SYLVANIA CRYSTAL DIODES

			MAXIMUM RATINGS AT 25° C				CHARACTERISTICS AT 25° C				
TYPE	DESCRIPTION	AMBIENT TEMPERATURE RANGE (0°C)	CONTINUOUS REVERSE WORKING VOLTAGE (VOLTS)	RECURRENT PEAK ANODE CURRENT (MA.)	AVERAGE ANODE CURRENT (MA.)	SURGE CURRENT (MA.1 SEC.)	PEAK REVERSE VOLTAGE FOR ZERO DYNAMIC RESISTANCE (VOLTS MIN.)	FORWARD CURRENT AT +1 VOLT (MA. MIN.)	REVERSE CURRENT (μa MAX.)	FORWARD RESISTANCE AT +1 VOLT (OHMS MAX.)	REVERSE RESISTANCE (OHMS MIN.)
1N34	General Purpose Diode	-50 to +75	60	150	50	500	75	5	30@-10V, 500@-50V	200	333K@-10V, 100K@-50V
1N34A	General Purpose Diode	-55 to +75	60	150	50	500	75	5	30@-10V, 500@-50V	200	330K@-10V, 100K@-50V
1N35	Matched Duo-Diode (Note 1)	-50 to +75	50	60	22.5	100	75	7.5	10@-10V	133	1.0 meg.@-10V
1N38	100 Volt Diode	-50 to +75	100	150	50	500	120	4	6@-3V, 500@-100V	250	500K@-3V, 200K@-100V
1N38A	100 Volt Diode	-55 to +75	100	150	50	500	120	4	6@-3V, 500@-100V	250	500K@-3V, 200K@-100V
1N39	200 Volt Diode	-50 to +75	200	150	50	500	225	3.0	100@-100V, 600@-200V	333	1Meg.@-100V,333K@-200V
1N39A	200 Volt Diode (Glass)	-50 to +75	200	150	50	500	225	3.0	100@-100V, 600@-200V	333	1Meg.@-100V,333K@-200V
1N40	General Purpose Varistor (Note 2)	-50 to +75	25	60	22.5	100	75	12.75@1.5V	35@-10V	118@1.5V	285K@-10V
1N41	General Purpose Varistor (Note 2)	-50 to +75	25	60	22.5	100	75	12.75@1.5V	40@-10V	118@1.5V	250K@-10V
1N42	100 Volt Varistor (Note 2)	-50 to +75	100	60	22.5	100	120	12.75@1.5V	800@-100V	118@1.5V	125K@-10V
1N54	High Back Resistance Diode	-50 to +75	50	150	50	500	75	5	7@-10V, 100@-50V	200	1.4 Meg.@-10V,500K@-50V

SYLVANIA CRYSTAL DIODES Cont'd

			MAXIMUM RATINGS AT 25° C				CHARACTERISTICS AT 25° C				
TYPE	DESCRIPTION	AMBIENT TEMPERATURE RANGE (0°C)	CONTINUOUS REVERSE WORKING VOLTAGE (VOLTS)	RECURRENT PEAK ANODE CURRENT (MA.)	AVERAGE ANODE CURRENT (MA.)	SURGE CURRENT (MA. 1 SEC.)	PEAK REVERSE VOLTAGE FOR ZERO DYNAMIC RESISTANCE (VOLTS MIN.)	FORWARD CURRENT AT + 1 VOLT (MA. MIN.)	REVERSE CURRENT (μa MAX)	FORWARD RESISTANCE AT +1 VOLT (OHMS MAX.)	REVERSE RESISTANCE (OHMS MIN.)
1N54A	High Back Resistance Diode	-50 to +75	50	150	50	500	75	5	7@-10V, 100@-50V	200	1.4 Meg.@-10V, 500K@-50V
1N55	150 Volt Diode	-50 to +75	150	150	50	500	170	4	500@-100V	250	300K@-150V
1N55A	150 Volt Diode	-50 to +75	150	150	50	500	170	4	500@-150V	250	300K@-150V
1N56	High Conduction Diode	-50 to +75	40	200	60	1000	50	15	300@-30V	67	100K@-30V
1N56A	High Conduction Diode	-50 to +75	40	200	60	1000	50	15	300@-30V	67	100K@-30V
1N58	100 Volt Diode	-50 to +75	100	150	50	500	120	4	600@-100V	250	167K@-100V
1N58A	100 Volt Diode	-50 to +75	100	150	50	500	120	4	600@-100V	250	167K@-100V
1N59	250 Volt Diode	-50 to +75	260	150	50	500	275	3.0	800@-250V	333	300K@-250V
1N59A	250 Volt Diode (Glass)	-50 to +75	260	150	50	500	275	3.0	800@-250V	333	300K@-250V
1N60	Video Detector Diode	-50 to +75	25	150	50	500	30	Note 3	Note 4	.....	150K (Note 4)
1N63	High Back R Diode	-50 to +75	100	150	50	400	125	4.0	50@-50V	250	1 Meg.@-50V
1N65	General Purpose Diode	-50 to +75	70	150	50	400	.....	2.5	200@-50V	400	250K@-50V

SYLVANIA CRYSTAL DIODES Cont'd

			MAXIMUM RATINGS AT 25° C				CHARACTERISTICS AT 25° C				
TYPE	DESCRIPTION	AMBIENT TEMPERATURE RANGE (0°C)	CONTINUOUS REVERSE WORKING VOLTAGE (VOLTS)	RECURRENT PEAK ANODE CURRENT (MA.)	AVERAGE ANODE CURRENT (MA.)	SURGE CURRENT (MA.1 SEC.)	PEAK REVERSE VOLTAGE FOR ZERO DYNAMIC RESISTANCE (VOLTS MIN.)	FORWARD CURRENT AT +1 VOLT (MA. MIN.)	REVERSE CURRENT (μa MAX.)	FORWARD RESISTANCE AT +1 VOLT (OHMS MAX.)	REVERSE RESISTANCE (OHMS MIN.)
IN67	High Back Resistance Diode	-50 to +75	80	100	35	500	100	4.0	5@-5V, 50@-50V	250	1 Meg.@-5V, 1 Meg.@-50V
IN69	General Purpose Diode	-55 to +75	60	125	40	400	75	5	50@-10V, 850@-50V	200	200K@-10V, 588K@-50V
IN70	100 Volt Diode	-50 to +70	100	90	30	350	125	3.0	300@-50V, 25@-10V	333	166K@-50V, 400K@-10V
IN71	Low Impedance Varistor (Note 5)	-50 to +75	40	200	60	1000	50	15	300@-30V	67	100K@-30V
IN77A	Photo Diode	Operating Voltage = 50V. D C Max.; Ambient Temp. = 50°C Max.; Dissipation (25°C) = 20 Mw Max.; Reverse Current—Dark (Eb = -50V. D C) = 200 μa D C Max.; Reverse Current—Dark (Eb = -10V. D C) = 50 μa D C Max.; Noise Voltage—Dark (Eb = -45V. D C, RL = 100,000 Ohms) = 15 Mv RMS Max.; Light Sensitivity (RL = 100,000 Ohms) = 5V. Min. Peak to Peak. Operation in the Visible and Infra-Red Spectrum.									
IN81	High Back Resistance Diode	-55 to +75	40	90	30	350	50	3	10@-10V	333	1.0 Meg.@-10V
IN82	U H F Mixer Diode	-50 to +75	.....	.....	.....	.....	Note 6	.....	.....	.....	.....
IN82A	U H F Mixer Diode	-50 to +75	.....	.....	.....	.....	Note 6	.....	.....	.....	.....
IN105	Video Detector Diode	-50 to +75	25	150	50	500	75	Note 3	Note 4	.....	150K (Note 4)
IN109	Harmonic Generator Diode	-50 to +75	15	150	50	500	75	Note 7	.....	.....	.....
IN111	Computer Diode	-50 to +75	60	150	25	500	75	5	Note 8	200	400K@55°C (Note 8)

SYLVANIA CRYSTAL DIODES Cont'd

			MAXIMUM RATINGS AT 25° C				CHARACTERISTICS AT 25° C				
TYPE	DESCRIPTION	AMBIENT TEMPERATURE RANGE (0°C)	CONTINUOUS REVERSE WORKING VOLTAGE (VOLTS)	RECURRENT PEAK ANODE CURRENT (MA.)	AVERAGE ANODE CURRENT (MA.)	SURGE CURRENT (MA. 1 SEC.)	PEAK REVERSE VOLTAGE FOR ZERO DYNAMIC RESISTANCE (VOLTS MIN.)	FORWARD CURRENT AT +1 VOLT (MA. MIN.)	REVERSE CURRENT (μa MAX.)	FORWARD RESISTANCE AT +1 VOLT (OHMS MAX.)	REVERSE RESISTANCE (OHMS MIN.)
IN112	Computer Diode	-50 to +75	60	150	25	500	75	5	Note 8	200	200K@55°C (Note 8)
IN113	Computer Diode	-50 to +75	60	150	25	500	75	2.5	Note 8	400	400K@55°C (Note 8)
IN114	Computer Diode	-50 to +75	60	150	25	500	75	2.5	Note 8	400	200K@55°C (Note 8)
IN115	Computer Diode	-50 to +75	60	150	25	500	75	2.5	Note 8	400	100K@55°C (Note 8)
IN119	Computer Diode	-50 to +75	60	150	25	500	75	5	Note 8	200	400K@55°C (Notes 8 & 9)
IN120	Computer Diode	-50 to +75	60	150	25	500	75	5	Note 8	200	200K@55°C (Notes 8 & 9)
IN132	Video Detector Diode	-50 to +75	25	150	50	500	30	Note 10	Note 4	.....	150K (Note 4)
IN172	U H F Mixer Diode	-50 to +75	.....	.....	.....	.....	Note 6	.....	.....	.....	.....
IN193	Hi Temp. Computer Diode	to 150 Note 10	40@150°C	50	30	100	.....	1.0@+2 Volts	40@-40V	Min. Forward Current @ 2 Volts = 1.5 Ma. @ 150°C Max. Reverse Current @ -40 Volts = 500 μa @ 150°C	
IN194	Hi Temp. Computer Diode	to 150 Note 10	40@150°C	50	30	100	.....	1.5@+2 Volts	60@-40V	Min. Forward Current @ 2 Volts = 2.0 Ma. @ 150°C Max. Reverse Current @ -40 Volts = 600 μa @ 150°C	

SYLVANIA CRYSTAL DIODES Cont'd

			MAXIMUM RATINGS AT 25° C				CHARACTERISTICS AT 25° C				
TYPE	DESCRIPTION	AMBIENT TEMPERATURE RANGE (0°C)	CONTINUOUS REVERSE WORKING VOLTAGE (VOLTS)	RECURRENT PEAK ANODE CURRENT (MA.)	AVERAGE ANODE CURRENT (MA.)	SURGE CURRENT (MA. 1 SEC.)	PEAK REVERSE VOLTAGE FOR ZERO DYNAMIC RESISTANCE (VOLTS MIN.)	FORWARD CURRENT AT +1 VOLT (MA. MIN.)	REVERSE CURRENT (μa MAX)	FORWARD RESISTANCE AT +1 VOLT (OHMS MAX.)	REVERSE RESISTANCE (OHMS MIN.)
1N195	Hi Temp. Computer Diode	to 150 Note 10	40@150°C	50	30	100	.....	2.0@+2 Volts	80@-40V	Min. Forward Current @ 2 Volts = 3.5 Ma. @ 150°C Max. Reverse Current @ -40 Volts = 700 μa @ 150°C	
1N196	Hi Temp. Short Recovery Time	to 150 Note 10	40@150°C	50	30	100	.....	1.0@+2 Volts	40@-40V	Min. Forward Current @ 2 Volts = 1.5 Ma. @ 150°C Max. Reverse Current @ -40 Volts = 500 μa @ 150°C	

Note 1—Units are matched in the forward direction at 1 volt so that the current flowing through the lower resistance unit is within 10% of that through the higher resistance unit. Ratings are shown for each diode.

Note 2—Consists of four specially selected and matched diodes whose resistances are balanced within ±2.50% in the forward direction at 1.5 volts. For additional balance, the forward resistance of each varistor pair is matched to within three ohms. Ratings shown are for each diode.

Note 3—Units are tested in a circuit employing an input of 1.6 volts rms at 40 MC, 75% modulated at 400 cycles. Demodulated output across a 4700 ohm resistor shunted by a 5 μμf capacitor is a minimum of 1.55 volts peak to peak.

Note 4—Minimum specified reverse resistance applies to all points between 0 and -10 volts with 60 cps sweep.

Note 5—Consists of four specially selected diodes whose forward currents are matched within a range of 1 ma. with 1 volt applied. Ratings shown are for each diode.

Note 6—The 1N82, 1N82A, and 1N172 are low noise and low conversion loss U H F television mixer crystals. The noise factor of the 1N82 is 16 db max., that of the 1N82A is 14 db max. The noise factor is measured at 700 mc with a local oscillator drive (bias current) of 0.5 ma.

Note 7—Units are tested in a circuit employing a fundamental frequency of 126 MC. The rectified 3rd harmonic output is 0.5 ma. minimum.

Note 8—Minimum specified reverse resistance applies at 55°C for all points between -10V and -50V with 60 cps sweep.

Note 9—Reverse recovery time for these units is specified and defined as the time required for the diode to recover to a given reverse current when the operating voltage necessary to give 30 ma forward conduction is rapidly switched to -35 volts.

Note 10—Same as note 9 with 5 Ma forward current to -35 volts.

Type	Reverse Current μa	Reverse Resistance Ohms	Recovery Time μsec.
1N119	700	50 K	0.5
	82.5	400 K	3.5
1N120	700	50 K	0.5
	175	200 K	3.5
1N193	400	.....	0.5
1N194	400	.....	0.5
1N195	400	.....	0.5
1N196	100	.....	0.1

Note 11—Units are tested in a circuit employing an input of 0.1 volts RMS at 44 Mc. Rectified output is a minimum of 140 μa with a 3600 ohm load and 65μh shunted by 5 μμf capacitor.

Note 12—Normally supplied with ½" minimum leads, but will be supplied without leads for clip-in applications upon request. The polarity of all Sylvania crystals is indicated by a graphic symbol on the body. The cathode side is indicated by a color band and the label "cath."

CRYSTAL DIODE REPLACEMENT GUIDE

This chart must be read from left to right. That is, the diode in question must be located in the left hand column and its replacement found in the right hand column.

The Sylvania replacement types are electrical replacements only — in some cases mechanical differences exist. However, for those types designed for clip-in or plug-in applications, the replacement is also mechanically equivalent.

Only the manufacturer who registered the type number with RETMA is listed, although several types are manufactured by more than one company.

ABBREVIATIONS OF MANUFACTURERS

SYL—SYLVANIA
CBS-HY—CBS-HYTRON
WE—WESTERN ELECTRIC
RR—RADIO RECEPTOR
GE—GENERAL ELECTRIC
HA—HUGHES AIRCRAFT
RAY—RAYTHEON
TP—TRANSISTOR PRODUCTS
AMP—AMPEREX
LAN—LANSDALE
IR—INTERNATIONAL RECTIFIER
NU—NATIONAL UNION

TYPE	DESIGNATION	DESIGNED FOR	MANUFACTURER	SYLVANIA REPLACEMENT
1N34		General Purpose Use	SYL	1N34A, 1N54, 1N54A
1N34A		General Purpose Use	SYL	1N54A, 1N58A, 1N38A, 1N55A
1N35		Matched Duo-Diode	SYL	1N35
1N38		100 Volt Working Voltage	SYL	1N38A, 1N55, 1N55A
1N38A		100 Volt Working Voltage	SYL	1N55A, 1N63, 1N67
1N39		200 Volt Working Volatge	SYL	1N59
1N39A		200 Volt Working Voltage	CBS-HY	1N39, 1N59
1N40		General Purpose Varistor Use	SYL	1N42, 1N41
1N41		General Purpose Varistor Use	SYL	1N42, 1N40
1N42		100 Volt Varistor	SYL	1N42
1N43		General Purpose Use	WE	1N34, 1N34A
1N44		General Purpose Use	WE	1N58, 1N58A
1N45		General Purpose Use	WE	1N34
1N46		General Purpose Use	WE	1N34, 1N34A
1N47		General Purpose Use	WE	1N38, 1N38A
1N48	G5	General Purpose Use	GE	1N34, 1N34A
1N51	G5C	General Purpose Use	GE	1N34, 1N34A
1N52	G5D	General Purpose Use	GE	1N38, 1N38A, 1N58, 1N58A
1N54		High Back Resistance	SYL	1N54A, 1N81
1N54A		High Back Resistance	SYL	1N81
1N55		150 Volt Working Voltage	SYL	1N55A, 1N39, 1N59
1N55A		150 Volt Working Voltage	SYL	1N39, 1N59
1N55B		150 Volt Working Voltage	HA	1N55A
1N56		High Conduction	SYL	1N56A
1N56A		High Conduction	SYL	1N56A
1N57		(Obsolete Type)	SYL	1N58, 1N58A, 1N38, 1N38A
1N58		100 Volts Working Voltage	SYL	1N58, 1N55, 1N55A
1N58A		100 Volts Working Voltage	SYL	1N38A, 1N55A
1N59		250 Volts Working Voltage	SYL	1N59
1N60		Video Detector	SYL	1N60
1N63	G5E	General Purpose Use	GE	1N63, 1N38A
1N64		Video Detector	GE	1N60, 1N132
1N65	G5G	General Purpose Use	GE	1N38, 1N38A, 1N58, 1N58A
1N66		General Purpose Use	RAY	1N34, 1N34A
1N67		50 Volt DC Restorer	RAY	1N67
1N67A		High Back Resistance	HA	1N67, 1N38A
1N68		100 Volt DC Restorer	RAY	1N38, 1N38A
1N68A		High Peak Voltage	HA	1N58A
1N69	G5K	General Purpose Use	GE	1N69, 1N34A
1N70	G5L	General Purpose Use	GE	1N70, 1N38, 1N38A, 1N58A
1N71		Low Impedance Varistor	SYL	1N71
1N72	G7	UHF Mixer	GE	1N82A
1N73	G9	General Purpose Varistor Use	GE	1N40
1N74	G9A	General Purpose Varistor Use	GE	1N40
1N75	G5M	General Purpose Varistor Use	GE	1N39, 1N63, 1N67
1N77		(Obsolete Type)	SYL	1N77A
1N77A		Photodiode	SYL	1N77A
1N81	G5P	General Purpose Use	GE	1N81, 1N54A
1N82		UHF Mixer	SYL	1N82A, 1N172
1N82A		UHF Mixer	SYL	1N82A

CRYSTAL DIODE REPLACEMENT GUIDE (Cont'd)

TYPE	DESIG-NATION	DESIGNED FOR	MANUFAC-TURER	SYLVANIA REPLACEMENT
1N86		General Purpose Use	AMP	1N34, 1N34A
1N87		Video Detector	AMP	1N60, 1N132
1N88		DC Restorer	AMP	1N38, 1N38A
1N89		High Back Resistance	HA	1N38A
1N90		General Purpose Use	HA	1N34, 1N34A
1N105		Video Detector	SYL	1N105
1N109		Harmonic Generator	SYL	1N109
1N110		UHF Mixer	RR	1N82, 1N82A
1N111		Computer Application	CBS-HY	1N111, 1N119
1N112		Computer Application	CBS-HY	1N112, 1N120
1N113		Computer Application	CBS-HY	1N113
1N114		Computer Application	CBS-HY	1N114
1N115		Computer Application	CBS-HY	1N115
1N116		High Back Resistance	HA	1N54A
1N119		Computer Application	SYL	1N119
1N120		Computer Application	SYL	1N120
1N124		UHF Mixer	LAN	1N82A, 1N172
1N124A		UHF Mixer	LAN	1N82A, 1N172
1N126		General Purpose Use	HA	1N34, 1N34A
1N127		100 Volts Working Voltage	HA	1N38, 1N38A
1N128		High Back Resistance	HA	1N54, 1N54A
1N132		Video Detector	SYL	1N60
1N133		UHF Mixer	CBS-HY	1N82A, 1N172
1N135		General Purpose Use	CBS-HY	1N34, 1N34A
1N147		UHF Mixer	LAN	1N82A, 1N172
1N172		UHF Mixer	SYL	1N82A, 1N172
	CK705	General Purpose Use	RAY	1N34, 1N34A
	CK705A	General Purpose Use	RAY	1N54A
	CK706	Video Detector	RAY	1N60
	CK707	50 Volt DC Restorer	RAY	1N38A, 1N67
	CK708	100 Volt DC Restorer	RAY	1N38, 1N38A, 1N58A
	CK709	General Purpose Varistor	RAY	1N40, 1N41
	CK710	UHF Converter	RAY	1N82, 1N82A
	CK711	High Voltage Varistor	RAY	1N42
	CK713	Computer Application	RAY	1N112
	CK715	Frequency Multiplier	RAY	1N109
	G7A	UHF Mixer	GE	1N82
	G7	UHF Mixer	GE	1N82
	G7E	Frequency Multiplier	GE	1N109
	G7D	Frequency Multiplier	GE	1N109
	G8A	Matched Duo-Diode	GE	1N35
	G7F	Detector and Meter Rectifier	GE	1N105
	G7G	Detector and Meter Rectifier	GE	1N60
	G1CA	Magnetic Amplifier Use	IR	1N38A
	G1HA	Magnetic Amplifier Use	IR	1N34A
	NU34	Computer Application (65V)	NU	1N34
	NU38	100 Volt Working Voltage	NU	1N38
	NU39	200 Volt Working Voltage	NU	1N39, 1N59
	NU58	100 Volt Working Voltage	NU	1N58
	TP-34A	General Purpose Use	TP	1N34A
	TP-38A	General Purpose Use	TP	1N38A
	TP-39	General Purpose Use	TP	1N39
	TP-52	General Purpose Use	TP	1N38A
	TP-55	General Purpose Use	TP	1N55A
	TP-55A	General Purpose Use	TP	1N55A
	TP-63	General Purpose Use	TP	IN38A
	X-16	Frequency Multiplier	TP	1N109
	X-18	Video Detector	TP	1N60

SPECIAL PURPOSE TUBES—VOLTAGE REGULATORS

TYPE	TYPICAL APPLICATION	CONSTRUCTION		MINIMUM STARTING VOLTAGE*	MINIMUM STARTING VOLTAGE°	OPERATING VOLTAGE APPROX.	MINIMUM OPERATING CURRENT MA.	MAXIMUM OPERATING CURRENT MA.	REGULATION VOLTS
		BASE	STYLE						
OA2	Voltage Regulator	5BO	T5½	156	185	150	5.0	30	2.0
OA3/VR75	Voltage Regulator	4AJ	ST-12	100	105	75	5.0	40	5.0
OB2	Voltage Regulator	5BO	T-5½	115	133	105	5.0	30	1.0
OB3/VR90	Voltage Regulator	4AJ	ST-12	105	130	90	5.0	30	5.0
OC3/VR105	Voltage Regulator	4AJ	ST-12	115	133	105	5.0	40	2.0
OD3/VR150	Voltage Regulator	4AJ	ST-12	160	185	150	5.0	40	4.0
1236A	Emission Limited Diode	1236A	Lock-In	RATINGS: E_f = 3.0 Volts Max. (A C or D C); E_b = 1400 Volts Max. RMS; D C Current = 4.0 Ma Max.; Plate Dissipation = 0.75 Watts. OPERATION: E_f = 1.9 V.; I_f = .450 Amp.; E_b = 300 V.; I_b =0.47 Ma; Plate Load Resistance = 0.25 Megohm.					
1265	Voltage Regulator	4AJ	ST-12	135	...	90	5.0	30	...

* Average Values.
° Maximum Value of Manufacturing Limits.

SPECIAL PURPOSE TUBES—GAS CONTROL TYPES

TYPE	CLASS	CONSTRUCTION		EMITTER			MAXIMUM INVERSE ANODE VOLTAGE	MAXIMUM PEAK FORWARD ANODE VOLTAGE	MAXIMUM PEAK CATHODE CURRENT MA	MAXIMUM AVERAGE CATHODE CURRENT MA	MAXIMUM SURGE CURRENT AMPS.	GRID NO. 1 CIRCUIT RESISTANCE MEG.	ANODE SUPPLY VOLTAGE	ANODE VOLTAGE DROP	SCREEN OR SHIELD GRID VOLTAGE	CONTROL GRID BIAS VOLTAGE	LOAD RESISTANCE
		STYLE	BASE DIAG.	TYPE	VOLTS	AMP.											
0A4G	Triode	ST-12	4V	Cold K	...	...	....	....	100	25	....	...	105 130	70 70	Peak Grid No. 1 Voltage to Start A C= 70 V, R F = 55 V		
0A5	Pentode	T-5½	0A5	Cold K	...	...	Anode Voltage = 750 V. Grid 3 (Trigger) Grid Bias = +90 V. Grid No. 1 (Keep Alive) Current = 50 μa Discharge Cap. = 0.25 μf. Grid 3 (Trigger) Pulse Voltage = 95 V. Grid 3 (Trigger) Resistance = .25 Meg. Grid No. 2 Floating.											
2A4G	Triode	ST-12	5S	Fil.	2.5	2.5	200	200	1250	100	Max. Peak Voltage = 250 V.			15			
2D21	Tetrode	T-5½	7BN	Cath.	6.3	0.60	1300	650	500	100♦	10	1.0 1.0	117 400	8.0 8.0	0 0	*5.0 V. RMS –6.0 V. D C	1200 2000
6D4	Triode	T-5½	5AY	Cath.	6.3	0.25	Max. Voltage Between Elements = 450 V.		100	25♦	...	...	125 50	18 18	Grid No. 1 Voltage to Start = –12 V. Grid No. 1 Voltage to Start = –6 V.		
884	Triode	ST-12	6Q	Cath.	6.3	0.60	...	...	300♦	...	...	0.5 Max.	300	16	....	–30 V. D C	....
885	Triode	ST-12	5A	Cath.	2.5	1.5	Same as Type 884.										
2050	Tetrode	ST-12	6BS	Cath.	6.3	0.60	360 1300	180 650	1000♦ 1000♦	200 100	10 ※ 10 ※	1.0 1.0	117 400	8 8	0 0	*5.0 V. RMS –6 .0 V. D C	1200 2000

NOTES:
* A C Voltage, RMS value approximately 180° out of phase with the grid voltage.
♦ For a maximum of 30 secs.
※ For a maximum of 10 secs.

SPECIAL PURPOSE TUBES—SUBMINIATURE RECEIVING TYPES

TYPE	CLASS	CONSTRUCTION		EMITTER			CAPACITANCES IN μμF*			USE	PLATE VOLTS	SCREEN VOLTS	NEGATIVE GRID VOLTS	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESIS. OHMS	AMP.■ FACTOR OR Gm μMHOS	OHMS LOAD	OUTPUT MW
		BULB SIZE	BASING DIAG.	TYPE	VOLTS	AMPS.	Cgp.	Cin.	Cout										
1AC5	Pentode	3-2	8CP	F	1.25	0.04	....	...	...	Power Amp.	30 45 67.5	30 45 67.5	2.0 3.0 4.5	0.5 1.0 2.0	0.1 0.2 0.4	200,000 170,000 150,000	450 650 750	50,000 40,000 25,000	5 15 50
1AD5	Pentode	3-2	8CP	F	1.25	0.04	.009m	1.9	3.0	R F Amp.	30 45 67.5	30 45 67.5	0 0 0	0.45 0.9 1.85	0.16 0.35 0.75	0.7 Meg. 0.7 Meg. 0.7 Meg.	430 580 735	....	....
1C8	Heptode	3-2	8CN	F	1.25	0.04	0.4m	6.0	5.0	Converter	Same characteristics as Type 1E8.								
1D3	Triode	T-3	8DN	F	1.25	0.30	2.6*	1.0*	1.0*	Amplifier	90	....	5.0	12.5	....	....	8.7	....	....
1E8	Heptode	3-2	8CN	F	1.25	0.04	0.4m	6.0	5.0	Converter	30 45 67.5	30 45 67.5	0 0 0	0.30 0.60 1.0	0.8 1.1 1.5	300,000 400,000 400,000	115▼ 140▼ 150▼	....	....
1S6	Diode Pentode	3-2	8DA	F	1.25	0.04	....	...	...	Det. Amp.	30 45 67.5	30 45 67.5	0 0 0	0.33 0.75 1.6	0.1 0.21 0.4	0.5 Meg. 0.5 Meg. 0.4 Meg.	330 475 600	....	....
1T6	Diode Pentode	3-2	8DA	F	1.25	0.04	....	...	...	Det. Amp.	Characteristics Same as Type 1S6.								
1V5	Pentode	3-2	8CP	F	1.25	0.04	....	....	...	Power Amp.	30 45 67.5	30 45 67.5	2.0 3.0 4.5	0.50 1.0 2.0	0.10 0.2 0.4	200,000 170,000 150,000	450 650 750	50,000 40,000 25,000	5 15 50
1W5	Pentode	3-2	8CP	F	1.25	0.04	0.01m	2.3	3.5	R F Amp.	30 67.5	30 67.5	0 0	0.42 1.85	0.16 0.75	0.7 Meg.♦ 0.7 Meg.♦	430 735	....	....
2B5	Duotriode	3-2	8DP	F	2.4 1.2	.13 .26	1.2	0.9	1.9 2.2	Amplifier*	90	....	1.0	2.6	....	18,700	21.5	....	....
6AD4	Triode	3-2	8DK	K	6.3	0.15	1.30	2.80	3.20	Amplifier	100	....	820▼	1.4	....	26,000	70	....	....
6AK4	Triode	3-1	8DK	K	6.3	0.125	1.3	2.2	2.2	U H F Amp.	200	....	680▼	9.5	....	5,300	20	....	....

SPECIAL PURPOSE TUBES—SUBMINIATURE RECEIVING TYPES Cont'd

TYPE	CLASS	CONSTRUCTION		EMITTER			CAPACITANCES IN μμF*			USE	PLATE VOLTS	SCREEN VOLTS	NEGATIVE GRID VOLTS	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESIS. OHMS	AMP.■ FACTOR OR Gm μMHOS	OHMS LOAD	OUTPUT MW
		BULB SIZE	BASING DIAG.	TYPE	VOLTS	AMPS.	Cgp.	Cin.	Cout										
6AZ5	Duodiode	3-1	8DF	K	6.3	0.15	....	...	...	Detector H. W. Rect.	50 A C Volts RMS, 4 Ma Output Current each plate, 8 μμf Filter Cap.								
6BA5	Pentode	3-2	8DY	K	6.3	0.15	0.19	4.0	6.5	Audio Amp.	100	100	270▼	4.8	1.25	150,000	3,300	....	....
†6BF7W	Duotriode	3-2	8DG	K	6.3	0.3	1.5 1.5	2.0 2.0	1.6 2.0	R F Amp.*	100	....	100▼	8.0	....	7,000♦	35	....	....
1247	Diode	3-1	1247	F	0.7	0.065	....	....	0.8	R F Probe	300 Volts RMS Plate, 0.4 Ma D C Output Current.								
†5636	Pentode	3-1	8DC	K	6.3	0.15	.015m	4.0	3.4	Mixer	100	100	150▼	3.5	5.7	320,000	1,280▼	....	....
†5639	Pentode	3-3	8DL	K	6.3	0.45	0.10m	9.5	7.5	Video Amp.	150	100	100▼	21	4.0	50,000	9,000	....	1,000
†5641	Diode	3-3	6CJ	K	6.3	0.45	....	...	...	H. W. Rect.	117 A C Volts Per Plate, RMS. 45 Ma. D C Output. Capacitor Input to Filter. 235 A C Volts Per Plate, RMS. 45 Ma. D C Output. Capacitor Input to Filter.								
5642	Diode	3-4	5642	F	1.25	0.14	....	....	0.6*	H. W. Rect.	Pulse Type Rectifier for Television Service. 10,000 Volts Peak Inverse.								
†5643	Gas Tetrode	3-1	8DD	K	6.3	0.15	0.1	1.7	1.6	Relay Tube	Instantaneous Forward or Inverse Anode Volts = 500 Peak, Average Anode Current = 20 Ma. Max, Averaging Time = 15 Seconds.								
†5644	Gas Diode	3-4	4CN	CK	....	....	....	...	...	Voltage Regulator with Starting Voltages at 130, Operating Voltage 95, Operating Current 5 to 25 Ma.									
†5647	Diode	T-1	5647	K	6.3	0.15	....	...	...	Rectifier Detector	150 A C Volts, RMS. 9 Ma. Output Current. Capacitor Input. Cathode Type Diode for High Frequency Detection.								
†5718	Triode	3-1	8DK	K	6.3	0.15	1.3	2.4	2.4	Amplifier	100 150	....	150▼ 180▼	8.5 13.0	....	4,650 4,150	27 27	....	....
†5719	Triode	3-1	8DK	K	6.3	0.15	0.7	2.6	2.2	Amplifier	150	....	680▼	1.7	....	26,000	70	....	....
†5840	Pentode	3-1	8DL	K	6.3	0.15	0.015m	4.2	3.4	R F Amp.	100	100	150▼	7.5	2.4	230,000	5,000	....	....
†5896	Duodiode	3-1	8DJ	K	6.3	0.3	....	...	...	F. W. Rect.	150 Volts RMS per Plate, 18 Ma D C Output Current, Plate Supply Impedance= 300 Ohms.								

SPECIAL PURPOSE TUBES—SUBMINIATURE RECEIVING TYPES Cont'd

TYPE	CLASS	CONSTRUCTION		EMITTER			CAPACITANCES IN $\mu\mu$F*			USE	PLATE VOLTS	SCREEN VOLTS	NEGATIVE GRID	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESIS. OHMS	AMP.■ FACTOR OR Gm μMHOS	OHMS LOAD	OUTPUT MW
		BULB SIZE	BASING DIAG.	TYPE	VOLTS	AMPS.	Cgp.	Cin.	Cout										
†5899	Pentode	3-1	8DL	K	6.3	0.15	.015m	4.4	3.4	R F Amp.	100	100	120▼	7.2	2.2	260,000	4,500	....	....
†5902	Pentode	3-3	8DL	K	6.3	0.45	0.20m	6.5	7.5	Power Amp.	110	110	270▼	30	2.2	15,000	4,200		1,000
†5906	Pentode	3-1	8DL	K	26.5	0.045	.015m	4.2	3.4	R F Amp.	100	100	150▼	7.5	2.4	280,000	5,000	....	....
†5977	Triode	3-1	8DK	K	6.3	0.15	1.3	2.0	2.2	Amplifier	100	....	270▼	10.0	....	3,650	16	....	....
†5987	Triode	3-4	8DM	K	6.3	0.45	3.2	3.2	5.0	Amplifier	100	....	18	9.0	....	.....	4.1	G_m=1,850	
†6021	DuoTriode	3-1	8DG	K	6.3	0.3	1.4	2.1	...	U H F Amp.⁂	100	....	150▼	6.5	....	6,480	35	Cout Sec. 1 = 1.3	
†6110	Duodiode	3-1	8DJ	K	6.3	0.15	....	...	...	U H F Det.	Peak Inverse Voltage = 460 Volts. Peak Anode Current = 26.4 Ma Per Plate.								
†6111	Duotriode	3-1	8DG	K	6.3	0.3	1.5	1.9	0.28 0.32	Med. Mu Amp.⁂	100	....	220▼	8.5	....	4,200	20	....	....
†6112	DuoTriode	3-1	8DG	K	6.3	0.3	1.0	1.7	0.23 0.28	High Mu Amp.⁂	100 150	....	1,500▼ 820▼	0.8 1.75	....	38,900 28,000	70 70	....	....
†6205	Pentode	3-1	8DC	K	6.3	0.15	.015	4.2	3.4	U H F Amp.	100	100	150▼	7.5	2.4	0.26 Meg.	5,000	....	....
†6206	Pentode	3-1	8DC	K	6.3	0.15	.015	4.2	3.4	U H F Amp.	100	100	120▼	7.5	2.0	0.26 Meg.	4,500	Semi-Remote Cutoff	

NOTES:
- * Values given shielded unless indicated with *. Converter tube capacitances given are signal grid to plate; R F Input and mixer output.
- ▼ Conversion Transconductance.
- ♦ Approximate.
- ⁂ Per Section.
- † Premium performance type has special mechanical and/or life characteristics. Additional information available on request.
- ▼ Cathode Self Bias Resistor—Ohms.
- m Maximum.
- ■ Gm for pentode and tetrodes, etc.; amplification factor for triodes.

NOTE: Emitter Types—(F) Filament, (K) Unipotential Cathode, (CK) Cold Cathode.

SPECIAL PURPOSE TUBES—RECEIVING AND MISCELLANEOUS TYPES

TYPE	CONSTRUCTION			EMITTER			NOTES (1) (2) CAPACITIES IN $\mu\mu f$			USE	PLATE VOLTS	SCREEN VOLTS	NEG. GRID VOLTS	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESISTANCE OHMS	AMP. FACTOR OR Gm μMHOS	OHMS LOAD FOR STATED POWER OUTPUT	POWER OUTPUT MW
	CLASS	STYLE	BASE	TYPE	VOLTS	AMPS	Cgp	Cin	Cout										
2X2A (3)	Diode	ST-12	4AB	Cathode	2.5	1.75	...	...	...	H. W. Rectifier	4500 A C Volts per plate RMS, 7.5 Ma Output Current, Capacitor Input to Filter, 12,500 peak Inverse voltage.								
3A4	Pentode	T-5½	7BB	Filament	1.4 2.8	0.20 0.10	0.35m ...	4.8 ...	7.0 ...	Power Amplifier	135 150	90 90	7.5 8.4	14.8 13.3	2.6 2.2	90,000 100,000	1,900 1,900	8,000 8,000	600 700
3A5	Duotriode	T-5½	7BC	Filament	1.4 2.8	0.22 0.11	3.0 ...	1.1 ...	1.9 ...	Amplifier	90 135	....	2.5 20.0	3.7 ※ 30.0	... Push-Pull Class C R F Amplifier	8,300 ※	15	...	... 2,000
5R4GY	Duodiode	ST-16	5T	Filament	5.0	2.0	...	...	...	F. W. Rectifier	900 Volts per plate RMS, 150 Ma D C Output, Capacitor Input to Filter. (Low Loss Base) 950 Volts per plate RMS, 175 Ma D C Output, Choke Input to Filter.								
6AJ5	Pentode	T-5½	7BD	Cathode	6.3	0.175	0.02	4.0	2.8	R F Amplifier	28	28	1.0	2.7	1.0	100,000	2,500	...	R_k=270 Ohms
6AN6	Quadruple Diode	T-5½	7BJ	Cathode	6.3	0.20	...	...	...	Rectifier	75 Volts RMS per plate, 8 Ma D C Output per plate.								
6AS6	Pentode	T-5½	7CM	Cathode	6.3	0.175	0.02	4.0	3.0	R F Amplifier	120	120	2.0	3.6	4.8	...	Gm for G_1 = 1850; Gm for G_3 = 810		
6AS7G	Duotriode	ST-16	8BD	Cathode	6.3	2.5	...	...	...	Power Amplifier	135	....	250▲	125	....	280	2	...	...
6J4	Triode	T-5½	7BQ	Cathode	6.3	0.40	...	...	...	Amplifier	150	....	200▲	15.0	....	4,500	55	...	...
6J7WGT (3)	Ruggedized version of Type 6J7GT. Data same as Type 6J7GT.																		
6L6GAY	Low Loss Base. Data same as Type 6L6GA.																		
6SA7GTY	Low Loss Base. Data same as Type 6SA7GT.																		
6SK7GTY	Low Loss Base. Data same as Type 6SK7GT.																		
6SL7WGT (3)	Ruggedized version of Type 6SL7GT. Data same as Type 6SL7GT.																		
6SN7WGT (3)	Ruggedized version of Type 6SN7GT. Data same as Type 6SN7GT.																		
6SS7GTY	Pentode	T-9	8N	Cathode	6.3	0.15	...	...	...	R F Amplifier	Low Loss Base. Characteristics same as Type 6SS7.								
6V6GTY	Low Loss Base. Data same as Type 6V6GT.																		
6X5WGT (3)	Ruggedized version of Type 6X5GT. Data same as Type 6X5GT.																		

SPECIAL PURPOSE TUBES—RECEIVING AND MISCELLANEOUS TYPES Cont'd

TYPE	CONSTRUCTION			EMITTER			NOTES (1) (2) CAPACITIES IN $\mu\mu f$			USE	PLATE VOLTS	SCREEN VOLTS	NEG. VOLTS GRID	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESISTANCE OHMS	AMP.■ FACTOR OR Gm μMHOS	OHMS LOAD FOR STATED POWER OUTPUT	POWER OUTPUT MW
	CLASS	STYLE	BASE	TYPE	VOLTS	AMPS	Cgp	Cin	Cout										
7AK7	Pentode	Lock-In	8V	Cathode	6.3	0.8	0.7	12.0	9.5	Computer Tube	150 150 150	90 90 90	0 11 0	40 2.5m 2.0m	21 0.45 60m	11,500 ... E_{c3}=9.5 V	6,500 ...	E_{c3}=0V E_{c3}=0V	... ...
12AY7	Special low noise audio amp. See complete data section.																		
25A7GT	Diode Pentode	T-9	8F	Cathode	25.0	0.30	...	...	...	H.W. Rectifier Power Amplifier	117 Volts per plate RMS, 75 Ma Output Current. 100	100	15.0	20.5	4.0	50,000	1,800	4,500	770
26D6	Heptode	T-5½	7CH	Cathode	26.5	0.07	0.3	7.5	14.0	Converter	100 250 26.5	100 100 26.5	1.5 1.5 0.5	2.8 3.0 0.45	8.0 7.8 1.6	500,000♦ 1.0 Meg.♦ ...	455▼ 475▼ 270▼	R_{g1}=20,000 I_{c1}=0.5 Ma R_{g1}=20,000 I_{c1}=0.5 Ma R_{g1}=20,000 I_{c1}=0.1 Ma	
28D7	Duo-Beam Amplifier	Lock-In	8BS	Cathode	28.0	0.40	...	...	...	Class A2 Amplifier	28 28 28	28 28 28	390▲✱ 3.5 0	9.0✱ 25.0 64.0	0.7✱ 2.0 4.0	R-C Coupled P-P, R-C Coupled P-P Transformer Coupled		4,000✱ 6,000♦ 1,500♦	80✱ 225 600
28D7W (3)	Ruggedized version of Type 28D7. Data same as Type 28D7.																		
1222	Beam Pwr. Amp.	ST-14	1222	Cathode	6.3	0.9	...	...	...	Characteristics similar to Type 6L6GA.									
1229	Tetrode	ST-12	4K	Filament	2.0	0.06	...	...	...	Similar to Type 32. Electrometer tube (Low grid current).									
1273	Pentode	Lock-In	8V	Cathode	6.3	0.30	.004m	6.0	6.5	Amplifier	Characteristics same as Type 14C7 (Special Non-Microphonic Tube)								
1280	Pentode	Lock-In	8V	Cathode	12.6	0.15	.004m	6.0	6.5	Amplifier	Characteristics same as Type 14C7 (Special Non-Microphonic Tube)								
5654/ 6AK5W (3)	Pentode	T-5½	7BD	Cathode	6.3	0.175	0.02m	4.0	2.9	R F Amplifier	120	120	200▼	7.5	2.5	340,000	5,000	...	...
5679	Duodiode	Lock-In	7CX	Cathode	6.3	0.15	...	...	...		Characteristics same as Type 7A6. For V.T.V.M. use.								
5722	Diode	T-5½	5CB	Filament	4.9	1.6	...	...	1.5	Noise Diode	150	....	For noise generator service I_b= 35 Ma Max.						
5726/ 6AL5W (3)	Duodiode	T-5½	6BT	Cathode	6.3	0.3	...	...	...	Rectifier	117 A C volts per plate RMS, 9 Ma D C output current per plate.								

SPECIAL PURPOSE TUBES—RECEIVING AND MISCELLANEOUS TYPES Cont'd

TYPE	CONSTRUCTION			EMITTER			NOTES (1) (2) CAPACITIES IN μμf			USE	PLATE VOLTS	SCREEN VOLTS	NEG. VOLTS GRID	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESISTANCE OHMS	AMP.■ FACTOR OR Gm μMHOS	LOAD FOR STATED POWER OUTPUT	POWER OUTPUT MW
	CLASS	STYLE	BASE	TYPE	VOLTS	AMPS	Cgp	Cin	Cout										
5749/ 6BA6W (3)	Ruggedized version of Type 6BA6. Data same as Type 6BA6.																		
5751 (3)	Duodiode	T-6½	9A	Cathode	6.3 12.6	.35 .175	1.4★ ...	1.4★ ...	... ...	Audio Amplifier	Characteristics same as Type 12A X7. For Reliable Operation. Cout Sec. 1=0.46 μμf★ Cout Sec. 2=0.36 μμf★								
5814A (3)	Duotriode	T-6½	9A	Cathode	12.6 6.3	0.175 0.35	1.5★ ...	1.6★ ...	... ...	Amplifier	100 250	....	8.5 0	11.8 10.5	....	6,250♦ 7,700♦	19.5 17	Cout Sec. 1=0.5 μμf★ Cout Sec. 2=0.35μμf★	
5845	Duodiode	T-5½	5CA	Filament	5.0m	0.435	...	...	0.8	Control Diode	300m	....	....	2.0m	Temperature limited filament emission.				
5931 (3)	Duodiode	T-12	5T	Filament	5.0	3.0	...	...	...	F.W. Rectifier	Characteristics same as Type 5U4G.								
5932 (3)	Beam Amp.	T-12	7S	Cathode	6.3	0.90	...	...	...	Power Amplifier	Characteristics same as Type 6L6G.								
9001	See Condensed Data Section.																		
9002	See Condensed Data Section.																		
9003	See Condensed Data Section.																		
X6030	Diode	Lock-In	X6030	Filament	3.0m	0.6	...	...	...	Noise Diode	90 250 1,400	....	....	4.0m 3.0m .535m	....	... ...	... ...	... ...	... ...

NOTES:
(1) Values are given shielded unless marked with ★.
(2) Converter tube capacities given are signal grid to plate; R F Input, mixer output.
(3) Has special Mechanical and/or life characteristics.
* Applied through 250,000 ohms.
m Maximum.
\# Per tube or section.
▲ Cathode self bias resistor in ohms.
▼ Conversion Transconductance.
♦ Approximate.
↓ Plate to Plate.
■ Gm for pentodes and tetrodes, etc.; amplification factor for triodes.

SPECIAL PURPOSE TUBES—TRANSMITTING TYPES

TYPE	CONSTRUCTION			EMITTER		CAPACITANCES			MAXIMUM RATINGS			TYPICAL OPERATION									
	CLASS	STYLE	BASE	VOLTS	AMPS.	Cgp	Cin	Cout	PLATE DISS. WATTS	PLATE CURRENT MA	MAX. FREQ. MC	CLASS, OPERATION AND USE*	Eb VOLTS	E_{c2} VOLTS	E_{c1} NEG. VOLTS	Ib MA	I_{c2} MA	I_{c1} MA	P-P LOAD IN OHMS	DRIVING POWER WATTS	POWER OUTPUT WATTS
2E24	Beam Amp.	T-9	7CL	6.3	0.65	0.11m	8.5	6.5	10	75	...	AB_2 Amp. and Mod. CCS†	400	125	15	150▼	26▼	....	7,000	0.43	42
									13.5	75	...	AB_2 Amp. and Mod. ICAS†	500	125	15	150▼	28▼	....	9,000	0.46	54
									13.5	85	125	C (Telegraphy) ICAS	600	195	50	66	10	3.0	E_{c3}=0	0.21	27
									13.5	85	160	C (Telegraphy) ICAS	350§	170§	50	85	10	3.0	E_{c3}=0	2.0	16.5
									6.7	60	125	C (Telephony) CCS	400	180	45	50	8.0	2.5	....	0.15	13.5
									9.0	70	125	C (Telephony) ICAS	500	180	45	54	8.0	2.5	....	0.16	18.0
2E26	Beam Amp.	T-9	7CK	6.3	0.8	0.20	12.5	7	10	75		AB_2 Amp. and Mod. CCS†	400	125	15	150▼	32▼	....	6,200	0.36	42
									12.5	75		AB_2 Amp. and Mod. ICAS†	500	125	15	150▼	32▼	....	8,000	0.36	54
									10	75	125	C (Telegraphy) CCS	400	190	30	75	11	3	....	0.12	20
									10	75	125	C (Telegraphy) CCS	500	185	40	60	11	3	....	0.15	20
									13.5	85	125	C (Telegraphy) ICAS	600	185	45	66	10	3	....	0.17	27
									6.7	60	125	C Amp. (Telephony) CCS	400	160	50	50	7.5	2.5	....	0.15	13.5
									9.0	70	125	C Amp. (Telephony) ICAS	500	180	50	54	9.0	2.5	....	0.15	18
2E30	Beam Amp.	T-5½	7CQ	6.0	0.65	0.2	9.5	6.6	10	60	...	AB_2 Amp. and Mod. CCS†	180	180	22.5	100▼	16▼	....	2,500	0.23	7.4
									10	60	...	AB_2 Amp. and Mod. CCS†	250	250	30	120▼	20▼	....	3,800	0.2	17.0
									10	60	...	C Amp. (Telegraphy) CCS	200	200	46	45	10	2.3	E_{c3}=0	0.15	5.0
									10	60	...	C Amp. (Telegraphy) CCS	250	200	50	50	10	2.5	E_{c3}=0	0.2	7.5
									10	60	165	C Amp. (Telephony)	300	250	70	50	5.0	0.7	....	0.7	5.0
3A4	Pentode	T-5½	7BB	1.4 2.8	0.2 0.1	0.20	4.8	4.2	2.0	....	10	C Amp. (Telegraphy)	150	135	26	18.3	6.5	0.13	E_{c3}=0	R_{g2}= 2.300	1.2
3A5	Duotriode	T-5½	7BC	1.4 2.8	0.22 0.11	3.2	0.9	1.0	1.0	15	40	C Amp. Oscillator†	150	..	35	30	....	5.0	....	0.2	2.2
801A	Triode	ST-16	4D	7.5	1.25	6.0	4.5	1.5	20	70	...	B Amp. and Mod. CCS†	400	....	50	130▼	....	....	6,000	3	27
									20	70	...	B Amp. and Mod. CCS†	600	....	75	130▼	....	....	10,000	3	45
									20	50	60	B Amp. (Telephony) CCS	600	....	75	45▼	....	0.2	....	2.3	7.5
									20	70	60	C Amp. (Telegraphy) CCS	600	....	150	65	....	15	....	4.0	25
									13.5	60	60	C Amp. (Telephony) CCS	400	....	150	55	....	15	....	4.0	14
									13.5	60	60	C Amp. (Telephony) CCS	500	....	190	55	....	15	....	4.5	18
807	Beam Amp.	ST-16	5AW	6.3	0.9	This tube type is included in the complete Data Section of the Manual.															
807W	Beam Amp.	T-12	5AW	6.3	0.9	Special mechanical characteristics. Also known as Type 5933. Electrical characteristics same as Type 807.															

SPECIAL PURPOSE TUBES—RECEIVING AND MISCELLANEOUS TYPES Cont'd

TYPE	CONSTRUCTION			EMITTER			NOTES (1) (2) CAPACITIES IN μμf			USE	PLATE VOLTS	SCREEN VOLTS	NEG. VOLTS GRID	PLATE CURRENT MA	SCREEN CURRENT MA	PLATE RESISTANCE OHMS	AMP.■ FACTOR OR Gm μMHOS	LOAD FOR STATED POWER OUTPUT	POWER OUTPUT MW
	CLASS	STYLE	BASE	TYPE	VOLTS	AMPS	Cgp	Cin	Cout										
5749/ 6BA6W (3)	Ruggedized version of Type 6BA6. Data same as Type 6BA6.																		
5751 (3)	Duodiode	T-6½	9A	Cathode	6.3 12.6	.35 .175	1.4★ ...	1.4★ ...	... ...	Audio Amplifier	Characteristics same as Type 12A X7. For Reliable Operation. Cout Sec. 1=0.46 μμf★ Cout Sec. 2=0.36 μμf★								
5814A (3)	Duotriode	T-6½	9A	Cathode	12.6 6.3	0.175 0.35	1.5★ ...	1.6★ ...	... ...	Amplifier	100 250	....	8.5 0	11.8 10.5	....	6,250♦ 7,700♦	19.5 17	Cout Sec. 1=0.5 μμf★ Cout Sec. 2=0.35μμf★	
5845	Duodiode	T-5½	5CA	Filament	5.0m	0.435	...	...	0.8	Control Diode	300m	....	....	2.0m	Temperature limited filament emission.				
5931 (3)	Duodiode	T-12	5T	Filament	5.0	3.0	...	...	...	F.W. Rectifier	Characteristics same as Type 5U4G.								
5932 (3)	Beam Amp.	T-12	7S	Cathode	6.3	0.90	...	...	...	Power Amplifier	Characteristics same as Type 6L6G.								
9001	See Condensed Data Section.																		
9002	See Condensed Data Section.																		
9003	See Condensed Data Section.																		
X6030	Diode	Lock-In	X6030	Filament	3.0m	0.6	...	...	...	Noise Diode	90 250 1,400	....	....	4.0m 3.0m .535m	....	... ...	... ...	... ...	... ...

NOTES:
(1) Values are given shielded unless marked with ★.
(2) Converter tube capacities given are signal grid to plate; R F Input, mixer output.
(3) Has special Mechanical and/or life characteristics.
* Applied through 250,000 ohms.
m Maximum.
※ Per tube or section.
▲ Cathode self bias resistor in ohms.
▼ Conversion Transconductance.
♦ Approximate.
↓ Plate to Plate.
■ Gm for pentodes and tetrodes, etc.; amplification factor for triodes.

SPECIAL PURPOSE TUBES—TRANSMITTING TYPES Cont'd

	CONSTRUCTION			EMITTER		CAPACITANCES			MAXIMUM RATINGS			TYPICAL OPERATION								
TYPE	CLASS	STYLE	BASE	VOLTS	AMPS.	Cgp	Cin	Cout	PLATE DISS. WATTS	PLATE CURRENT MA	MAX. FREQ. MC	CLASS, OPERATION AND USE*	Eb VOLTS	E_{c2} VOLTS	E_{c1} NEG. VOLTS	Ib MA	I_{c2} MA	I_{c1} MA	P-P LOAD IN OHMS	DRIVING POWER WATTS	POWER OUTPUT WATTS
807Y	Beam Amp.	T-12	5AW	6.3	0.9	Same as Type 807W without special tests applied. Electrical characteristics same as 807.															
810	Triode	T-20	2N	10.0	4.5	4.8	8.7	12.0	125	250	...	B Amp. and Mod. CCS†	2,000	....	50	420▼	....	....	11,000	10	590
									175	250	...	B Amp. and Mod. ICAS†	2,250	....	60	450▼	....	....	11,600	13	725
									125	185	30	B Amp. (Telephony) CCS	1,500	....	50	115▼	....	2	....	6	60
									175	185	30	B Amp. (Telephony) ICAS	2,250	....	70	100▼	....	2	....	4	75
									125	250	30	C Amp. (Telegraphy) CCS	1,500	....	120	250	....	40	....	10	275
									175	300	30	C Amp. (Telegraphy) ICAS	2,500	....	180	300	....	60	....	19	575
									85	210	30	C Amp. (Telephony) CCS	1,250	....	200	210	....	50	....	17	180
									125	250	30	C Amp. (Telephony) ICAS	2,000	....	350	250	....	70	....	35	380
811A	Triode	ST-19	3G	6.3	4.0	5.6	5.9	0.7	45	175	...	B Amp. and Mod. CCS†	1,250	....	0	260▼	....	....	12,400	3.8	235
									65	175	...	B Amp. and Mod. ICAS†	1,000	....	0	350▼	....	....	7,400	7.5	248
									65	175	...	B Amp. and Mod. ICAS†	1,500	....	4.5	313▼	....	....	12,400	4.4	340
									45	175	30	C Amp. (Telegraphy) CCS	1,250	....	50	140	....	45	....	5.7	135
									65	175	30	C Amp. (Telegraphy) ICAS	1,500	....	70	173	....	40	....	7.1	200
									30	125	30	C Amp. (Telephony) CCS	1,000	....	55	115	....	45	....	6.1	88
									45	150	30	C Amp. (Telephony) ICAS	1,250	....	120	140	....	45	....	10.0	135
812A	Triode	ST-19	3G	6.3	4.0	5.5	5.4	0.77	45	175	...	B Amp. and Mod. CCS†	1,250	....	40	260▼	....	....	12,200	3.5	235
									65	175	...	B Amp. and Mod. ICAS†	1,500	....	48	310▼	....	....	13,200	5.0	340
									45	175	30	C Amp. (Telegraphy) CCS	1,250	....	90	140	....	30	....	5.4	130
									65	175	30	C Amp. (Telegraphy) ICAS	1,500	....	120	173	....	30	....	6.5	190
									30	125	30	C Amp. (Telephony) CCS	1,000	....	110	115	....	33	....	6.6	85
									45	150	30	C Amp. (Telephony) ICAS	1,250	....	115	140	....	35	....	7.6	130
813	Beam Amp.	T-20	5BA	10.0	5.0	0.25m	16.3	14.0	100	180	...	AB_2 Amp. and Mod. CCS†	2,250	750	90	315▼	58▼	E_{c3}=0	18,500	0.10	515
									125	225	...	AB_2 Amp. and Mod. ICAS†	2,500	750	95	360▼	55▼	E_{c3}=0	17,000	0.35	650
									100	100	30	B Amp. (Telephony) CCS	1,500	400	60	100▼	4▼	....	E_{c3}=0	<2.0	50
									125	125	30	B Amp. (Telephony) ICAS	2,250	400	60	85▼	3▼	....	E_{c3}=0	<2.0	70
									100	180	30	C Amp. (Telegraphy) CCS	1,250	300	75	180	35	12	E_{c3}=0	1.7	170
									100	180	30	C Amp. (Telegraphy) CCS	2,000	400	120	180	45	10	E_{c3}=0	1.9	275
									125	225	30	C Amp. (Telegraphy) ICAS	2,250	400	155	220	40	15	E_{c3}=0	4.0	375
									67	150	30	C Amp. (Telephony) CCS	1,600	300	160	150	30	12	E_{c3}=0	2.7	180
									100	200	30	C Amp. (Telephony) ICAS	2,000	350	175	200	40	16	E_{c3}=0	4.3	300
						Grid Modulated			125	125	30	C Amp. (Telephony) ICAS	2,250	400	110	85	2.5	....	E_{c3}=0	< 2.0	75

SPECIAL PURPOSE TUBES—TRANSMITTING TYPES Cont'd

TYPE	CONSTRUCTION			EMITTER		CAPACITANCES			MAXIMUM RATINGS			TYPICAL OPERATION								
	CLASS	STYLE	BASE	VOLTS	AMPS.	Cgp	Cin	Cout	PLATE DISS. WATTS	PLATE CURRENT MA	MAX. FREQ. MC	CLASS, OPERATION AND USE*	Eb VOLTS	E_{c2} VOLTS	E_{c1} NEG. VOLTS	Ib MA	I_{c2} MA	I_{c1} MA	P-P LOAD IN OHMS	DRIVING POWER WATTS	POWER OUTPUT WATTS
815 Push-Pull	Duo Beam Amplifier	T-16	8BY	12.6 6.3	0.8 1.6	0.2m	14	8.5	20 25 20 25 20 25 13.5 20	150 150 75 75 150 150 125 150	... ... 125 125 125 125 125 125	AB_2 Amp. and Mod. CCS AB_2 Amp. and Mod. ICAS B Amp. (Telephony) CCS B Amp. (Telephony) ICAS C Amp. (Telegraphy) CCS C Amp. (Telegraphy) ICAS C Amp. (Telephony) CCS C Amp. (Telephony) ICAS	400 500 400 500 400 500 325 400	125 125 125 125 145 200 165 175	15 15 25 25 45 45 45 45	150▼ 150▼ 75▼ 75▼ 150 150 123 150	32▼ 32▼ 4▼ 3▼ 17 17 16 15	.... 4.5 3.5 4 3	6,200 8,000	0.36 0.36 0.8 0.7 0.23 0.18 0.20 0.16	42 54 10.5 13 44 56 30 45
816	Diode Mercury Vapor	ST-12	4P	2.5	2.0	....	....	....	....	....	...	Half Wave Rectifier	Max. Peak Inverse Plate Volts = 7500; Max. Peak Plate Current = 500 Ma; Max. Average Plate Current = 125 Ma; Tube Voltage Drop 15 Volts								
829B Push-Pull	Duo Beam Amplifier	T-16	7BP	6.3 12.6	2.25 1.125	.12sm	14.5	7.0	30 40 40 40 45 21 28 28 28 40	212 212 212 240 240 212 212 212 212 240	200 200 200 200 200 200 200 200 200 200	C Amp. (Telegraphy) CCS C Amp. (Telegraphy) ICAS C Amp. (Telephony) ICAS C Amp. (Telegraphy) CCS C Amp. (Telegraphy) ICAS C Amp. (Telephony) CCS C Amp. (Telephony) ICAS C Amp. (Telephony) ICAS C Amp. (Telephony) CCS C Amp. (Telephony) ICAS	750 500 750 750 750 600 425 600 600 600	200 200 200 200 200 200 200 200 200 200	50 45 55 55 50 70 60 70 70 80	120 240 160 160 200 112 212 150 150 200	34 32 30 30 34 26 35 30 30 30	8 12 12 12 16 8 11 12 12 15	....	.45 0.7 0.8 0.8 1.1 0.6 0.8 0.9 0.9 1.4	65 83 87 87 110 50 63 70 70 85
							Natural Cooling Forced Air Natural Cooling Forced Air														
832A Push-Pull	Duo Beam Amplifier	T-16	7BP	12.6 6.3	0.8 1.6	0.05sm	7.5	3.8	15 15 10 10	90 90 68 68	200 200 200 200	C Amp. (Telegraphy) CCS C Amp. (Telegraphy) CCS C Amp. (Telephony) CCS C Amp. (Telephony) CCS	500 750 425 600	200 200 200 200	65 65 60 65	72 48 52 36	14 15 16 16	2.6 2.8 2.4 2.6	....	0.18 0.19 0.15 0.16	26 26 16 17
866A	Diode Mercury Vapor	ST-19	4P	2.5	5.0	....	....	....	....	....	...	Half Wave Rectifier	Max. Peak Inverse Plate Volts = 10,000; Max. Peak Plate Current = 1.0 Amp.; Max. Average Plate Current = 250 Ma; Tube Voltage Drop = 15 Volts								
872A	Diode Mercury Vapor	T-18	4AT	5.0	7.5	....	....	....	....	....	...	Half Wave Rectifier	Max. Peak Inverse Plate Volts = 10,000; Max. Peak Plate Current = 5.0 Amps.; Max. Average Plate Current = 1250; Tube Voltage Drop = 10 Volts.								

SPECIAL PURPOSE TUBES—TRANSMITTING TYPES

TYPE	CONSTRUCTION			EMITTER		CAPACITANCES			MAXIMUM RATINGS			TYPICAL OPERATION									
	CLASS	STYLE	BASE	VOLTS	AMPS	Cgp	Cin	Cout	PLATE DISS. WATTS	PLATE CURRENT MA	MAX. FREQ. MC	CLASS, OPERATION AND USE*	Eb VOLTS	E_{c2} VOLTS	E_{c1} NEG. VOLTS	Ib MA	I_{c2} MA	I_{c1} MA	P-P LOAD IN OHMS	DRIVING POWER WATTS	POWER OUTPUT WATTS
5763	Beam Power Tube	T-6½	9K	6.0	0.75	0.3m	9.5	4.5	8	40	30	C Amp. (Telephony) CCS	250	250	39	40	5.6	1.0	Grid 3 to Cathode at Socket	0.05♦	6.4♦
									12	50	30	C Amp. (Telephony) ICAS	300	250	42.5	50	6	2.4	"	0.15♦	10♦
									12	50	50	C Amp. (Telegraphy) CCS	300	250	60	50	5.0	3.0	"	0.35♦	7♦
									13.5	50	30	C Amp. (Telegraphy) ICAS	350	250	28.5	48.5	6.2	1.6	"	0.1♦	12♦
									12	50	175	Freq. Multi. (Doubler) CCS	300	250	75	40	4	1	"	0.6	2.1♦
									12	50	175	Freq. Multi. (Tripler) CCS	300	250	100	35	5	1	"	0.6	1.3♦
5933	Beam Amp.	T-12	5AW	6.3	0.9	0.2m	12.0	7.0	Same as Type 807W. For operating characteristics see Type 807 in complete data section.												
6146	Beam Power Tube	T-12	7CK	6.3	1.25	0.22m	13.5	8.5	20	125	...	AB_1 Amp. and Mod. CCS†	600	180	45	200▼	23▼	90※	7,000	0♦	82♦
									25	135	...	AB_1 Amp. and Mod. ICAS†	750	190	50	220▼	26▼	100※	8,000	0♦	120♦
									20	125	...	AB_2 Amp. and Mod. CCS†	600	165	44	207▼	17▼	97※	6,800	0.2	90
									25	135	...	AB_2 Amp. and Mod. ICAS†	750	165	46	240▼	20▼	108※	7,400	0.04	131
									13.3	117	60	C Amp. (Telephony) CCS	475	135	77	94	6.4	2.8♦	R_{c2} = 51,000	0.3	34
									16.7	125	60	C Amp. (Telephony) ICAS	600	150	87	112	7.8	3.4♦	R_{c2} = 56,000	0.4	52
									20	140	60	C Amp. (Telegraphy) CCS	600	150	58	112	9	2.8♦	R_{c2} = 51,000	0.2	52
									25	150	60	C Amp. (Telegraphy) ICAS	750	160	62	120	11	3.1♦	R_{c2} = 56,000	0.2	70
									25	150	175	C Amp. (Telegraphy) ICAS	400	190	54	150	10.4	2.2♦	R_{c2} = 20,000	3.0	35
6159	V H F Beam Power Tube	T-12	7CK	26.5	0.3	0.22	13.5	8.5	Other characteristics same as Type 6146.												

NOTES: m Maximum.
s Shield.
§ Reduced Ratings for 160 Mc.
† Typical operation values are for 2 tubes.
▼ Grid Resistor—ohms.

* Telephony operation is plate modulated. Key down conditions per tube without amplitude modulation.
▼ Maximum Signal.
♦ Approximate.
※ Peak Grid to grid A F Volts.

SPECIAL PURPOSE TUBES—INDUSTRIAL TYPES

HIGH VACUUM AMPLIFIERS

TYPE	FILAMENT		MAX. DIMENSIONS INCHES		MAX. PLATE RATINGS CLASS C R-F POWER AMPLIFIER			DISSIPATION WATTS	MAX. FREQ. FOR FULL INPUT	TRANSCONDUCTANCE MICROMHOS	AMPLIFICATION FACTOR	BASING DIAG.
	VOLTS	AMPS.	LENGTH	DIAM.	VOLTS	MA.	INPUT WATTS					
813	10.0	5.0	7½	2 9/16	2,000	180	400	100	30	3750	8.5*	5BA
829-B†	6.3	1.125	4 5/16	2⅜	750	240	120	40	200	8500	9.0*	829-B
892†	22	60	20 7/8	6⅜	15,000	2000	30,000	10,000	1.6		50	892
5736†	6.0	60	7¼	3⅝	5,000	1400	5,000	2,500	60		22 Max.	

* Grid No. 2 to Grid No. 1.
† Without Modulation.

IGNITRON (Resistance Welder Service)

TYPE	MAX. DIMENSIONS INCHES		RMS SUPPLY VOLTS	MAX. KVA DEMAND AND CORRESPONDING AVERAGE CURRENT		MAX. AVERAGE CURRENT AND CORRESPONDING KVA DEMAND		TYPE COOLING
	LENGTH	DIAM.		KVA	AMPS.	KVA	AMPS.	
5550/681	17⅝	2¾	250 600	300	12.1	100	22.4	Clamp
5551-A	23¾	2¾	250 600	600	30.2	200	56.0	Water
5552-A	27¼	4¼	250 600	1200	75.6	400	140	Water
5553-B/655	31¼	5⅝	250 600	2400	192	800	355	Water

SPECIAL PURPOSE TUBES—INDUSTRIAL TYPES

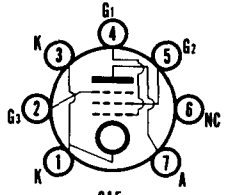
VACUUM RECTIFIERS (Air-Cooled)

TYPE	FILAMENT		MAX. DIMENSIONS INCHES		MAX. ANODE RATINGS			BASING DIAG.
	VOLTS	AMPS.	LENGTH	DIAM.	PEAK INVERSE VOLTS	PEAK AMPERES	AVERAGE AMPERES	
579-B	2.5	6.0	7 7/16	2 1/16	20,000	0.270	0.025	579-B

THYRATRONS (Grid Controlled Mercury Vapor Rectifier)

TYPE	FILAMENT		MAX. DIMENSIONS INCHES		NO. OF ELECTRODES	MAX. RATINGS				BASING DIAG.
	VOLTS	AMPS.	LENGTH	DIAM.		PEAK INVERSE VOLTS	PEAK ANODE AMPS.	AVERAGE ANODE AMPS.	TEMP. RANGE CONDENSED MERCURY °C.	
632-B	5.0	5.0	9 5/16	2 5/16	4	1500	30	2.5	40° to 80°	632-B
672-A	5.0	5.0	8 1/8	2 5/16	4	2500	40	3.2	40° to 80°	672-A
676	5.0	10.0	11 3/4	3 3/16	3	2500	40	6.4	40° to 80°	676
677	5.0	10.0	11 3/4	3 3/16	3	10,000	15	4.0	30° to 50°	677
678	5.0	7.5	11 1/16	2 9/16	3	15,000	6	1.6	25° to 50°	678
THYRATRONS (Grid Controlled Gas Rectifiers)									Ambient	
2050	6.3	0.60	4 1/8	1 9/16	4	1300	1.0	0.1	−55° to +90°	6BS
5685	2.5	21.0	9 1/2	2	3	1250	77	6.4	−55° to +70°	5685
5796	2.5	8.5	5 1/4	1 9/16	3	1500	20	1.6	−55° to +70°	5796

BASE DIAGRAMS FOR SPECIAL PURPOSE CHART



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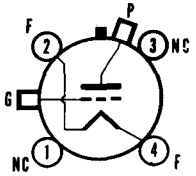

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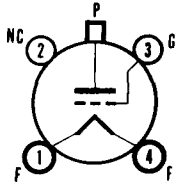

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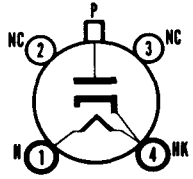

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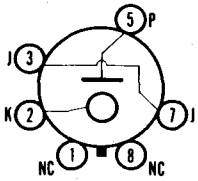

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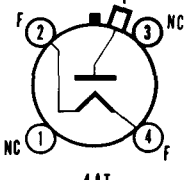

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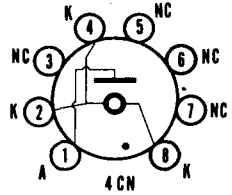

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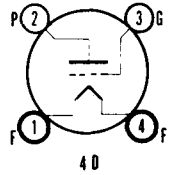

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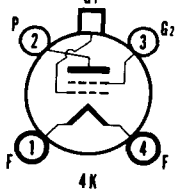

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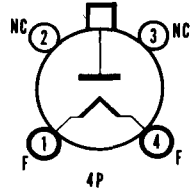

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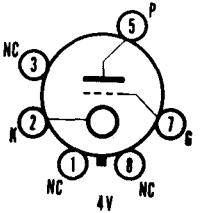

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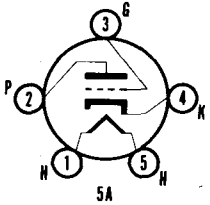

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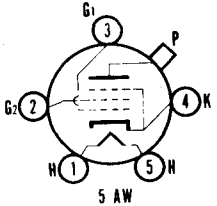
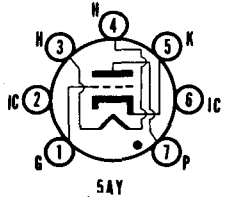


5 AW



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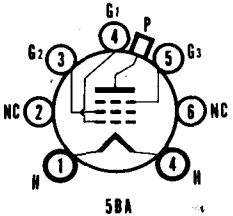

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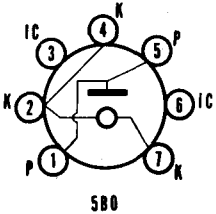

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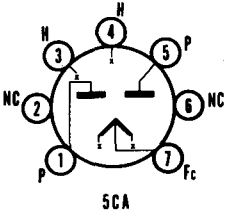

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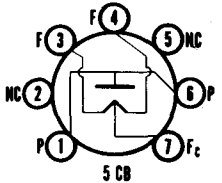
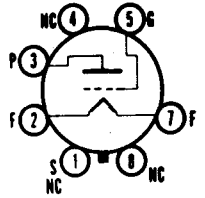


5 CB

BASE DIAGRAMS FOR SPECIAL PURPOSE CHART—Cont'd



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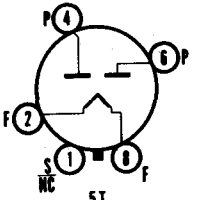

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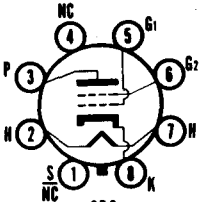

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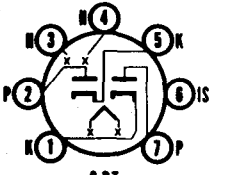

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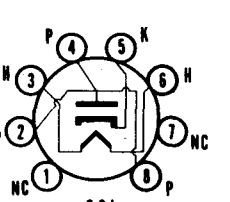

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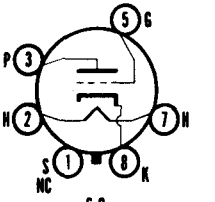

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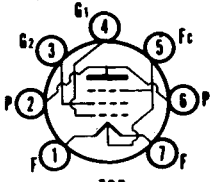

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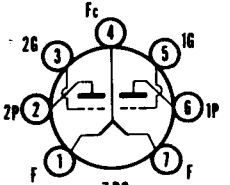

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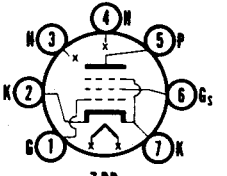

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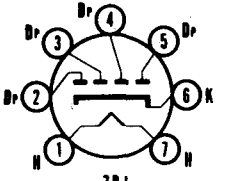

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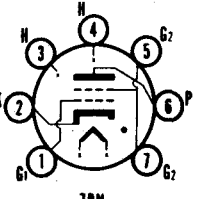

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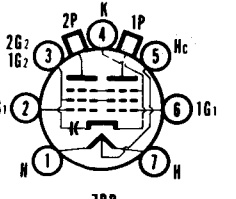

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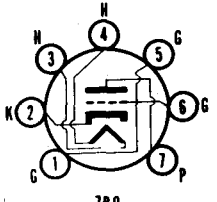

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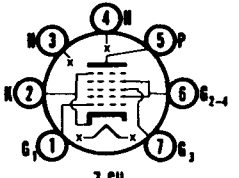

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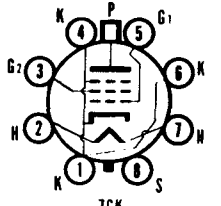

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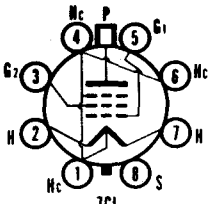

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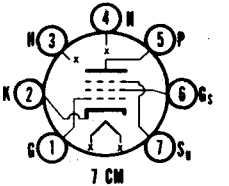

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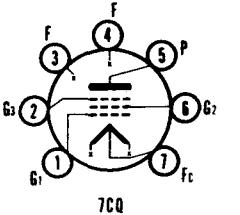

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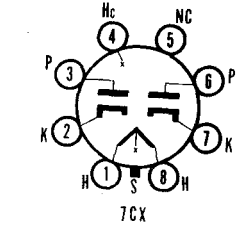
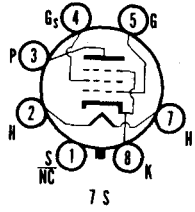
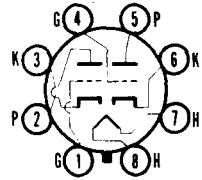
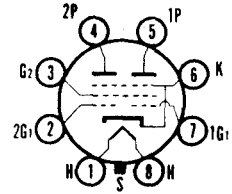
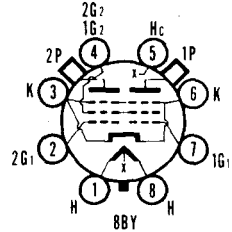
BASE DIAGRAMS FOR SPECIAL PURPOSE CHART—Cont'd

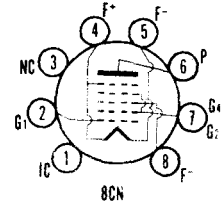


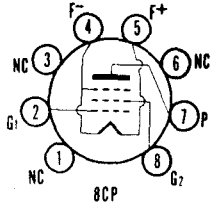


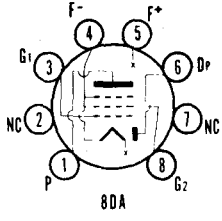


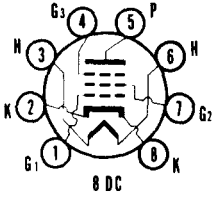


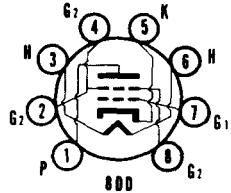


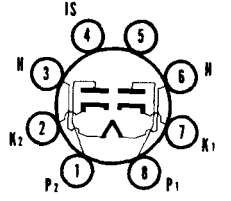


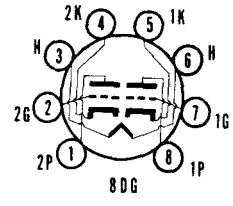


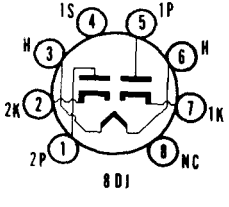


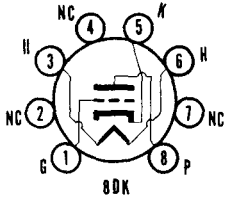


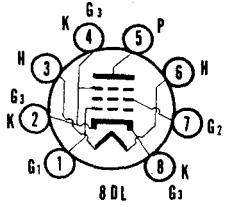


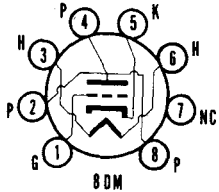


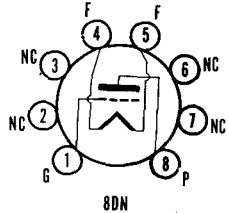


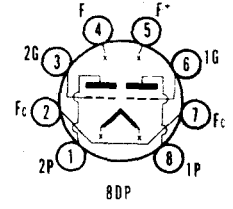




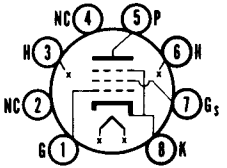








BASE DIAGRAMS FOR SPECIAL PURPOSE CHART—Cont'd



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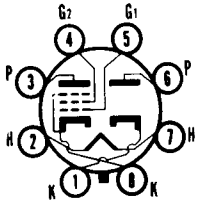

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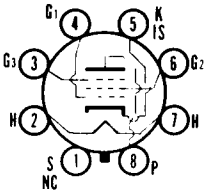

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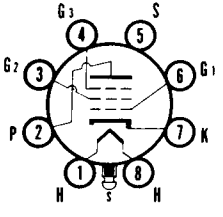

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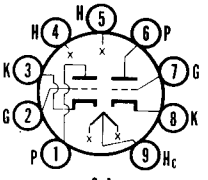

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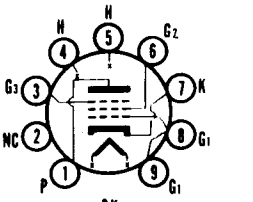

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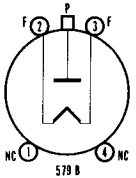

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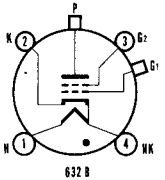

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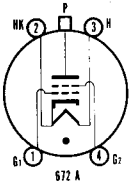

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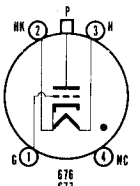

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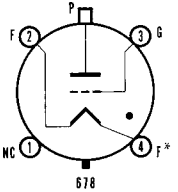
677



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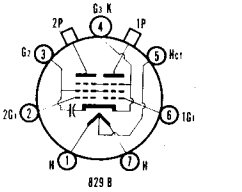

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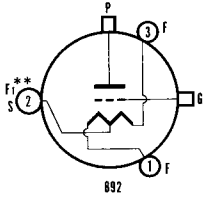

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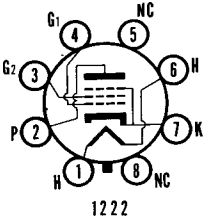

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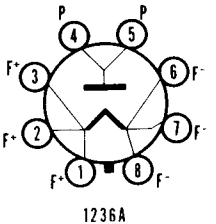

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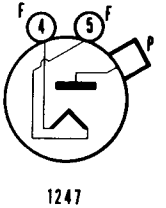

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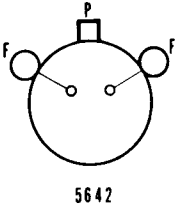
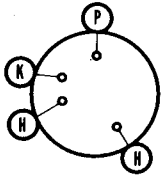


5642

*Grid and anode return

**Do not connect two sections in parallel

BASE DIAGRAMS FOR SPECIAL PURPOSE CHART—Cont'd



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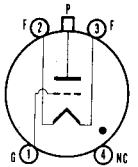
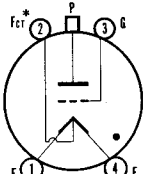
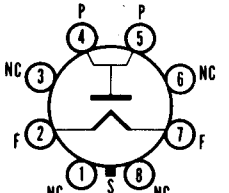


5685



5796



X6030

*Grid and anode return

**Do not connect two sections in parallel