131	90-0160	5.008MHz crystal	Each	1.00	100

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
90-0165	6MHz crystal	Each	0.60	100	BF196	NPN TV/IF amplifier	Each	0.12	79
90-0170	6.144MHz crystal	Each	0.60	100	BF197	TV/IF amplifier	Each	0.12	79
90-0180	8MHz crystal	Each	0.60	100	BF198	NPN RV/IF amplifier	Each	0.12	79
90-0185	10MHz crystal	Each	0.60	100	BF199	NPN FM/VHF general purpose	Each	0.18	79
90-0190	12MHz crystal	Each	0.85	100	BF244B	Field effect transistor	Each	0.35	79
90-0195	16MHz crystal	Each	1.00	100	BF256B	Field effect transistor	Each	0.45	79
90-0200	18MHz crystal	Each	1.00	100	BF257	NPN TV video output	Each	0.25	79
90-0500	UV141 EPROM eraser	Each	88.00	99	BF258	NPN TV video output	Each	0.25	79
99-0110	AY-3-8910+8912 data sheet	Each	0.36	82	BF259	NPN extra voltage	Each	0.25	79
99-0130	LM334Z data sheet	Each	0.30	82	BF337	NPN TV video output	Each	0.25	79
99-0160	ML922 data sheet	Each	0.15	82	BFR40	NPN general purpose audio	Each	0.25	79
99-0165	ML924 data sheet	Each	0.30	82	BFR80	PNP general purpose audio	Each	0.25	79
99-0175	ML926+927 data sheet	Each	0.15	82	BFR81	PNP general purpose audio	Each	0.25	79
99-0180	ML928+929 data sheet	Each	0.21	82	BFX29	PNP general purpose RF	Each	0.25	79
99-0185	SL486 data sheet	Each	0.21	82	BFX84	NPN general purpose audio	Each	0.25	79
99-0190	SL490 data sheet	Each	0.30	82	BFX85	NPN audio high voltage	Each	0.25	79
99-0200	SP0256AL2 data sheet	Each	0.50	82	BFX87	PNP general purpose audio	Each	0.25	79
AC125	PNP audio amplifier	Each	0.35	78	BFX88	PNP general purpose audio	Each	0.25	79
AC126	NPN general purpose audio	Each	0.35	78	BFY50	NPN general purpose audio	Each	0.20	79
AC127	NPN general purpose audio	Each	0.25	78	BFY51	NPN general purpose audio	Each	0.18	79
AC128	PNP general purpose audio	Each	0.25	78	BFY52	NPN general purpose audio	Each	0.20	79
AC176	PNP general purpose audio	Each	0.35	78	BFY53	NPN general purpose audio	Each	0.30	79
AC187	NPN general purpose audio	Each	0.35	78	BFY55	NPN general purpose audio	Each	0.30	79
AC188	PNP general purpose audio	Each	0.35	78	BFY56	NPN general purpose audio	Each	0.30	79
AD142	PNP audio high voltage	Each	1.20	78	BR100	Diac	Each	0.20	77
AD161	NPN general purpose audio	Each	0.45	78	BR32	200V 3A bridge rectifier	Each	0.30	76
AD162	PNP general purpose audio	Each	0.45	78	BR34	3A 400V bridge rectifier	Each	0.35	76
AF124	PNP general purpose audio	Each	0.60	78	BRY39	Silicon controlled witch	Each	0.50	80
AF126	PNP general purpose audio	Each	0.45	78	BSX20	NPN UHF switch	Each	0.18	79
AY-3-8910	Programmable sound generator	Each	4.80	82	BSX29	PNP VHF switch	Each	0.35	79
AY-3-8912	Programmable sound generator	Each	4.80	82	BSY95A	NPN VHF switch	Each	0.30	79
BC107	NPN general purpose	Each	0.10	78	BU205	NPN TV line output	Each	1.10	79
BC107B	NPN general purpose	Each	0.12	78	BU206	NPN TV line output	Each	1.10	79
BC108	NPN general purpose	Each	0.10	78	BU208	NPN TV line output	Each	1.10	79
BC108B	NPN general purpose	Each	0.12	78	BY127	High voltage silicon diode	Each	0.08	76
BC108C	NPN general purpose	Each	0.12	78	BZX10	10V 1.3W Zener diode	Each	0.08	76
BC109	NPN audio low noise	Each	0.10	78	BZX11	11V 1.3W Zener diode	Each	0.08	76
BC109C	NPN audio low noise	Each	0.12	78	BZX12	12V 1.3W Zener diode	Each	0.08	76
BC140	NPN general purpose audio	Each	0.26	78	BZX13	13V 1.3W Zener diode	Each	0.08	76
BC141	NPN general purpose audio	Each	0.26	78	BZX15	15V 1.3W Zener diode	Each	0.08	76
BC142	NPN general purpose audio	Each	0.26	78	BZX16	16V 1.3W Zener diode	Each	0.08	76
BC143	PNP general purpose audio	Each	0.26	78	BZX18	18V 1.3W Zener diode	Each	0.08	76
BC147	NPN general purpose	Each	0.10	78	BZX20	20V 1.3W Zener diode	Each	0.08	76
BC148	NPN general purpose	Each	0.10	78	BZX22	22V 1.3W Zener diode	Each	0.08	76
BC149	NPN audio low noise	Each	0.10	78	BZX24	24V 1.3W Zener diode	Each	0.08	76
BC157	PNP audio amplifier	Each	0.10	78	BZX27	27V 1.3W Zener diode	Each	0.08	76
BC158	PNP audio amplifier	Each	0.10	78	BZX30	30V 1.3W Zener diode	Each	0.08	76
BC159	PNP audio low noise	Each	0.10	78	BZX33	33V 1.3W Zener diode	Each	0.08	76
BC160	PNP general purpose audio	Each	0.40	78	BZX36	36V 1.3W Zener diode	Each	0.08	76
BC168C	NPN general purpose	Each	0.08	78	BZX39	39V 1.3W Zener diode	Each	0.08	76
BC169C	NPN general purpose	Each	0.08	78	BZX4V7	4V7 1.3W Zener diode	Each	0.08	76
BC171	NPN audio low noise	Each	0.08	78	BZX5V1	5V1 1.3W Zener diode	Each	0.08	76
BC177	PNP general purpose audio	Each	0.14	78	BZX5V6	5V6 1.3W Zener diode	Each	0.08	76
BC178	PNP general purpose	Each	0.14	78	BZX6V2	6V2 1.3W Zener diode	Each	0.08	76
BC179	PNP general purpose	Each	0.14	78	BZX6V8	6V8 1.3W Zener diode	Each	0.08	76
BC182	PNP general purpose	Each	0.06	78	BZX7V5	7V5 1.3W Zener diode	Each	0.08	76
BC182L	PNP general purpose	Each	0.07	78	BZX8V2	8V2 1.3W Zener diode	Each	0.08	76
BC183	NPN general purpose	Each	0.06	78	BZX9V1	9V1 1.3W Zener diode	Each	0.08	76
BC183L	NPN general purpose	Each	0.07	78	BZXC10	10V 400mW Zener diode	Each	0.06	76
BC184	NPN general purpose	Each	0.06	78	BZXC11	11V 400mW Zener diode	Each	0.06	76
BC184L	NPN general purpose	Each	0.07	78	BZXC12	12V 400mW Zener diode	Each	0.06	76
BC212	PNP general purpose	Each	0.06	78	BZXC13	13V 400mW Zener diode	Each	0.06	76
BC212L	PNP general purpose	Each	0.07	78	BZXC15	15V 400mW Zener diode	Each	0.06	76
BC213	PNP general purpose	Each	0.06	78	BZXC16	16V 400mW Zener diode	Each	0.06	76
BC213L	PNP general purpose	Each	0.07	78	BZXC18	18V 400mW Zener diode	Each	0.06	76
BC214	PNP general purpose	Each	0.06	78	BZXC20	20V 400mW Zener diode	Each	0.06	76
BC214L	PNP general purpose	Each	0.07	78	BZXC22	22V 400mW Zener diode	Each	0.06	76
BC237	NPN general purpose	Each	0.06	78	BZXC24	24V 400mW Zener diode	Each	0.06	76
BC238	NPN general purpose	Each	0.06	78	BZXC27	27V 400mW Zener diode	Each	0.06	76
BC308	PNP general purpose audio	Each	0.07	78	BZXC2V7	2V7 400mW Zener diode	Each	0.06	76
BC327	PNP general purpose audio	Each	0.07	78	BZXC30	30V 400mW Zener diode	Each	0.06	76
BC328	PNP general purpose audio	Each	0.07	78	BZXC33	33V 400mW Zener diode	Each	0.06	76
BC337	NPN general purpose audio	Each	0.07	78	BZXC3V0	3V0 400mW Zener diode	Each	0.06	76
BC338	NPN general purpose audio	Each	0.07	78	BZXC3V3	3V3 400mW Zener diode	Each	0.06	76
BC477	PNP general purpose	Each	0.20	78	BZXC3V6	3V6 400mW Zener diode	Each	0.06	76
BC478	PNP general purpose	Each	0.20	78	BZXC3V9	3V9 400mW Zener diode	Each	0.06	76
BC479	PNP general purpose	Each	0.20	78	BZXC4V3	4V3 400mW Zener diode	Each	0.06	76
BC517	NPN darlington audio	Each	0.20	78	BZXC4V7	4V7 400mW Zener diode	Each	0.06	76
BC547	NPN general purpose	Each	0.05	78	BZXC5V1	5V1 400mW Zener diode	Each	0.06	76
BC548	NPN general purpose	Each	0.06	78	BZXC5V6	5V6 400mW Zener diode	Each	0.06	76
BC549	NPN general purpose	Each	0.06	78	BZXC6V2	6V2 400mW Zener diode	Each	0.06	76
BC557	PNP general purpose	Each	0.06	78	BZXC6V8	6V8 400mW Zener diode	Each	0.06	76
BC558	PNP general purpose	Each	0.06	78	BZXC7V5	7V5 400mW Zener diode	Each	0.06	76
BCY70	PNP general purpose audio	Each	0.14	78	BZXC8V2	8V2 400mW Zener diode	Each	0.06	76
BCY71	PNP audio low noise	Each	0.14	78	BZXC9V1	9V1 400mW Zener diode	Each	0.06	76
BCY72	PNP general purpose audio	Each	0.14	78	CA3046	5 transistor array	Each	0.45	82
BD115	NPN RF high voltage	Each	0.55	78	CA3080	Operational transconductance amplifier	Each	0.48	82
BD131	NPN general purpose audio	Each	0.30	78	CA3130E	MOS/FET operational amplifier	Each	0.60	82
BD132	PNP general purpose audio	Each	0.30	78	CA3140E	MOS/FET operational amplifier	Each	0.35	82
BD135	NPN general purpose audio	Each	0.20	79	CA3240E	Dual version of CA3140E	Each	0.80	82
BD136	PNP general purpose audio	Each	0.20	79	CMOS Z80A	8-bit CMOS CPU 4 MHz	Each	3.50	98
BD137	NPN general purpose audio	Each	0.20	79	CPU				
BD138	PNP general purpose audio	Each	0.20	79	CMOS Z80A	4 channel counter/timer	Each	3.30	98
BD139	NPN audio high voltage	Each	0.20	79	CTC				
BD140	PNP audio high voltage	Each	0.20	79	CMOS Z80A	2 port parallel input/output	Each	3.00	98
BF180	NPN TV/UHF amplifier	Each	0.25	79	CR25 series	0.25W 5% CF resistor	Each	0.02	72
BF182	NPN TV/UHF mixer	Each	0.25	79	CR50 series	0.5W 5% CF resistor	Each	0.03	72
BF185	NPN FM/AM general purpose	Each	0.28	79	DAC0800LCN	8-bit digital to analogue converter	Each	2.50	82
BF194	NPN FM/AM general purpose	Each	0.12	79	DB2502	25A 200V bridge rectifier	Each	1.30	76
BF195	NPN FM/AM general purpose	Each	0.12	79					

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Code	Product Description	Unit	Price 7+	Page No.	Code	Product Description	Unit	Price 7+	Page No.
DB2506	25A 600V bridge rectifier	Each	1.40	76	SL490	Remote control transmitter	Each	2.10	83
DB602	6A 200V bridge rectifier	Each	0.50	76	SP8629	Prescaler	Each	1.50	83
DB608	6A 800V bridge rectifier	Each	0.60	76	SPO256AL2	Speech synthesiser	Each	7.20	83
ICL7106	CMOS 3.5 digit A/D converter	Each	6.80	82	TBA120S	Limiting IF amplifier	Each	0.55	83
ICL8211	CMOS low power operational amplifier	Each	0.90	82	TBA810	7W audio amplifier	Each	0.60	83
ICL8221	CMOS low power dual operational amp	Each	1.40	82	TBA830M	Audio amplifier	Each	0.40	83
ICL8222	CMOS dual operational amp compensated	Each	1.40	82	TDA1024	Triac controller	Each	1.10	83
ICL8038	Function generator	Each	3.80	82	TDA2030H	14W hi-fi power amplifier	Each	1.00	83
ICL8211A	Micropower voltage detector	Each	1.60	82	TIC106D	400V 4A thyristor	Each	0.30	77
ICM7555	CMOS low power timer	Each	0.45	82	TIC116D	400V 8A thyristor	Each	0.65	77
ICM7556	CMOS low power dual timer	Each	1.10	82	TIC126D	12A 400V thyristor	Each	0.70	77
LF347	BI-FET operational amplifier	Each	0.90	82	TIC206D	3A 400V triac	Each	0.45	77
LF351	BI-FET operational amplifier	Each	0.35	82	TIC226D	8A 400V triac	Each	0.55	77
LF353	BI-FET wide band operational amplifier	Each	0.45	82	TIC246D	16A 400V triac	Each	0.75	77
LF356	BI-FET general purpose operational amp	Each	0.58	82	TIP120	NPN darlington audio	Each	0.30	80
LM13600	Dual transconductance amplifier	Each	1.00	82	TIP121	NPN darlington audio	Each	0.32	80
LM1458	Dual operational amplifier	Each	0.25	82	TIP122	NPN darlington audio	Each	0.32	80
LM2917	Frequency to voltage converter	Each	1.70	82	TIP141	NPN darlington audio	Each	1.00	80
LM301A	Operational amplifier	Each	0.25	82	TIP142	NPN darlington audio	Each	1.05	80
LM311	High speed comparator	Each	0.28	82	TIP147	PNP darlington audio	Each	1.10	80
LM317K	Variable voltage regulator	Each	1.45	77	TIP2955	PNP audio high voltage	Each	0.55	80
LM317T	Variable voltage regulator	Each	0.45	77	TIP29A	NPN audio high voltage	Each	0.25	79
LM318	High slew rate operational amplifier	Each	1.20	82	TIP29B	NPN audio high voltage	Each	0.26	79
LM323K	3A fixed voltage regulator	Each	2.40	77	TIP29C	NPN audio high voltage	Each	0.27	79
LM324	Quad operational amplifier	Each	0.22	82	TIP30	PNP general purpose audio	Each	0.25	79
LM334Z	3 terminal adjustable current source	Each	0.65	82	TIP3055	NPN audio high voltage	Each	0.55	80
LM335Z	Temperature sensor 0-100 deg C	Each	0.70	82	TIP30A	PNP audio high voltage	Each	0.25	79
LM338K	Variable voltage regulator	Each	6.80	82	TIP30B	PNP audio high voltage	Each	0.26	79
LM339	Quad comparator	Each	0.25	82	TIP30C	PNP audio high voltage	Each	0.27	79
LM348	Quad 741 operational amplifier	Each	0.45	82	TIP31A	NPN general purpose audio	Each	0.25	79
LM358	Low power operational amplifier	Each	0.25	82	TIP31B	NPN audio high voltage	Each	0.26	79
LM377	Dual 2W audio amplifier	Each	2.10	82	TIP31C	NPN audio high voltage	Each	0.27	79
LM380	2W audio amplifier	Each	0.80	82	TIP32A	PNP general purpose audio	Each	0.25	79
LM381	Low noise dual preamplifier	Each	2.00	82	TIP32B	PNP audio high voltage	Each	0.26	79
LM382	Low noise dual preamplifier	Each	1.50	82	TIP32C	PNP audio high voltage	Each	0.27	79
LM384	5W audio amplifier	Each	2.20	82	TIP33A	NPN general purpose audio	Each	0.65	79
LM386	Low voltage preamplifier	Each	0.36	82	TIP33C	NPN general purpose audio	Each	0.70	79
LM387	Low noise dual preamplifier	Each	1.60	82	TIP34A	PNP general purpose audio	Each	0.65	79
LM3900	Quad operational amplifier	Each	0.50	82	TIP34C	PNP audio high voltage	Each	0.70	79
LM3909	LED flasher oscillator	Each	0.85	82	TIP35A	NPN general purpose audio	Each	0.90	79
LM3911	Temperature sensor	Each	1.80	82	TIP35C	NPN audio high voltage	Each	0.95	79
LM3914	LED bar/dot display driver	Each	1.90	82	TIP36A	PNP general purpose audio	Each	0.90	79
LM3915	LED bar/dot display driver	Each	1.90	82	TIP36C	PNP audio high voltage	Each	0.90	80
LM393	Dual comparator	Each	0.25	82	TIP41A	NPN general purpose audio	Each	0.30	80
LM710	Differential comparator	Each	0.50	82	TIP42A	PNP general purpose audio	Each	0.30	80
LM723	Adjustable voltage regulator	Each	0.30	77	TL061	BI-FET operational amplifier low noise	Each	0.28	83
LM725	Video amplifier	Each	2.70	82	TL062	BI-FET operational amplifier	Each	0.35	83
LM747	Dual operational amplifier	Each	0.45	82	TL064	BI-FET quad operational amplifier	Each	0.45	83
MC1488	RS232, V24 driver	Each	0.60	98	TL071	BI-FET operational amplifier low noise	Each	0.28	83
MC1489	RS232, V24 driver	Each	0.60	98	TL072	BI-FET dual operational amplifier	Each	0.32	83
MC3302	Quad comparator	Each	0.75	82	TL074	BI-FET quad operational amplifier	Each	0.42	83
MC3340	Electronic attenuator	Each	1.30	82	TL081	BI-FET single operational amplifier	Each	0.28	83
MF10CN	Monolithic filter	Each	3.20	82	TL082	BI-FET dual operational amplifier	Each	0.35	83
MJ2955	PNP general purpose audio	Each	0.90	79	TL084	BI-FET quad operational amplifier	Each	0.42	83
MJE3055	NPN audio high voltage	Each	0.70	79	ULN2003	Transistor array 7 matched	Each	0.45	83
MJE340	NPN audio high voltage	Each	0.35	79	ULN2004	Transistor array 7 matched	Each	0.45	83
MJE520	NPN general purpose audio	Each	0.35	79	ULN2803	Octal darlington driver	Each	0.65	83
MJE521	NPN general purpose audio	Each	0.50	79	VN10KM	Field effect transistor	Each	0.50	80
ML922	Remote control 4-bit BCD	Each	3.95	83	VN46AF	Field effect transistor	Each	0.85	80
ML924	Remote control 5-bit binary	Each	3.50	83	VN66AF	Field effect transistor	Each	1.20	80
ML926	Receiver 16 unlatched 4-bit binary	Each	3.00	83	VN88AF	Field effect transistor	Each	1.30	80
ML927	Receiver 16 unlatched 4-bit binary	Each	3.00	83	W02	1A 200V bridge rectifier	Each	0.16	76
ML928	Receiver 16 unlatched 4-bit binary	Each	3.00	83	W04	1A 400V bridge rectifier	Each	0.17	76
ML929	Receiver 16 unlatched 4-bit binary	Each	3.70	83	W06	1A 600V bridge rectifier	Each	0.18	76
MPF102	Field effect transistor	Each	0.40	80	W08	1A 800V bridge rectifier	Each	0.18	76
MPSA05	NPN general purpose audio	Each	0.20	79	W005	1A 50V bridge rectifier	Each	0.22	76
MPSA06	NPN general purpose audio	Each	0.20	79	XR2206	Waveform generator	Each	3.95	83
MPSA12	NPN darlington low noise	Each	0.25	79	Z80A CPU	8-bit CPU 4MHz	Each	1.60	98
MPSA56	PNP general purpose audio	Each	0.25	79	Z80A CTC	4 channel counter/timer	Each	1.60	98
MPSU05	NPN general purpose audio	Each	0.50	79	Z80A DMA	Direct memory access controller	Each	5.20	98
MPSU06	NPN general purpose audio	Each	0.50	79	Z80A PIO	2 port parallel input/output	Each	1.60	98
MPSU56	PNP audio high voltage	Each	0.50	79	Z80A SIO	2 channel serial input/output	Each	5.20	98
MR25 Series	0.25W 1% MF resistors	Each	0.03	72	ZN1034E	Precision timer	Each	1.90	83
NE531	High slew rate operational amplifier	Each	1.20	83	ZN414	AM receiver	Each	0.80	83
NE544	Servo amplifier	Each	1.70	83	ZN416E	AM receiver	Each	1.25	83
NE5532	Dual low noise operational amplifier	Each	1.10	83	ZN423	Precision voltage reference	Each	1.00	83
NE5534	Single low noise operational amplifier	Each	0.75	83	ZN424	Gated linear amplifier	Each	0.70	83
NE555	Single timer	Each	0.16	83	ZN425E	8-bit D to A converter	Each	3.40	83
NE556	Dual timer	Each	0.30	83	ZN426E	8-bit D to A converter	Each	2.00	83
NE565	Precision phase locked loop	Each	0.90	83	ZN427E	8-bit successive approx. A to D	Each	5.70	83
NE566	Voltage controlled oscillator	Each	0.90	83	ZN428E	8-bit D to A complementary to 427E	Each	4.50	83
NE567	Tone decoder	Each	0.60	83	ZN435E	Multifunction D to A converter	Each	3.95	83
NE570	Telephone compandor	Each	2.00	83	ZN448E	8-bit successive D to A converter	Each	5.50	83
NE571	Telephone compandor	Each	2.00	83	ZN459	Low noise preamplifier	Each	1.90	83
OA200	150V signal diode	Each	0.08	76	ZTX107	NPN general purpose audio	Each	0.11	80
OA202	150V signal diode	Each	0.08	76	ZTX108	NPN general purpose audio	Each	0.11	80
OA47	30V signal diode	Each	0.14	76	ZTX109	NPN audio low noise	Each	0.11	80
OA90	30V signal diode	Each	0.08	76	ZTX300	NPN general purpose audio	Each	0.12	80
OA91	100V signal diode	Each	0.08	76	ZTX302	NPN general purpose audio	Each	0.15	80
RC4136	Quad amplifier	Each	0.65	83	ZTX341	NPN audio high voltage	Each	0.20	80
RC4558	Dual high performance operational amp	Each	0.45	83	ZTX500	PNP general purpose audio	Each	0.12	80
SAA1027	Stepper motor drive circuit	Each	2.20	83	ZTX501	PNP general purpose audio	Each	0.15	80
SL486	Infra red preamplifier	Each	2.10	83	ZTX502	PNP general purpose audio	Each	0.15	80
					ZTX504	PNP audio high voltage	Each	0.15	80

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Payment for sales within the UK shall be nett monthly terms, subject to satisfactory references, due 20th of the month following the date of invoice or nett cash with order.

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