



SYLVANIA

INDUSTRIAL

TUBES



Power, Transmitting and Special Types

INTRODUCTION

Sylvania industrial tubes are designed and produced with careful consideration to the requirements of industrial users in many different fields. The material included in this brochure will provide information regarding the breadth and scope of the Sylvania Industrial Products line.

Engineering data is presented in a form that will enable you to quickly refer to the average characteristics of each tube type.

SPECIFICATION-TESTED

All Sylvania industrial tubes are carefully tested for the many electrical and mechanical characteristics required for their use in the appropriate equipment.

FULLY WARRANTED

All Sylvania industrial tubes are fully warranted for your protection against any defect in workmanship or material. Warranties by classification are fully covered in Sylvania Terms and Conditions of Sale.

READILY AVAILABLE

Sylvania clearly recognizes the importance of prompt delivery and service to users of industrial electronic products. In recognition of this need, Sylvania has established a chain of warehouses to serve the local distributors in all sections of the country.

This results in the steady flow of merchandise from Sylvania manufacturing plants and warehouses to industrial users by Sylvania distributors at all times.



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VACUUM POWER TUBES



2C39A

Forced air-cooled triode for use as an UHF oscillator, frequency multiplier, or r. f. amplifier. Suited to cavity type circuits. Features include low interelectrode capacitance, high (closely controlled) transconductance, and high plate dissipation. Cathode is indirectly-heated, oxide-coated disc.

2C39WA

Ruggedized high- μ triode of planar-electrode type designed specifically for use as an oscillator, frequency multiplier, or power amplifier in radio transmitting service up to 2500 Mc. Replaces directly type 2C39A. Suited to cavity-type circuits. Features include low interelectrode capacitance, high (closely controlled) transconductance and high plate dissipation. Forced air-cooled triode for use as an UHF oscillator, frequency multiplier, or r. f. amplifier.

2C40

Lighthouse Triode. For use as an rf amplifier at frequencies up to 1200 Mc and cw oscillator at frequencies up to 3370 Mc. Octal 6-pin base.

2C41

Forced air-cooled triode for use as an UHF plate-pulsed oscillator, frequency multiplier, or power amplifier. Suited to cavity-type and parallel-line circuits. Features include low interelectrode capacitances, high (closely controlled) transconductance and high plate dissipation. Cathode is indirectly heated, oxide coated discs.

2C43

Lighthouse Triode. Similar to Type 2C40 except for higher dissipation rating. For use as a cw oscillator at frequencies up to 1500 Mc.

207

Water cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication or industrial service. Grid and plate incorporate sturdy, kovar to-glass seals. Pure-tungsten filament.

212E

Convection-cooled triode for use as a modulator, amplifier, or oscillator in broadcast or communication service. Thoriated-tungsten filament.

232B

Water cooled triode for use as an amplifier or oscillator in broadcast or communication service. Pure-tungsten filament.

241B

Convection-cooled triode for use as a modulator, amplifier, or oscillator in broadcast or communication service. Thoriated-tungsten filament.

279A

Convection-cooled triode for use as a modulator, amplifier, or oscillator in broadcast or communication service. Thoriated-tungsten filament.

298A

Water-cooled, high-power triode for use as a modulator, amplifier, or oscillator in broadcast or communication service. Incorporates integral-anode water jacket. Pure tungsten filament.

298B

Water-cooled, high power triode for use as an amplifier or oscillator in industrial service. Incorporates integral-anode water jacket. Pure-tungsten filament.

B-A A-F Power Amplifier and Modulator Class B.

* DC Cathode Current.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament Current Amps	Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Input Watts	Plate Dissip. Watts	Freq. @ Ratings mc/sec
					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc				
6.3	1.0	100	22000	CWO	1000	0.125	-150	—	—	125	100	2500
				FM	1000	0.125	-150	0.050	—	125	100	2500
				C-P	600	0.100	-150	0.050	—	60	100	2500
5.8 ^{+5%} —	1.0	100	22000	CWO	1000	0.125*	-150	—	—	125	100	2500
				FM	1000	0.125*	-150	0.050	—	125	100	2500
				C-P	600	0.100*	-150	0.050	—	60	100	2500
6.3	0.75	36	4850	C-T	500	0.025	—	—	—	4	6.5	—
6.3 ^{+5%} -10%	1.0	100	25000	CA	3500	.010	-100	.006 +	— — —	35	35	3000
6.3	0.9	48	8000	C-T	500	0.040	—	—	—	16.7	12	—
22.0	51.0	20	—	B-A	15000	2.0	—	—	—	20000	7500	—
				C-P	10000	1.0	-3000	0.2	—	10000	6600	1.6
				C-T	15000	2.0	-3000	0.2	—	30000	10000	1.6
14.0	6.0	16	8500	C-T	3000	350	—	.075	—	—	275	1.5
20.0	60.0	40	6500	C-T	20000	3.0	—	—	—	—	25000	3
14.0	6.0	16	8500	C-T	3000	350	—	.075	—	—	275	7.5
10.0	21.0	10	5000	C-T	3000	800	—	.100	—	—	1200	20
27	225	32	22000	C-T	20000	11	—	—	—	—	100000	4
27	225	57.5	20000	C-T	20000	11	—	—	—	—	100000	4

B-A A-F Power Amplifier and Modulator, Class B
 C-P Plate Modulator RF Power Amplifier, Class C Telephony
 C-A Plate Pulsed Oscillator and Amplifier, Class C

C-T R-F Power Amplifier and Oscillator, Class C Telegraphy
 CWO CW Oscillator, Grid Separation Circuit
 FM Frequency Multiplier, Grid Separation Circuit

VACUUM POWER TUBES



342A	Water cooled triode for use as an amplifier or oscillator in broadcast or communication service. Pure-tungsten filament.
342AA	Forced air cooled triode for use as a modulator, amplifier, or oscillator in broadcast or communication service.
354	Water and forced-air cooled coaxial terminal triode for high power industrial heating service to 20mc/sec. Incorporates high conductivity kovar-to-glass seals, sturdy electrodes, integral anode water jacket, quick-change water coupling, and heavy wall copper anode. Multi-strand self supporting, thoriated tungsten filament.
356	Water cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication and industrial service. Replaces type 5771 tube directly and Type 880 tube with reduction in filament power. Includes sturdy kovar-to-glass seals. Thoriated-tungsten stress-free filament.
357B	Convection- or forced-air cooled triode for use as a modulator, amplifier, or oscillator in AM and FM broadcast or communication service. Thoriated-tungsten filament.
379A	Convection-cooled triode for use as a modulator, amplifier, or oscillator in broadcast or communication service. Thoriated-tungsten filament.
381	Forced air cooled triode for use as an UHF plate-pulsed oscillator, frequency multiplier, or power amplifier. Suited to cavity type and parallel line circuits. Features include low interelectrode capacitances, high (closely controlled) transconductance, and high plate dissipation. Cathode is indirectly heated, oxide-coated disc.
801A	Medium mu type with thoriated-tungsten filament. Small 4-pin, micanol bayonet base.
811A	Improved and superseding version of the popular 811. Utilized a modified construction featuring a zirconium coated plate having radiating fins to give greater dissipation capability and to permit increased ratings for plate current and plate input. Small 4-pin, micanol bayonet base. Medium cap.
812A	Improved and superseding version of the popular 812. Has same structural features of type 811A with increased ratings for plate current and plate input.
880	Water cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Incorporates sturdy kovar-to-glass seals and ruggedized electrode structures. Pure-tungsten stress-free filament.
891	Water cooled triode for use as a modulator in broadcast or communication service. Incorporates kovar-to-glass seals. Pure-tungsten filament.

● Two filament strands in series with large post at neutral junction; operate in series at 22 volts or two phase with 11 volts per strand.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament		Mu	Gm μMhos	Class of Service	Plate		Voltage Vdc	Grid		Screen Voltage Vdc	Input Watts	Plate Dissip. Watts	Freq. @ Ratings mc/sec
	Current Amps					Voltage Vdc	Current Adc		Voltage Vdc	Current Adc				
20.0	67		40	6820	C-T	20000	2.5	—	—	—	—	—	25000	4
20	67		40	6820	C-T	20000	2.5	—	—	—	—	—	5000	4
12.0	220		25	—	C-T	15000	12	-3200	2.0	—	150000	75000	20	
7.5	170	20	—	B-A	12500	5	—	—	—	—	45000	22500	25	
				C-P	10000	4	-2000	0.8	—	40000	15000	—		
				C-T	12500	6	-2000	0.8	—	60000	22500	25		
				C-T	15000	6	-2000	0.8	—	67500	22500	2.0		
10.0	10		30	—	C-T	4000	0.5	-500	100	—	1800	400	100	
10.0	21.0		10	5000	C-T	3000	.800	—	100	—	—	1200	20	
6.0	1.0	100	20000	F-M	3500	0.0075†	-200	0.0045†	—	—	25†	25†	3000	
				C-A	3500	0.01†	-150	0.006†	—	—	35†	35†	3000	
7.5	1.25	8	—	B	600	0.070	—	—	—	—	42	20	—	
				C-P	500	—	—	—	—	—	—	13.5	—	
				C-T	600	—	—	—	—	—	—	20	—	
6.3	4.0	160	—	B	1500	0.175	—	—	—	—	260	65	—	
				C-P	1250	—	—	—	—	—	—	45	—	
				C-T	1500	—	—	—	—	—	—	65	—	
6.3	4.0	29	—	B	1500	0.175	—	—	—	—	175	65	—	
				C-P	1250	—	—	—	—	—	—	45	—	
				C-T	1500	—	—	—	—	—	—	65	—	
12.6	315	20	—	B-A	10500	5.0	—	—	—	—	40000	15000	—	
				C-P	10500	3.6	-1200	0.80	—	36000	12000	25		
				C-T	10500	6.0	-1200	0.80	—	60000	20000	25		
22.0	60	8.5	—	A-A	12000	—	—	—	—	—	7500	7500	—	
				B-A	15000	2.0	—	—	—	20000	5000	—		
				C-P	8000	1.0	-3000	0.15	—	8000	4000	1.6		
				C-T	12000	2.0	-3000	0.15	—	18000	6000	1.6		

C-T R-F Power Amplifier and Oscillator, Class C Telephony
 B-A A-F Power Amplifier and Modulator, Class B
 C-P Plate Modulator R-F Power Amplifier, Class C Telephony

F-M Frequency Multiplier, Grid Separation Circuit
 C-A Plate Pulsed Oscillator and Amplifier, Class C Telephony
 B Class B Push-Pull AF Modulator Service

VACUUM POWER TUBES



891R	● Forced-air-cooled triode for use as a modulator in broadcast or communication service. Incorporates kovar-to-glass seals. Pure-tungsten filament.
892	● Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Incorporates kovar-to-glass seals. Pure-tungsten filament.
892R	● Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Incorporates sturdy kovar to-glass seals. Pure-tungsten filament.
893A	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Pure-tungsten filament designed for operation from single-, three-, or six-phase power supply.
893AR	◆ Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Pure-tungsten filament designed for operation from single-, three-, or six-phase power supply.
895	◇ Triode used in induction heating equipment. Ratings are for forced air-cooled operation.
895R	★ Triode with forced air-cooled radiator, used in broadcast communications and industrial service.
5530	Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Especially suited to high frequency AM or FM operation. Incorporates sturdy kovar-to-glass seals. Thoriated tungsten, stress-free filament.
5530H	Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication or industrial service. Especially suited to dielectric heating service. Incorporates sturdy kovar-to-glass seals. Thoriated tungsten filament.
5531	Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Especially suited to high frequency service up to 30 megacycles. Incorporates sturdy kovar-to-glass seals. Thoriated-tungsten, stress-free filament.
5541	Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Especially suited to high frequency AM or FM operation. Incorporates sturdy kovar-to-glass seals. Thoriated tungsten, stress-free filament.
5604	Forced-air-cooled triode for use as a modulator-amplifier, or oscillator in broadcast, communication, or industrial service. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures and heavy wall anode. Pure-tungsten filament.

● Two filament strands in series with large post at neutral junction; operate in series at 22 volts or two phase with 11 volts per strand.

◆ Six filament strands connected from each post to floating neutral. See individual data sheets for connections. Values shown are per strand.

◇ Three filament terminals Y-connected in 3 phase.

★ Three filament terminals Y-connected in 3-phase with neutral center terminal.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament		Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Plate		Freq. @ Ratings mc/sec
	Current Amps					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc		Input Watts	Dissip. Watts	
22.0	60	8.5	—		A-A	10000	—	—	—	—	—	3500	—
					B-A	10000	2.0	—	—	10500	3500	—	
					C-P	8500	1.0	-3000	0.15	8000	2500	1.6	
					C-T	10000	2.0	-3000	0.15	15000	4000	1.6	
22.0	60	50	—		B-A	15000	2.0	—	—	—	20000	7500	—
					C-P	10000	1.0	-3000	0.30	10000	6600	1.6	
					C-T	15000	2.0	-3000	0.40	30000	10000	1.6	
22.0	60	50	—		B-A	12500	2.0	—	—	—	12000	4000	—
					C-P	10000	1.0	-3000	0.30	10000	2500	1.6	
					C-T	12500	2.0	-3000	0.40	18000	4000	1.6	
20.0	183	34.5	—		B-A	20000	4.0	—	—	—	60000	20000	—
					C-P	12000	2.0	-3000	0.40	24000	12000	5	
					C-T	20000	4.0	-3000	0.40	70000	20000	5	
20.0	183	34.5	—		B-A	20000	4.0	—	—	—	60000	20000	—
					C-P	12000	2.0	-3000	0.40	24000	12000	5	
					C-T	20000	4.0	-3000	0.40	70000	20000	5	
19	138	37	—	—	17000	9	—	—	—	140000	40000	—	
19	138	37	—	—	17000	9	—	—	—	110000	20000	—	
5.0	55	26	11000	C-T	5000	1.75	-1000	0.20	—	8750	3000	110	
5.0	55	26	11000	C-T	8500	1.75	-1000	0.40	—	10000	4000	30	
6.3	92	24	22000	C-T	10500	3.75	-1500	0.6	—	30000	10000	30	
7.5	57	26	21000	C-T	8500	2.75	-1500	0.30	—	23000	10000	110	
11.0	176	19.5	—	C-T	12500	3.0	-2000	0.45	—	32500	10000	25	

A-A .A-F Power Amplifier and Modulator, Class A
 B-A .A-F Power Amplifier and Modulator, Class B
 C-P Plate Modulated RF Power Amplifier, Class C Telephony
 C-T .R-F Power Amplifier and Modulator, Class A

VACUUM POWER TUBES



5606	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Replaces Type 892 tube where center-tapped filament is not required. Designed especially for industrial applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures. Pure-tungsten, stress-free filament.
5619	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communications, or industrial service. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures, and heavy-wall anode. Pure-tungsten filament.
5658	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Replaces Type 880 tube directly. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals and ruggedized electrode structures. Pure-tungsten filament.
5666	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Uses automatic-seal water jacket and replaces Type 889A electrically. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures and heavy-wall anode. Pure-tungsten, stress-free filament.
5667	Forced air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Replaces Type 889RA directly. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures, and heavy-wall anode. Pure-tungsten, stress-free filament.
5668	Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Uses automatic-seal water jacket and replaces Type 892 tube electrically. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures and heavy-wall anode. Pure-tungsten, stress-free filament.
5669	Forced air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Replaces Type 892R tube directly. Designed especially for industrial heating applications. Incorporates sturdy kovar-to-glass seals, ruggedized electrode structures, and heavy-wall anode. Pure-tungsten, stress-free filament.
5681	Water and forced air cooled, all-ring-seal triode for high-power AM, FM and TV broadcast, particle-accelerator, and industrial heating service. Incorporates high-conductivity kovar-to-glass seals, sturdy electrodes, integral anode water jacket, quick change water coupling, and heavy-wall copper anode. Multi-strand, self-supporting, thoriaated-tungsten filament.
5682	Water and forced air cooled, all-ring-seal triode for high-power AM and low-band TV broadcasting, particle-accelerator, and industrial-heating service. Incorporates high-conductivity kovar-to-glass seals, sturdy electrodes, integral anode water jacket, quick change water coupling, and heavy-wall copper anode. Multi-strand, self-supporting, thoriaated-tungsten filament.
5736	★ Forced air-cooled, triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Thoriaated tungsten filament.
5764	Rocket Tube (Pulse Modulated Oscillator) The Sylvania type 5764 is a medium mu uhf triode employing planar construction. It is designed for service as a CW or pulse modulated oscillator at frequencies up to 3300 mc with medium power output. Frequency ratios of about 4 to 1 (250 mc to 1000 mc) for continuous tuning can be obtained up to 1000 mc with no dead spots throughout the range, ratios of about 3 to 1 can likewise be obtained up to 3300 mc.
5765	Rocket Tube (Broad Band CW Oscillator) The Sylvania type 5765 was designed for use as a cw oscillator at frequencies up to 2900 mc. The 5765 has a built-in internal feedback circuit between cathode and anode and fits into a concentric circuit. A small amount of adjustable, external feedback is generally necessary in order to obtain optimum power output at any given frequency. A feedback probe between the output and input lines may be used.

★ Three filament terminals Y-connected in 3-phase with neutral center terminal.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament		Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Plate		Freq. @ Ratings mc/sec
	Current Amps					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc		Input Watts	Dissip. Watts	
22.0	60		50	—	C-T	14000	2.0	-1600	0.40	—	25000	10000	1.6
11.0	176		19.5	—	C-T	12500	3.0	-2000	0.45	—	32500	20000	25
12.0	310		20	—	C-T	12500	5.0	-1600	0.80	—	60000	20000	15
11.0	120		21	—	C-T	10000	2.0	-1500	0.35	—	20000	12500	22.5
11.0	120		21	—	C-T	10000	2.0	-1500	0.35	—	20000	7500	22.5
22.0	60		50	—	C-T	14000	2.0	-1600	0.40	—	28000	20000	5
22.0	60		50	—	C-T	14000	2.0	-1600	0.40	—	28000	10000	5
12.0	220		25	—	C-T C-T	15000 9000	12 12	-3200 -3200	2.0 2.0	— —	150000 90000	75000 75000	30 110
16.5	325		30	—	C-T C-T	16000 9000	20 20	-3200 -3200	4.0 4.0	— —	300000 170000	120000 100000	30 88
6	60		22	—	C-T	5000	1.4	-1000	0.5	—	5000	2500	60
6.3	425		—	—	CW-1000MC	150	—	—	—	—	—	5	—
6.3	400		—	—	CW	180	—	—	—	—	—	5.0	—

C-T R-F Power Amplifier and Oscillator, Class C Telegraphy
 CW Continuous Wave

VACUUM POWER TUBES



5767

Rocket Tube (CW Oscillator) The planar triode 5767 was designed for service as a cw oscillator at frequencies up to 3300 mc. It is identical with Sylvania type 2C37 except that both discs are folded, making it particularly adapted to applications in lumped-constant or butterfly circuits.

5768

Rocket Tube (CW Oscillator) The Sylvania type 5768 is designed for service as a grounded grid amplifier at frequencies up to 3000 mc and may be used with a tuned or untuned input and tuned coaxial line output. Frequency ratios of about 4 to 1 (250-1000mc) for continuous tuning can be obtained up to 1000 mc with no dead spots throughout the range. Ratios of about 3 to 1 can likewise be obtained up to 3300 mc.

5891

Twin Triode high vacuum power tube used as an amplifier in broadcast, communication or industrial service.



5936

Triode high vacuum power tube used as an amplifier in broadcast, communication or industrial service.

6256

Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Designed especially for industrial heating applications. Incorporates coaxial type terminals, sturdy kovar-to-glass seals, ruggedized electrode structures, and heavy-wall anode. Thoriated tungsten, stress-free filament.

6257

Water-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Designed especially for industrial heating applications.

Incorporates coaxial type terminals, sturdy kovar-to-glass seals, ruggedized electrode structures, heavy wall anode and integral anode water jacket. Thoriated tungsten, stress-free filament.

6258

Forced-air-cooled triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Especially suited to high frequency FM broadcasting and RF heating. Incorporates coaxial type terminals, sturdy kovar-to-glass seals, ruggedized electrode structures, heavy wall anode and high-efficiency radiator. Thoriated-tungsten, stress-free filament.

6420

Water-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high-dissipation, low inductance r-f electrode terminals. Heavy-wall anode. Thoriated tungsten stress-free filament.

6421

Forced-air-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates lightweight aluminum disc-finned anode cooler; rugged coaxial mounting structures provide high dissipation, low inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.

6421-F

Forced air cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high-dissipation, low inductance r f electrode terminals. Heavy-wall anode with conventional copper radiator permitting use in type 5667 sockets. Thoriated tungsten stress-free filament.

6422

Water-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high-dissipation, low-inductance r-f electrode terminals. Heavy-wall anode. Thoriated tungsten stress-free filament.



★ *Three filament terminals Y-connected in 3-phase with neutral center terminal.*

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament		Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Input Watts	Plate Dissip. Watts	Freq. @ Ratings mc/sec
	Current Amps					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc				
6.3	0.4	—	—	—	CW	150	—	—	—	—	—	6	—
6.3	400	—	—	—	—	1000	—	—	—	—	—	5.0	—
11.0	95	—	—	—	Class C	15000	8.0	—	—	—	—	25000	—
20.0	143	—	—	—	Class C	18000	10.0	—	—	—	—	70000	—
12.6	27	21	—	—	C-T	5500	1.5	-1500	0.22	—	7000	5000	110
12.6	27	21	—	—	C-T	5500	1.5	-1500	0.22	—	7000	5000	110
12.6	27	21	—	—	C-T	5500	1.5	-1500	0.22	—	7000	3000	110
7.0	85	20	—	—	C-T C-T	10000 8000	2.2 1.8	-1600 -1600	0.40 0.40	— —	20000 12000	12500 8300	30 30
7.0	85	20	—	—	C-T C-P	10000 8000	2.2 1.8	-1600 -1600	0.40 0.40	— —	20000 12000	10000 6700	30 30
7.0	85	20	—	—	C-T C-P	10000 8000	2.2 1.8	-1600 -1600	0.40 0.40	— —	20000 12000	7500 5000	30 —
7.0	85	90	—	—	C-T C-P	12500 9000	2.5 1.8	-1400 -1400	0.50 0.50	— —	30000 16000	20000 13000	30 30

CW — Continuous Wave
 Class C — Oscillator Service
 C-T — R.F. Power Amplifier and Oscillator, Class C Telegraphy
 C-P — Plate Modulated RF Power Amplifier, Class C Telegraphy

VACUUM POWER TUBES



6423	Forced air cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates lightweight aluminum disc-finned anode cooler; rugged coaxial mounting structures, provide high-dissipation, low-inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.
6423-F	Forced air-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high dissipation, low-inductance r-f electrode terminals. Heavy-wall anode with conventional copper radiator permitting use in 892 R or 5669 sockets. Thoriated-tungsten stress-free filament.
6424	Water-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high-dissipation, low-inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.
6425	Forced air cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates lightweight aluminum disc-finned anode cooler rugged coaxial mounting structures, provide high dissipation, low-inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.
6425-F	Forced air-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures providing high dissipation, low-inductance r-f electrode terminals. Heavy wall anode with conventional copper radiator permitting use in 5604 sockets. Thoriated-tungsten stress-free filament.
6426	Water-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high dissipation, low-inductance r-f electrode terminals. Heavy-wall anode. Thoriated tungsten stress-free filament.
6427	Forced air-cooled coaxial terminal triode for industrial heating service and AM broadcasting. Incorporates lightweight aluminum disc-finned anode cooler; rugged coaxial mounting structures, provide high dissipation, low-inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.
6576	Water-cooled triode designed specifically for use as a modulator, or amplifier in broadcast and communication service, and as an r-f amplifier in single-sideband transmission. Mechanically identical to type 356, except that it employs heavier anode. Thoriated-tungsten stress-free filament.
6623	Forced air-cooled, triode for use as a modulator, amplifier, or oscillator in broadcast, communication, or industrial service. Thoriated-tungsten filament. Filament and grid straps are soldered to terminals.
6696	Water-cooled coaxial-terminal triode for industrial heating service and AM broadcasting. Incorporates rugged coaxial mounting structures, providing high-dissipation, low-inductance r-f electrode terminals. Heavy wall anode. Thoriated-tungsten stress-free filament.
6697	Forced air-cooled coaxial-terminal triode for industrial heating service and AM broadcasting. Incorporates lightweight aluminum disc-finned anode cooler; rugged coaxial mounting structures, provide high dissipation, low-inductance r-f electrode terminals. Heavy-wall anode. Thoriated-tungsten stress-free filament.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament		Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Plate		Freq. @ Ratings mc/sec
	Current Amps					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc		Input Watts	Dissip. Watts	
7.0	85	90	—	C-T C-P	12500	2.5	-1400	0.50	—	30000	12500	30	
					9000	1.8	-1400	0.50		16000	8000		
7.0	85	90	—	C-T C-P	12500	2.5	-1400	0.50	—	30000	10000	30	
					9000	1.8	-1400	0.50		16000	6500		
7.0	120	20	—	C-T C-P	12500	3.5	-2000	0.50	—	40000	20000	30	
					9000	2.5	-2000	0.50		22000	13000		
7.0	120	20	—	C-T C-P	12500	3.5	-2000	0.50	—	40000	12500	30	
					9000	2.5	-2000	0.50		22000	8000		
7.0	120	20	—	C-T C-P	12500	3.5	-2000	0.50	—	40000	10000	30	
					9000	2.5	-2000	0.50		22000	6500		
8.0	200	20	—	C-T C-P	12500	8.0	-2000	1.0	—	80000	40000	30	
					9000	6.0	-2000	1.0		53000	26000		
8.0	200	20	—	C-T C-P	12500	7.0	-2000	1.0	—	80000	20000	30	
					9000	5.5	-2000	1.0		53000	13000		
7.5	170	5.5	—	C-T SSB*	10000	6.0	-2400	0.20	—	60000	22500	25	
					12000	5.0	—	—		45000	22500		
6	60	22	—	C-T	5000	1.4	-1000	0.5	—	5000	2500	30	
13.0	205	20	—	C-T C-P	16000	11	-3200	2.0	—	120000	60000	30	
					10000	8.5	-3200	2.0		81000	40000		
13.0	205	20	—	C-T C-P	16000	11	-3200	2.0	—	120000	35000	30	
					10000	8.5	-3200	2.0		81000	23000		

C-T R-F Power Amplifier and Oscillator, Class C Telegraphy
 C-P Plate Modulated RF Power Amplifier, Class C Telegraphy
 SSB* R-F Power Amplifier Class AB Single-Side Band

BEAM POWER TUBES



2E24	Beam Power tube with quick-heating coated-filament for mobile communications equipment. Octal 8-pin base. Small cap.
2E26	Beam power tube of the heater-cathode type. Designed for use in the low power driver stages or in the output stages of FM transmitters. Octal 8-pin base. Small cap.
2E30	VHF Beam Power Tube.
3E29	High-perveance, twin-unit beam power tube with unipotential cathodes. For use in rectangular wave pulse modulator service. Medium molded, flare septar 7 pin base.
4X150A	Very small and compact, uhf, radiator type with unipotential cathode. For power amplifier or oscillator service. May also be used as a wide band amplifier in video applications. Special 8-pin base.
807	Beam power tube of the heater-cathode type. For amateur transmitter design. Features high power sensitivity and extremely low grid-driving power. Small 5-pin, micanol base. Small cap.
810	High-perveance type with a graphite anode and a thoriated tungsten filament. Features high plate efficiency with low driving power and relatively low plate voltage. Jumbo 4-pin base. Skirted medium end cap, medium side cap.
811A	Improved and superseding version of the popular 811. Utilizes a modified construction featuring a zirconium coated plate having radiating fins to give greater dissipation capability and to permit increased ratings for plate current and plate input. Small 4-pin, micanol, bayonet base. Medium cap.
812A	Improved and superseding version of the popular 812. Has same structural features of type 811A with increased ratings for plate current and plate input.
813	Beam power tube with thoriated tungsten filament. Useful as a high-power final amplifier for quick band-change. Giant 7 pin base. Medium cap.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament Current Amps	Mu	Gm μMhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Input Watts	Plate Dissip. Watts	Freq. @ Ratings mc/sec
					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc				
6.3	0.65	7.5	3200	—	600	0.085	—	—	—	40	13.5	—
6.3	0.80	6.5	3500	—	500	0.075	—	—	—	30	10	—
6	0.65	—	—	—	250	0.060	—	—	—	15	10	—
6.3 12.6	2.25 1.125	—	—	—	—	—	—	—	—	—	—	—
6.0	2.6	5	12000	AB- C-T-F C-P	1250 1250 1000	0.250 — —	— — —	— — —	— — —	— — —	150 150 150	— — —
6.3	.90	8	6000	—	600	0.100	—	—	—	60	25	—
10	4.50	36	—	—	2000 2250	0.250 0.275	— —	— —	— —	500 620	125 150	— —
6.3	4.00	160	—	—	1250 1500	0.175 0.175	— —	— —	— —	175 260	45 65	— —
6.3	4.00	29	—	—	1250 1500	0.175 0.175	— —	— —	— —	175 260	45 65	— —
10	5.00	8.5	3750	—	2000 2250	0.180 0.225	— —	— —	— —	360 500	100 125	— —

AB- Class AB, Push-Pull AF Modulator Service
 C-T-F Class C Telegraph or FM Telephone Service
 C-P Plate Modulator R-F Power Amplifier, Class C Telephony

BEAM POWER TUBES



815

Twin-unit beam power tube with heater-cathode. For experimental low power, FM, and television transmission. Octal 8-pin base. Two small caps.

829B

Twin-unit beam power tube of the heater-cathode type. Septar 7-pin base. Two wire top terminals.

832A

Twin-unit beam power tube of the heater-cathode type, with features similar to the 829B.

1624

Quick-heating beam power tube of the coated filament type. Similar to type 807 except for 2.5-volt filament. Small 5-pin base. Small cap.

5763

Beam power tube of the 9-pin miniature type for use in compact, low-power mobile transmitters and in the low-power stages of fixed station transmitters. Particularly useful in doubler and tripler service. Has unipotential cathode.

5902

Beam Power Pentode.

5902A

Beam Power Pentode.

5932

Ruggedized Beam Pentode. Designed for use in control or recording devices, or as an amplifier in equipment subject to mechanical shock or vibration. See data for this type on Page 30.

5933

Ruggedized Beam Pentode designed for use in mobile transmitters, or in amplifiers which may be subjected to shock or vibration. See data for this type on Page 30.

**6005
6AQ5W
6095**

Beam Power Pentode.

6146

Small, sturdy, vhf beam power tube. Operates at relatively low plate voltages due to its high efficiency and high power sensitivity. For use as an amplifier, oscillator, and modulator in both fixed and mobile equipment. Useful up to 175 Mc at reduced ratings. Octal 8-pin base.

6159

Vhf beam power tube. Like the 6146 but has a 26.5-volt heater for use in aircraft service.



GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament Current Amps	Mu	Gm μ Mhos	Class of Service	Plate		Grid		Screen Voltage Vdc	Plate Input Watts	Plate Dissip. Watts	Freq. @ Ratings mc/sec
					Voltage Vdc	Current Adc	Voltage Vdc	Current Adc				
6.3	1.6	6.5	4000	—	400	0.150	—	—	—	60	20	—
					500	0.150	—	—		75	25	
6.3	2.25	9	8500	—	750	0.240	—	—	—	120	40	—
6.3	0.8	7	3500	—	750	0.090	—	—	—	36	15	—
2.5	2.0	—	4000	AB ₂ C-P C-T	600	0.090	—	—	—	54	25	—
					500	—	—	—		37.5	16.5	
					600	—	—	—		54	25	
6	0.75	—	7000	—	300	0.050	—	—	—	15	12	—
6.3	0.45	—	4200	—	165	0.030	—	—	—	—	4	—
6.3	0.45	—	—	—	—	—	—	—	—	—	—	—
6.3	0.90	—	—	—	400	—	—	—	—	—	—	—
6.3	0.90	—	—	—	600	—	—	—	—	—	—	—
6.3	0.450	—	—	—	—	—	—	—	—	—	—	—
6.3	1.25	4.5	7000	—	600	0.140	—	—	—	67.5	20	—
					750	0.150	—	—		90	25	
26.5	0.3	4.5	7000	—	600	0.140	—	—	—	67.5	20	—
					750	0.150	—	—	—	90	25	—

AB₂ Class AB₂ Push-Pull AF Modulator Service
 C-P Plate Modulated RF Power Amplifier, Class C Telephony
 C-T: R-F Power Amplifier and Oscillator, Class C Telephony

RECTIFIERS



2X2A	Heater-cathode type. Small 4-pin base. Small cap.
3B28	Half-wave xenon rectifier. Small 4-pin, bayonet base. Medium cap.
5R4GY	Full wave coated-filament type. Octal 5-pin, micanol base.
5Y3WGT	Filamentary Double Diode.
5Y3WGTA	Filamentary Double Diode.
6X4W	Cathode Type Double Diode.
6X5WGT	Cathode Type Double Diode.
102A	Air-insulated, high-vacuum, half-wave rectifier tube. Used in smoke, dust, and other small particle electrostatic precipitation. Sturdy, Catenary-type, pure tungsten filament.
103	Oil-insulated, high-vacuum, half-wave rectifier tube. Used in industrial applications requiring high-voltage, low-current power. Pure tungsten filament.
108	Oil-insulated, high-vacuum, half-wave rectifier tube. Used in smoke, dust, and other small particle precipitation applications. Sturdy, loop-type, pure tungsten filament.
115	Air-insulated, high-vacuum, half-wave rectifier tube. Suitable for small particle electrostatic precipitation and other applications requiring high-voltage, low-current power. Sturdy, loop-type, pure tungsten filament.
120	Air-insulated, high-vacuum, half-wave rectifier tube. Used in smoke, dust, and other small particle precipitation applications. Sturdy, loop-type, pure tungsten filament. 120 designed to withstand 140 peak inverse kilovolts, 126 150 peak inverse kilovolts.
121	Oil-insulated, high-vacuum, half-wave rectifier tube. Used in industrial applications requiring high-voltage, low-current power. Sturdy, loop-type pure tungsten filament.
141	Oil or air-insulated high-vacuum, half-wave rectifier tube. Used in smoke, dust and other small particle precipitation applications. Extremely low internal voltage drop. Sturdy, catenary-type, thoriated-tungsten filament.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Voltage Volts	Filament	Current Amps	Peak Inverse Anode Voltage Kilovolts	Peak Anode Current Milliamperes
2.5		1.75	12500	0.100
2.5		5.0	5000	2.0
5.0		2.0	2800	0.65
5.0		2.0	1400	0.40
5.0		2.0		
6.3		0.60		
6.3		0.60		
20		19.0	75	750
10		11.5	125	78
13		12.5	140	200
10		11.5	125	100
13		12.5	140 150	200
10		11.5	140 150	100
Air 5.5 Oil 5.5		6.5 6.5	80 125	750 750

RECTIFIERS



142

Oil or air-insulated high vacuum, half wave rectifier tube. Used in smoke, dust, and other small-particle precipitation applications. Extremely low internal voltage drop. Sturdy, catenary-type, thoriated-tungsten filament.

148

Oil or air-insulated high vacuum, half wave rectifier tube. Used in smoke, dust and other small particle precipitation applications. Extremely low internal voltage drop. Sturdy, catenary-type thoriated-tungsten filament.

170

High vacuum, half wave rectifier tube. Useful in high voltage cable testing, purifying of process and exhaust atmospheres, and other small-particle precipitation. Sturdy, loop type, pure tungsten filament. 170 designed for air-insulated operation. 180, oil insulated operation.

180

High vacuum, half wave rectifier tube. Useful in high voltage cable testing, purifying of process and exhaust atmospheres, and other small-particle precipitation. Sturdy, loop type, pure tungsten filament. 170 designed for air-insulated operation. 180, oil insulated operation.

199

Air-insulated, high-vacuum, half-wave rectifier tube. Used in smoke, dust, and other small-particle electrostatic precipitation. Sturdy, catenary type, thoriated-tungsten filament.

222A

Water-cooled, half wave rectifier for use in broadcast or communication equipment. Anode dissipation rating, 25 kilowatts. Pure-tungsten filament.

322

UHF diode of planar electrode type for use as modulation clipper. Coaxial design makes it ideally suited to cavity-type circuits. Indirectly-heated, oxide-coated cathode.

481B

Vacuum Rectifier Tube.

579B

Thoriated-tungsten fil. Super-jumbo 4 pin base. Wire top terminal.

5575/100

Air-insulated, high vacuum, half-wave rectifier tube. Widely used in purifying of process and exhaust atmospheres and many particle precipitation applications. Sturdy, catenary type, pure tungsten filament.

5576/200

Air-insulated, high vacuum, half-wave rectifier tube. Widely used in electrostatic particle precipitation and many high-voltage, high-power applications. Sturdy, catenary-type, pure tungsten filament.

GENERAL CHARACTERISTICS**MAXIMUM RATINGS**

Voltage Volts	Filament		Peak Inverse Anode Voltage Kilovolts	Peak Anode Current Milliamperes
	Voltage	Current Amps		
Air 3.8 Oil 3.8		6.6 6.6	50 100	300 300
Air 5.7 Oil 5.7		6.6 6.6	80 150	1000 1000
Air 13		12.5	200	200
Air 13		12.5	200	200
Air 12		23	110	10000
Air 21.5		41	25	5000
Air 6.3		95	800	600
2.5		5	25000	0.015
2.5		6	20000	0.27
20		24	150	1000
20		32	150	2500

THYRATRONS



414	Thyratron.
610	Thyratron.
624	Thyratron.
627	Negative-control, filament type. Super-jumbo 4-pin base, medium cap.
628	Thyratron.
629	Neg.-control, heater-cathode type. Small 5-pin base, relaxation oscillator.
632B	Negative-control, heater-cathode type. Ignitor firing applications. Two-medium caps. Small 4-pin, bayonet base.
672A	Negative-control, heater-cathode type. Ignitor firing applications. Medium cap, Super-jumbo 4-pin, bayonet base.
676	Negative-control, heater-cathode type. Super-jumbo 4-pin base. Medium cap.
677	Negative control, heater-cathode type. Super-jumbo 4-pin base. Medium cap. Used in heavy condenser welding equipment.
678	Thyratron (Mercury Vapor Rectifier) used in motor safety control.
884	Negative-control, heater-cathode type. Relaxation oscillator. Small 5-pin base.
885	Negative-control, heater-cathode type. Small 5-pin base. Relaxation oscillator.
2050	Negative-control, heater-cathode type. Octal 8-pin base.
5557	Negative-control, filament type. Small 4-pin, bayonet base. Medium cap.
5559	Negative-control, heater-cathode type. Small 4-pin, bayonet base. Medium cap.
5560	Negative-control, heater-cathode type. Ignitor firing applications. Small 4-pin, bayonet base. Two medium caps.
5685	Negative-control, filament type. Super-jumbo 4-pin base. Medium cap.
5796	Thyratron, (Grid-Control) used in welding and as a relay and motor control tube.
6011	Thyratron.

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Filament Voltage Volts	Filament Current Amps	Plate		
		Volts Peak Inverse	Amps Peak	Amps Avg.
5	20	2000	100	12.5
2.5	6.5	500	0.4	0.1
5.0	10.0	2500	80.0	6.4
2.5	5.0	5000	2.5	0.64
5.0	12.3	2500	8.0	2.0
2.5	2.6	350	0.2	0.04
5.0	5.0	1500	30.0	2.5
5.0	5.0	2500	40.0	3.2
5.0	10.0	2500	40.0	6.4
5.0	10.0	10000	15.0	4.0
5.0	7.5	15000	6.0	1.6
6.3	0.6	350	0.3	0.075
2.5	1.5	350	0.3	0.075
6.3	0.6	1300	1.0	0.1
2.5	5.0	5000	2.0	0.5
5.0	4.5	1000	15.0	2.5
5.0	4.5	1000	15.0	2.5
2.5	21	1250	77.0	6.4
2.5	8.5	1500	20.0	1.6
2.5	9	1250	30.0	2.5

MAGNETRONS



2J42

The Sylvania Type 2J42 is a low power, pulsed, fixed frequency (9345–9405 Mc) magnetron. The unit is supplied with magnet in place.

5789

The Sylvania Type 5789 is a pulsed, fixed frequency magnetron. The output is designed for coupling direct to standard RC-96/U waveguide. The unit, supplied with magnet in place, weighs approximately 11 pounds. Performance is limited at low powers by excessive pushing and poor spectrum. High power performance is limited by arcing.

6799

Sylvania type 6799 is a high power, pulsed, fixed frequency (34512–35208 Mc) magnetron. The unit is supplied with magnet in place.

6874

Sylvania type 6874, selected bandwidth M561, is a high power, pulsed, tunable magnetron with frequency range between 8800–9400 Mc. The 6874 is similar to 4J50 with the tube supplied with magnet in place.

MERCURY VAPOR RECTIFIERS



575A

Convection-or-air-cooled, half wave rectifier for use in broadcast or industrial equipment. Oxide-coated filament.

673

Convection-cooled half-wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

857B

Convection- or air-cooled, half-wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

866A

Convection-cooled, half-wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

869B

Convection- or air-cooled, half wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

872A

Convection-cooled, half-wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

8008

Convection-cooled, half-wave rectifier for use in broadcast, communication, or industrial equipment. Oxide-coated filament.

IGNITRONS



5550/681

Compact, steel jacketed type with removable clamp for air or water cooled operation.

**5551A/
652**

Steel jacketed type recommended for welder-control service but also useful for rectifier service in low-power circuits. Supersedes and replaces type 5551. Has bracket for mounting thermostat.

**5552A/
651**

Steel jacketed type recommended for welder-control service but also useful for rectifier service in low-power circuits. Supersedes and replaces type 5552. Has bracket for mounting thermostat.

**5553B/
655**

Steel jacketed type recommended for welder-control service, but also useful for rectifier service in low-power circuits. Supersedes and replaces types 5553 and 553A. Has bracket for mounting thermostat.

5555

Steel jacketed type for rectifier service in the 125-, 250-, 600- and 900-volts dc power field.

MAXIMUM RATINGS

Heater Voltage	Peak Anode Current	Peak Anode Voltage
7.0 volts	5.5 amps	6.0 Kv
7.0 volts max. 5.6 volts min.	20 amps max. 6 amps min.	14.0 kV max.
7.0 volts	40 amps	20 kV
13.75 volts	30 amps	23.0 kV

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Peak Inverse Anode Voltage Volts	Peak Anode Current Amps	Cond. Merc. Temp. Range C	Voltage Vdc	Plate Current Adc
5.0	10	20-50	15000	6.0
5.0	10	20-50	15000	6.0
5.0	30	30-40	22000	20.0
2.5	5.0	25-60	10000	1.0
5.0	19	30-40	20000	10.0
5.0	7.5	20-60	22000	20.0
5.0	7.5	20-60	10000	5.0

GENERAL CHARACTERISTICS

MAXIMUM RATINGS

Size	Supply Volts	Kva Demand	Corresponding Average Anode Current, Amp.	Maximum Average Anode Current, Amp.	Corresponding Kva Demand	Type of Cooling	Warranty
(A)	250-600 rms	300	12.1	22.4	100	Water	H-12
(B)	250-600 rms	600	30.2	56	200	Water	H-12
(C)	250-600 rms	1200	75.6	140	400	Water	H-12
(D)	250-600 rms	2400	192	355	800	Water	H-12
—	2400	2400	135.0	1105	207	Water	—

RELIABLE TUBES



Type No.	Prototype	Differences in Rated Characteristics*	Functional Classification	Typical Application
6AU6WA	6AU6	None	Sharp Cutoff Pentode	RF, AF Amplifier
6J4WA	6J4	None	High Mu Triode	Grounded Grid VHF Amplifier
6SN7WGTA	6SN7GT	Plate Dissipation: 6SN7GT = 3.5 Watts Per Plate 6SN7WGTA = 2.75 Watts Per Plate	Medium Mu Double Triode	Low Frequency Amplifier
12AT7WA	12AT7	None	High Mu Double Triode	VHF Mixer, Osc. Amplifier
5654/6AK5W	6AK5	None	Sharp Cutoff Pentode	RF Amplifier
5654/- 6AK5W/6096	6AK5	None	Sharp Cutoff Pentode	RF Amplifier
5670	2C51	Heater Current: 2C51 = 0.3 Amp. 5670 = 0.35 Amp.	Medium Mu Double Triode	High Frequency Amplifier
5670WA	5670	Electrode Insulation: 5670 = 500 Meg. 5670WA = 100 Meg.	Medium Mu Double Triode	High Frequency Amplifier
5726/6AL5W	6AL5	None	Double Diode	Detector
5726/- 6AL5W/6097	6AL5	None	Double Diode	Detector
5749/6BA6W	6BA6	None	Semi Remote Cutoff Pentode	RF Amplifier
5751	12AX7	Heater Current: 12AX7 = 0.150 Amp. Per Section 5751 = 0.175 Amp. per Section Mu: 12AX7 = 100, 5751 = 70	High Mu Double Triode	AF Amplifier
5751WA	5751	None	High Mu Double Triode	AF Amplifier
5814	12AU7	Heater Current: 12AU7 = 0.15 Amp. Per Section 5814 = 0.175 Amp. Per Section Cutoff: 12AU7 = -25 Volts 5814 = -30 Volts	Medium Mu Double Triode	Low Frequency Amplifier
5814A	5814	Electrode Insulation Test: 5814 = 100 Meg. 5814A = 500 Meg.	Medium Mu Double Triode	Low Frequency Amplifier

* While no differences may be indicated in rated characteristics, there may be differences in controls applied to these characteristics as determined by the applicable MIL specifications.

† For multi-section types values shown are for each section unless otherwise stated.

E_b—Plate Voltage in volts

E_{c1}—Grid No. 1 Voltage in volts

E_{c2}—Grid No. 2 Voltage in volts

E_{c3}—Grid No. 3 Voltage in volts

G_m, G_{m1}—Grid No. 1 Transconductance in micromhos

G_{m3}—Grid No. 3 Transconductance in micromhos

I_b—Plate Current in milliamperes

I_{c1}—Grid No. 1 Current in milliamperes

I_{c2}—Grid No. 2 in milliamperes

P_o—Power Output in watts

P_p—Plate Dissipation in watts

R_g—Grid No. 1 Circuit Resistance in ohms

R_k—Cathode Resistance in ohms

R_l—Load Resistance in ohms

R_p—Plate Resistance in kilohms

Mu—Amplification Factor

Applicable MIL Specification	Heater Characteristics		Ratings† Absolute Maximum			Characteristics
	Ef	If	Eb Volts	Ec2 Volts	Pp Watts	
MIL-E-1/1	6.3	0.30	300	150	3.0	Eb = 250, Ec2 = 150, Rk = 68, Ib = 10.6, Ic2 = 4.3, Gm1 = 5200
MIL-E-1/619C (Navy)	6.3	0.40	165	...	2.5	Eb = 150, Rk = 100, Ib = 15, Gm = 12,000, Mu = 55, Rp = 4.5 K
MIL-E-1/663A (Navy)	6.3	0.600	330	...	2.75	Eb = 250, Ec1 = -8, Ib = 9.0, Gm = 2600, Mu = 20, Ec1 for Ib = 10 μ a: -18 Volts
MIL-E-1/3A	6.3 12.6	0.30 0.15	300	...	2.5	Eb = 250, Rk = 200, Ib = 10, Gm = 5500, Mu = 60
MIL-E-1/4A	6.3	0.175	200	140	1.5	Eb = 180, Ec2 = 120, Rk = 200, Ib = 7.7, Ic2 = 2.4, Gm1 = 5100, Rp = 500 K
MIL-E-1/236	6.3	0.175	200	140	1.5	Characteristics same as 5654/6AK5W
MIL-E-1/5A	6.3	0.35	300	...	1.5	Eb = 150, Rk = 240, Ib = 8.2, Mu = 35, Gm = 5500
MIL-E-1/247	6.3	0.35	300	...	1.5	Characteristics Same as Type 5670
MIL-E-1/7B	6.3	0.30	Peak Inverse Voltage = 360 Volts, Peak Current Per Plate = 50 Ma, DC Output Current = 10 Ma			
MIL-E-1/235A	6.3	0.30	Characteristics Same as Type 5726/6AL5W
MIL-E-1/8	6.3	0.30	330	150	3.3	Eb = 250, Ec2 = 100, Ec3 = 0, Rk = 68, Ib = 11, Ic2 = 4.2, Gm1 = 4400, Rp = 1.0 Meg., Ec1 for Gm = 40 μ mhos: -20 Volts
MIL-E-1/10A	6.3 12.6	0.35 0.175	330	...	0.8	Eb = 250, Ec1 = -3, Ib = 1.0, Mu = 70, Gm = 1200, Ec1 for Ib = 10 μ a: -5 Volts
MIL-E-1/237	6.3 12.6	0.35 0.175	330	...	0.8	Characteristics Same as Type 5751
...	6.3 12.6	0.35 0.175	330	...	3.0	Eb = 250, Ec1 = -8.5, Ib = 10.5, Gm = 2200, Mu = 17, Ec1 for Ib = 10 μ a: -30 Volts
MIL-E-1/12A	6.3 12.6	0.35 0.175	330	...	3.0	Characteristics Same as Type 5814

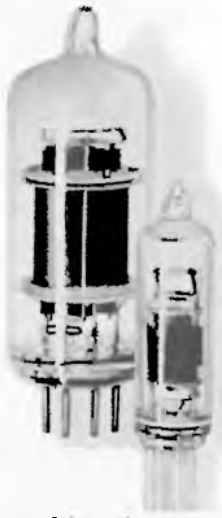
RELIABLE TUBES

* While no differences may be indicated in rated characteristics, there may be differences in controls applied to these characteristics as determined by the applicable MIL specifications.

† For multi-section types values shown are for each section unless otherwise stated.

Eb—Plate Voltage in volts
 Ec1—Grid No. 1 Voltage in volts
 Ec2—Grid No. 2 Voltage in volts
 Ec3—Grid No. 3 Voltage in volts
 Gm, Gm1—Grid No. 1 Transconductance in micromhos
 Gm3—Grid No. 3 Transconductance in micromhos
 Ib—Plate Current in milliamperes
 Ic1—Grid No. 1 Current in milliamperes
 Ic2—Grid No. 2 in milliamperes
 Po—Power Output in watts
 Pp—Plate Dissipation in watts
 Rg—Grid No. 1 Circuit Resistance in ohms
 Rk—Cathode Resistance in ohms
 Rl—Load Resistance in ohms
 Rp—Plate Resistance in kilohms
 Mu—Amplification Factor

Type No.	Prototype	Differences in Rated Characteristics*	Functional Classification	Typical Application
5814WA	5814A	Cutoff: 5814A = -30 Volts 5814WA = -25 Volts	Medium Mu Double Triode	Low Frequency Amplifier
5933WA	807	Bulb Size 807—ST-16 5933WA— T-12	Beam Power Pentode	RF, AF Power Amplifier
6005/- 6AQ5W/6095	6AQ5	Plate Dissipation: 6AQ5 = 12.0 Watts 6005/6AQ5/6095 = 11.0 Watts	Beam Power Pentode	Power Amplifier
6135	6C4	Heater Current: 6C4 = 0.15 Amp. 6135 = 0.175 Amp.	Medium Mu Triode	RF Oscillator Amplifier
6189/- 12AU7WA	12AU7	None	Medium Mu Double Triode	Oscillator Low Freq. Amplifier



† For multi-section types values are for each section unless otherwise stated.

Eb—Plate Voltage in volts
 Ec1—Grid No. 1 Voltage in volts
 Ec2—Grid No. 2 Voltage in volts
 Ec3—Grid No. 3 Voltage in volts
 Gm, Gm1—Grid No. 1 Transconductance in micromhos
 Gm3—Grid No. 3 Transconductance in micromhos
 Ib—Plate Current in milliamperes
 Ic1—Grid No. 1 Current in milliamperes
 Ic2—Grid No. 2 in milliamperes
 Po—Power Output in watts
 Pp—Plate Dissipation in watts
 Rg—Grid No. 1 Circuit Resistance in ohms
 Rk—Cathode Resistance in ohms
 Rl—Load Resistance in ohms
 Rp—Plate Resistance in kilohms
 Mu—Amplification Factor
 NH—48.35M.6.57

RUGGEDIZED TUBES

Type No.	Prototype	Differences in Rated Characteristics	Functional Classification	Typical Application
5Y3WGT	5Y3GT	None	Filamentary Double Diode	Full Wave Power Rectifier
6SJ7WGT	6SJ7GT	None	Sharp Cutoff Pentode	Voltage Amplifier
6SL7WGT	6SL7GT	None	High Mu Double Triode	Voltage Amplifier
6SN7WGT	6SN7GT	None	Low Mu Double Triode	Voltage Amplifier, Low Freq. Oscillator
6XW4	6X4	None	Cathode Type Double Diode	Full Wave Power Rectifier
6X5WGT	6X5GT	None	Cathode Type Double Diode	Full Wave Power Rectifier
28D7W	28D7	None	Double Pentode	Power Amplifier
5931	5U4G	None	Filamentary Double Diode	Full Wave Power Rectifier
5932	6L6GA	None	Beam Pentode	AF Power Amplifier
5933	807	Bulb Size 807: ST-16 Bulb Size 5933: T-12	Beam Pentode	RF, AF Power Amplifier

Applicable MIL Specification	Heater Characteristics		Ratings† Absolute Maximum			Characteristics
	Ef	If	Eb Volts	Ec2 Volts	Pp Watts	
MIL-E-1/238A	6.3 12.6	0.35 0.175	330		3.0	Characteristics Same as Type 5814
MIL-E-1/852A (Navy)	6.3	0.900	600	300	25.0	Eb = 600, Ec2 = 300, Ec1 = -29, Ib = 36, Ic2 = 4.0 Max., Ib at Ec1 = -100 Volts = 5 Ma Max., Power Output at 15 Mc with Eb = 600, Ec2 = 200, Ib = 100, Ic1 = 5 to 7, Rl = 10,000 ohms, 33 Watts Min.
MIL-E-1/239	6.3	0.450	275	275	11.0	Eb = 250, Ec2 = 250, Ec1 = -12.5, Ib = 45, Ic2 = 4.5, Gm1 = 4100, Rp = 52 K, Rl = 5000, Po = 4.5 Watts
MIL-E-1/15	6.3	0.175	330		3.8	Eb = 250, Ec1 = -8.5, Ib = 10.5, Mu = 17, Gm = 2200, Ec1 for Ib = 10 μ a: -25 Volts
MIL-E-1/246A	6.3 12.6	0.30 0.15	330		3.0	EB = 250, Ec1 = -8.5, Ib = 10.5, Gm = 2200, Mu = 17, Ec1 for Ib = 10 μ a: -25 Volts

Vibration in G's (25 cps)	Shock	Mech. Resonance	Ratings-Design Center Maximum					Characteristics
			Heater Characteristics		Eb Volts	Ec2 Volts	Pp Watts	
			Ef Volts	If Amperes				
2.5	750	None Below 100 cps	5.0	2.0	Peak Inverse Voltage = 1400 Volts, Peak Current Per Plate = 400 Ma, DC Output Current = 125 Ma			
2.5	450	None Below 100 cps	6.3	0.30	300	125	2.5	Eb = 250, Ec3 = 0, Ec2 = 100, Ec1 = 3, Ib = 3.0, Ic2 = 0.8, Gm = 1650, Rp = >1.0 Meg, Ec1 for Ib = 10 μ a: -8 Volts
2.5	450	None Below 100 cps	6.3	0.30	250		1.0	Eb = 250, Ec1 = -2, Rk = 870, Ib = 2.3, Gm = 1600, Mu = 70, Rp = 44K
2.5	450	None Below 100 cps	6.3	0.60	300		3.5 Each 5.0 Both	Eb = 250, Ec1 = -8, Ib = 9.0, Gm = 2600, Mu = 20, Rp = 2.6 K, Ec1 for Ib = 10 μ a: -18 Volts, Ib at Ec1 = -12.5: 1.3 Ma
2.5	750	None Below 100 cps	6.3	0.60	Peak Inverse Voltage = 1250 Volts, Peak Plate Current Per Plate = 210 Ma, DC Output Current = 70 Ma			
2.5	450	None Below 100 cps	6.3	0.60	Peak Inverse Voltage = 1250 Volts, Peak Plate Current Per Plate = 210 Ma, DC Output Current = 70 Ma			
2.5	450	None Below 100 cps	28.0	0.40	100	67.5	3.0	Eb = 28.0, Ec2 = 28.0, Ec1 = -3.5, Ib = 12.5, Ic2 = 1.0, Gm = 3400, Rp = 4.2 K, Rl = 4000, Po = 0.1
2.5	450	None Below 100 cps	5.0	3.0	Peak Inverse Voltage = 1550, Peak Plate Current Per Plate = 675 Ma, DC Output Current = 225 Ma			
2.5	450	None Below 100 cps	6.3	0.90	360	270	19	Eb = 350, Ec2 = 250, Ec1 = -18, Ib = 54, Ic2 = 2.5, Gm = 5200, Rp = 33 K, Rl = 4200, Po = 10.8
2.5	450	None Below 100 cps	6.3	0.90	600	300	25	Eb = 600, Ec2 = 300, Ec1 = -29, Ib = 36, Ic2 = 4.0 Max., Po at 15 Mc with Eb = 600, Ec2 = 200, Ib = 100, Ic1 = 5 to 7, Rl = 10,000, 33 Watts Min.

For further information on Sylvania industrial tubes, see your Sylvania Distributor

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FORM NH48-50M-3-58