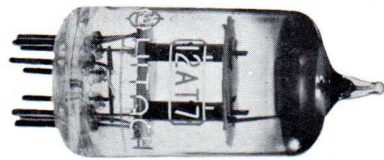
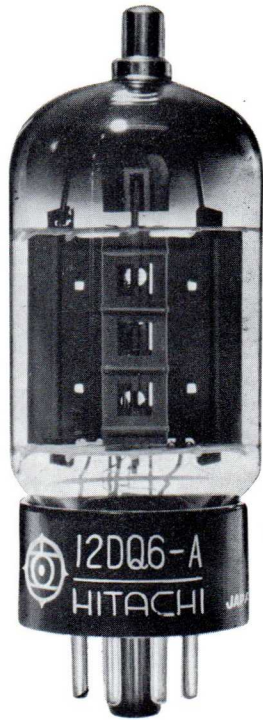


# HITACHI RECEIVING TUBES



*Hitachi, Ltd.*

Tokyo Japan

# HITACHI RECEIVING TUBES

## HIGH QUALITY

### 1. Long Life

Built of the finest materials and subjected to stringent testing at every stage of manufacture, Hitachi Radio Receiving Tubes have almost no initial defects such as cracks, wire breakdown, etc., thus ensuring long service life and high reliability.

### 2. Uniform Quality and Characteristics

Manufactured in a perfectly air conditioned factory by the most modern facilities, and inspected in accordance with the Standardizing Notice

received from and licenced under the Japanese patents of Radio Corporation of America, uniformity in both the electrical and constructional characteristics and quality is fully guaranteed.

### 3. Remarkable Increase in Export

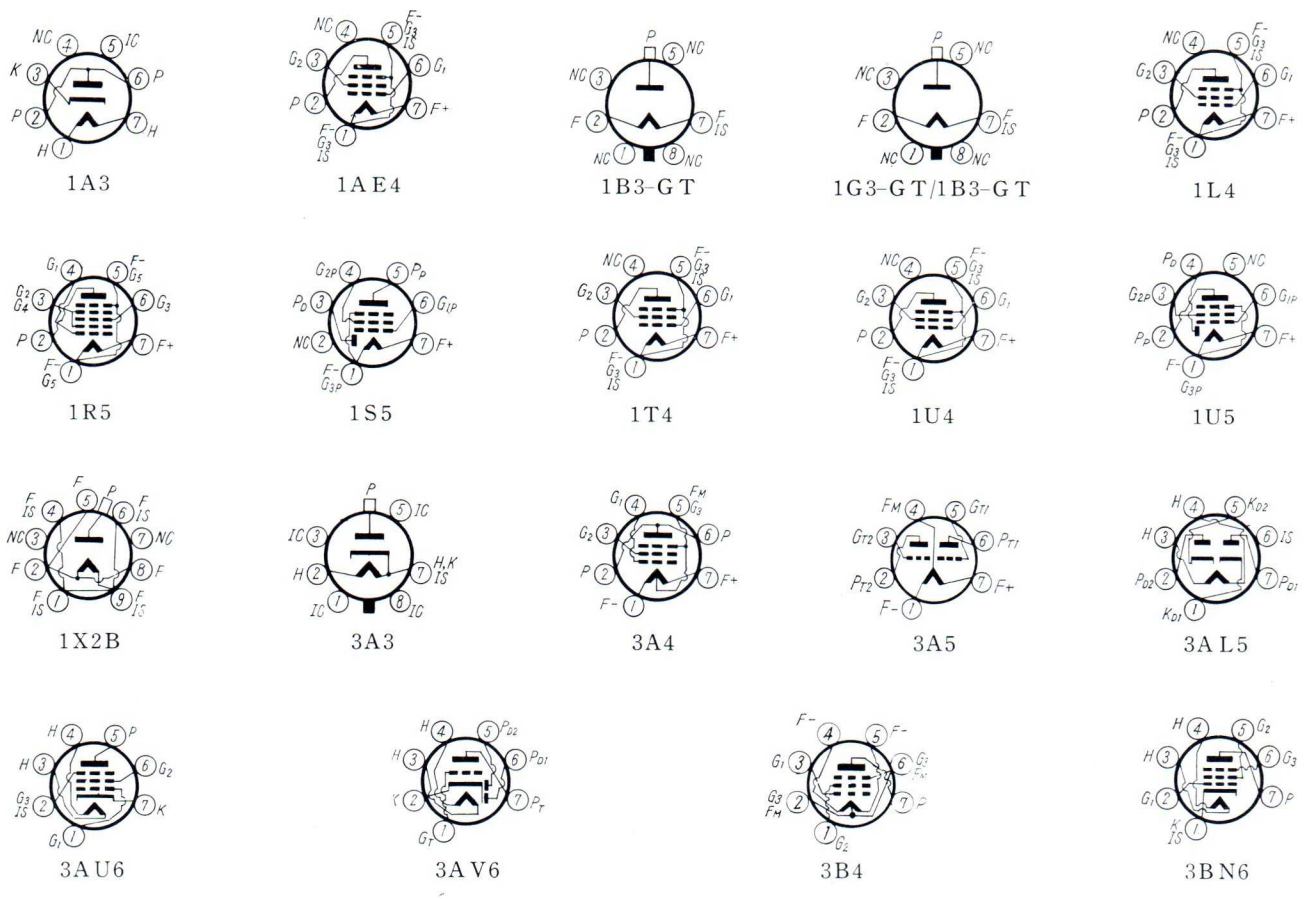
Following the recent worldwide acknowledgment of the excellent quality Hitachi Receiving Tubes are rapidly making their way into many overseas markets, covering America, Europe and other continents.

Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
1A3	High-Frequency Diode	18-2	H	1.4	0.15	Detector, Rectifier
1AE4	Sharp Cutoff Pentode	18-2	F	1.25	0.1	Class A Amplifier
1B3-GT	Half-Wave Rectifier	29-7	F	1.25	0.2	Rectifier
1G3-GT /1B3-GT	Half-Wave Rectifier	29-5	F	1.25	0.2	Rectifier
1L4	Sharp Cutoff Pentode	18-2	F	1.4	0.05	Class A Amplifier (RF)
1R5	Pentagrid Converter	18-2	F	1.4	0.05	Converter
1S5	Diode Sharp Cutoff Pentode	18-2	F	1.4	0.05	Class A Amplifier
1T4	Remote Cutoff Pentode	18-2	F	1.4	0.05	Class A Amplifier
1U4	Sharp Cutoff Pentode	18-2	F	1.4	0.05	Class A Amplifier
1U5	Diode Sharp Cutoff Pentode	18-2	F	1.4	0.05	Class A Amplifier (Pentode unit)
1X2B	Half-Wave Rectifier	21-4	F	1.25	0.2	Rectifier
3A3	Half-Wave Rectifier	29-7	H	3.15	0.22	Rectifier
3A4	Power Amplifier Pentode	18-2	F	1.4 2.8	0.2 0.1	Power Amplifier
3A5	Medium-Mu Twin Triode	18-2	F	1.4 2.8	0.22 0.11	Class A Amplifier
3AL5	Twin Diode	18-1	H*	3.15	0.6	Detector, Rectifier
3AU6	Sharp Cutoff Pentode	18-2	H*	3.15	0.6	Class A Amplifier
3AV6	Duplex Diode High-Mu Triode	18-2	H*	3.15	0.6	Class A Amplifier
3B4	Beam Power Tube	18-2	F	1.25 2.5	0.33 0.165	Class C Amplifier
3BN6	Beam Tube	18-3	H*	3.15	0.6	Limiter, Discriminator

◆ Premium tubes

▲ H=Heater  
F=Filament

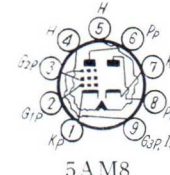
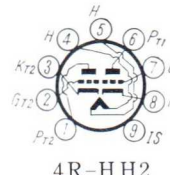
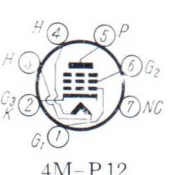
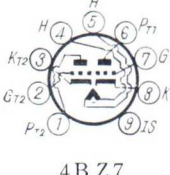
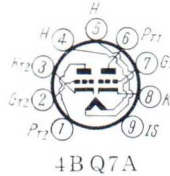
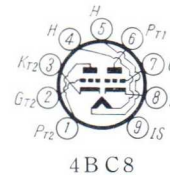
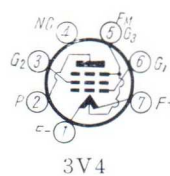
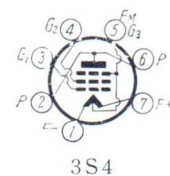
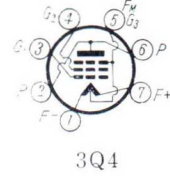
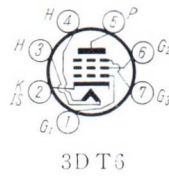
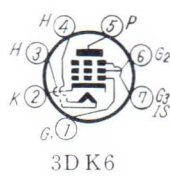
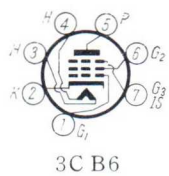
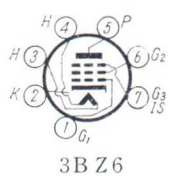
■  $G_c$ =Conversion transconductance  
 $R_{g1}$ =Grid No. 1 resistor



Typical Operation ■

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{c2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_0$ (W)	Remarks
Max. Peak Inverse Plate Voltage : 300 V					Max. D.C. Output Current : 0.5 mA					
Max. Peak Plate Current : 5 mA										
90	90	0	3.5	1.0	1,550	500,000	—	—	—	
Max. Peak Inverse Plate Voltage : 26 kV (Abs)					Max. D.C. Output Current : 0.5 mA					
Max. Peak Plate Current : 50 mA										
Max. Peak Inverse Plate Voltage : 26 kV (Abs)					Max. D.C. Output Current : 0.5 mA					
Max. Peak Plate Current : 50 mA										
90	67.5	0	2.9	1.2	925	600,000	—	—	—	
90	$E_{c2}, E_{c4}$ 67.5	$E_{c3}=0$	1.4	3.2	$G_r=300$	600,000	$R_{g1}=100\text{ k}\Omega$ $I_{c1}=0.25\text{ mA}$	—	—	
67.5	67.5	0	1.6	0.4	625	600,000	—	—	—	← Pentode unit
90	67.5	0	3.5	1.4	900	500,000	—	—	—	
90	90	0	1.6	0.5	900	1,000,000	—	—	—	
67.5	67.5	0	1.6	0.4	625	600,000	—	—	—	← Pentode unit
Max. Peak Inverse Plate Voltage : 22 kV (Abs)					Max. D.C. Output Current : 0.5 mA					
Max. Peak Inverse Plate Voltage : 30 kV					Max. D.C. Output Current : 1.5 mA					
Max. Peak Plate Current : 80 mA										
150	90	-8.4	13.3	2.2	1,900	100,000	—	8,000	0.71	← Class A Amp.
150	135	—	18.3	6.5	$I_{c1}=0.13\text{ mA}$	—	$R_{g1}=200\text{ k}\Omega$	—	1.2	← Class C Amp.
90	—	-2.5	3.7	—	1,800	8,300	15	—	—	← Class A Amp.
130	—	-2.0	30	—	—	—	—	—	2	← Class C Push-pull
Max. Peak Inverse Plate Voltage : 330 V					Max. D.C. Output Current : 9 mA					
Max. Peak Plate Current : 54 mA										
250	150	[68 Ohms]	10.6	4.3	5,200	1,000,000	—	—	—	
250	—	-2	1.2	—	1,600	62,500	100	—	—	← Triode unit
200	150	-25	19.5	1.0	1,800	$I_{c1}=$	—	—	—	← Class A Amp.
150	135	-38	25	6.2	$R_{g1}=70\text{ k}\Omega$	0.55 mA	—	—	1.25	← Class C Push-pull
80	60	-1.3	0.23	5	—	—	—	6,800	—	

\* Heater has controlled warm-up time for series-string operation      ● [ ] Shows cathode-bias resistor

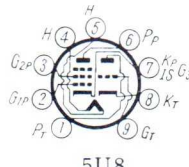
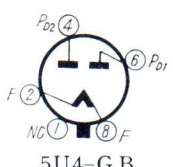
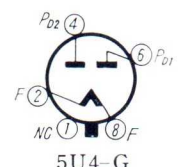
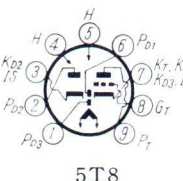
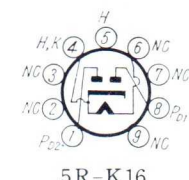
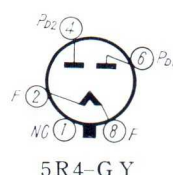
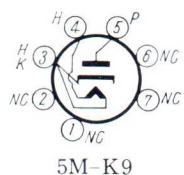
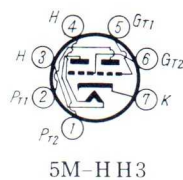
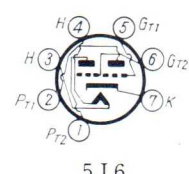
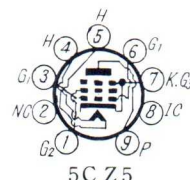
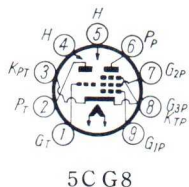
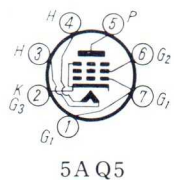
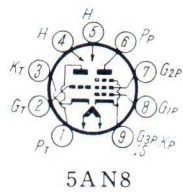


Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
3B Z6	Remote Cutoff Pentode	18-2	H *	3.15	0.6	Class A Amplifier
3C B6	Sharp Cutoff Pentode	18-2	H *	3.15	0.6	Class A Amplifier
3D K6	Sharp Cutoff Pentode	18-2	H *	3.15	0.6	Class A Amplifier
3D T6	Pentode	18-2	H *	3.15	0.6	FM Limiter, Discriminator
3Q4	Power Amplifier Pentode	18-2	F	1.4 2.8	0.1 0.05	Class A Amplifier
3S4	Power Amplifier Pentode	18-2	F	1.4 2.8	0.1 0.05	Class A Amplifier
3V4	Power Amplifier Pentode	18-2	F	1.4 2.8	0.1 0.05	Class A Amplifier
4B C8	Medium-Mu Twin Triode	21-2	H *	4.2	0.6	Class A Amplifier
4B Q7A	Medium-Mu Twin Triode	21-2	H *	4.2	0.6	Class A Amplifier
4B Z7	Medium-Mu Twin Triode	21-2	H *	4.2	0.6	Class A Amplifier
4M-P12	Power Amplifier Pentode	18-3	H *	4.7	0.6	Power Amplifier
4R-HH2	Medium-Mu Twin Triode	21-2	H *	4.2	0.6	Class A Amplifier
5A M8	Diode Sharp-Cutoff Pentode	21-2	H *	4.7	0.6	Class A Amplifier
5A N8	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	4.7	0.6	Class A Amplifier
5A Q5	Beam Power Tube	18-3	H *	4.7	0.6	Power Amplifier
5C G8	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	4.7	0.6	Oscillator, Class A Amplifier
5C Z5	Beam Power Tube	21-5	H *	4.7	0.6	Power Amplifier
5J 6	Medium-Mu Twin Triode	18-2	H *	4.7	0.6	Class A Amplifier
5M-HH3	Medium-Mu Twin Triode	18-2	H *	4.7	0.6	Class A Amplifier
5M-K9	Half-Wave Rectifier	18-3	H	5.0	0.6	Half-Wave Rectifier
5R4-G Y	Full-Wave Rectifier	50-2	F	5.0	2.0	Full-Wave Rectifier
5R-K16	Full-Wave Rectifier	21-5	H	5.0	1.2	Full-Wave Rectifier
5T8	Triple Diode High-Mu Triode	21-2	H *	4.7	0.6	Detector Class A Amplifier
5U4-G	Full-Wave Rectifier	50-2	F	5.0	3.0	Full-Wave Rectifier
5U4-G B	Full-Wave Rectifier	38-3	F	5.0	3.0	Full-Wave Rectifier
5U8	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	4.7	0.6	Class A Amplifier

◆ Premium tubes

▲ H = Heater  
F = Filament

■  $G_c$  = Conversion transconductance  
 $R_{G1}$  = Grid No. 1 resistor

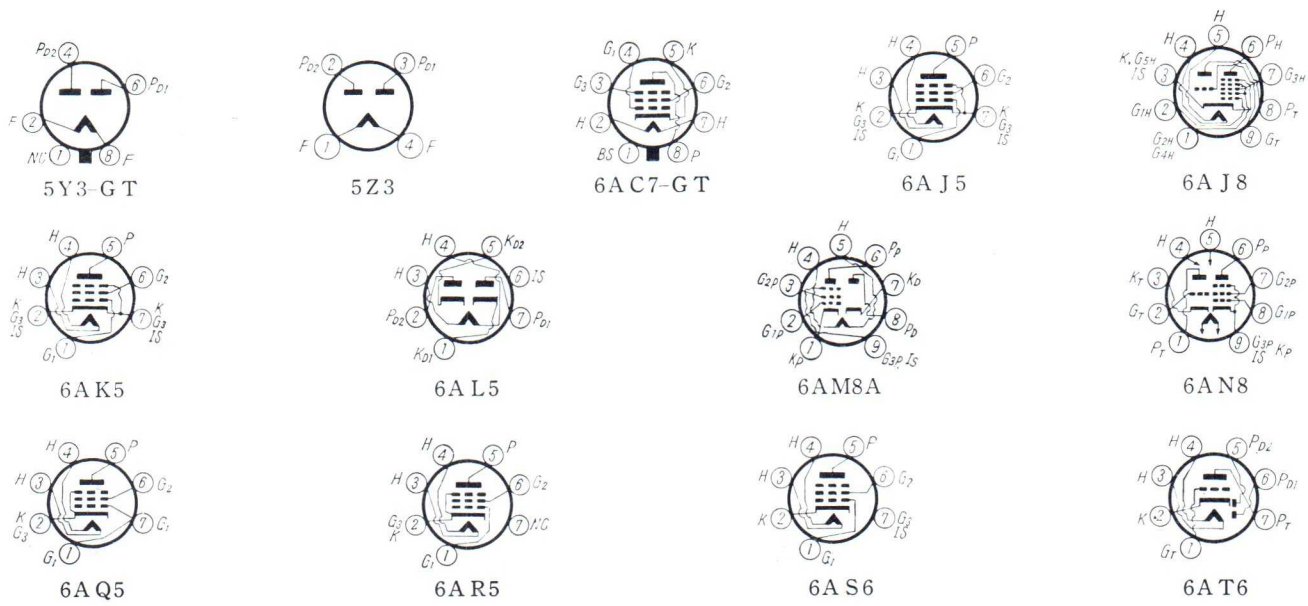


Typical Operation

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{r2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_o$ (W)	Remarks
125	125	[56 Ohms]	14	3.6	8,000	260,000	—	—	—	
200	150	[180 Ohms]	9.5	2.8	6,200	600,000	—	—	—	
125	125	[56 Ohms]	12	3.8	9,800	350,000	—	—	—	
150	100	[560 Ohms]	1.1	2.1	800	$G_m = 515 \frac{\mu\text{V}}{(G_3 - P)}$		—	—	
90	90	-4.5	9.5	2.1	2,150	100,000	—	10,000	0.27	
90	67.5	-7	7.4	1.4	1,575	100,000	—	8,000	0.27	
90	90	-4.5	9.5	2.1	2,150	100,000	—	10,000	0.27	
150	—	[220 Ohms]	10	—	6,200	5,700	35	—	—	
150	—	[220 Ohms]	9	—	6,400	5,900	38	—	—	
150	—	[220 Ohms]	10	—	6,800	5,300	36	—	—	
180	180	-6	25	5.0	5,500	—	—	6,000	2.0	
90	—	-1	8.5	—	8,000	—	36	—	—	
125	125	[56 Ohms]	12.5	3.2	7,800	300,000	—	—	—	←Pentode unit
200	—	-6	13	—	3,300	5,750	19	—	—	←Triode unit
200	150	[180 Ohms]	9.5	2.8	6,200	300,000	—	—	—	←Pentode unit
250	250	-12.5	45	4.5	4,100	52,000	—	5,000	4.5	
100	—	[100 Ohms]	8.5	—	5,800	6,900	40	—	—	←Triode unit
250	150	[200 Ohms]	7.7	1.6	4,600	750,000	—	—	—	←Pentode unit
250	250	-14	46	4.6	4,800	73,000	—	5,000	5.4	
100	—	[50 Ohms]	8.5	—	5,300	7,100	38	—	—	
100	—	-1	11	—	7,500	5,100	38	—	—	
Max. A.C. Plate Supply Voltage : 350 V Max. D.C. Output Current : 60 mA										
Max. A.C. Plate Supply Voltage per Plate : 1,000 V Max. D.C. Output Current : 150 mA (Capacitor input)										
Max. A.C. Plate Supply Voltage per Plate : 350 V Max. D.C. Output Current : 150 mA										
5	—	—	20	—	—	—	—	—	—	←Diode unit
250	—	-3	1.0	—	1,200	58,000	70	—	—	←Triode unit
Max. A.C. Plate Supply Voltage per Plate : 450 V Max. D.C. Output Current : 225 mA (Capacitor input)										
Max. A.C. Plate Supply Voltage per Plate : 450 V Max. D.C. Output Current : 275 mA (Capacitor input)										
150	—	[56 Ohms]	18	—	8,500	5,000	40	—	—	←Triode unit
250	110	[68 Ohms]	10	3.5	5,200	400,000	—	—	—	←Pentode unit

\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor

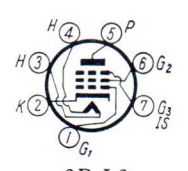
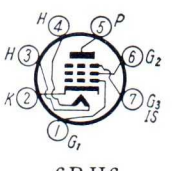
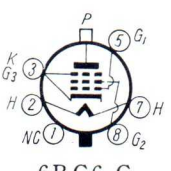
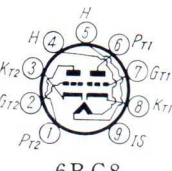
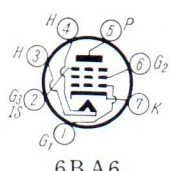
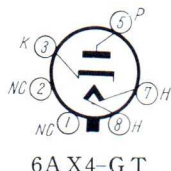
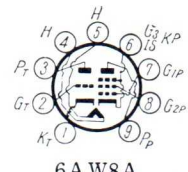
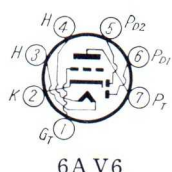
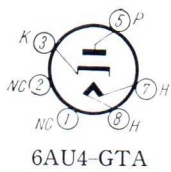


Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
5Y3-GT	Full-Wave Rectifier	29-1	F	5.0	2.0	Full-Wave Rectifier
5Z3	Full-Wave Rectifier	50-1	F	5.0	3.0	Full-Wave Rectifier
6AC7-GT	Sharp Cutoff Pentode	29-2	H	6.3	0.45	Class A Amplifier
6AJ5	Sharp Cutoff Pentode	18-1	H	6.3	0.175	Class A Amplifier
6AJ8 (ECH81)	Triode-Heptode	21-3	H	6.3	0.3	Triode unit Class A Amplifier Heptode unit Class A Amplifier Converter
6AK5	Sharp Cutoff Pentode	18-1	H	6.3	0.175	Class A Amplifier
6AL5	Twin Diode	18-1	H	6.3	0.3	Detector, Rectifier
6AM8A	Diode Sharp-Cutoff Pentode	21-2	H*	6.3	0.45	Class A Amplifier
6AN8	Medium-Mu Triode Sharp-Cutoff Pentode	21-2	H	6.3	0.45	Class A Amplifier
6AQ5	Beam Power Tube	18-3	H	6.3	0.45	Power Amplifier
6AR5	Power Amplifier Pentode	18-3	H	6.3	0.4	Class A Amplifier
6AS6	Sharp Cutoff Pentode	18-1	H	6.3	0.175	Class A Amplifier
6AT6	Duplex Diode High-Mu Triode	18-2	H	6.3	0.3	Class A Amplifier
6AU4-GTA	Half-Wave Rectifier	29-4	H	6.3	1.8	TV Damper Service
6AU6	Sharp Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6AV6	Duplex Diode High-Mu Triode	18-2	H	6.3	0.3	Class A Amplifier
6AW8A	High-Mu Triode Sharp Cutoff Pentode	21-3	H*	6.3	0.6	Class A Amplifier
6AX4-GT	Half-Wave Rectifier	29-1	H	6.3	1.2	TV Damper Service
6BA6	Remote Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6BC8	Medium-Mu Twin Triode	21-2	H	6.3	0.4	Class A Amplifier
6BD6	Remote Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6BE6	Pentagrid Converter	18-2	H	6.3	0.3	Converter
6BG6-G	Beam Power Tube	50-3	H	6.3	0.9	Horizontal Deflection Amplifier in TV Receivers
6BH6	Sharp Cutoff Pentode	18-2	H	6.3	0.15	Class A Amplifier
6BJ6	Remote Cutoff Pentode	18-2	H	6.3	0.15	Class A Amplifier

◆ Premium tubes

▲ H = Heater  
F = Filament

■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor

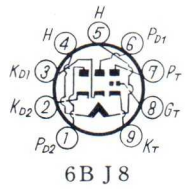


Typical Operation ■

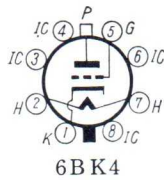
Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{c2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_0$ (W)	Remarks
Max. A.C. Plate Supply Voltage per Plate: 350 V										
Max. D.C. Output Current: 125 mA										
Max. A.C. Plate Supply Voltage per Plate: 450 V (Capacitor input)										
Max. D.C. Output Current: 225 mA										
300	150	[160 Ohms]	10	2.5	9,000	1,000,000	—	—	—	
28	28	[200 Ohms]	2.7	1.0	2,500	100,000	—	—	—	
100	—	0	13.5	—	3,700	—	22	—	—	←Triode unit ←Heptode unit (RF. Amp.) ←Heptode unit (Converter)
250	$E_{c2}, E_{c4}$ 102	-2	6.5	$I_{c2}+I_{c4}$ 3.8	2,400	700,000	—	—	—	
250	$E_{c2}, E_{c4}$ 102	-2	3.25	$I_{c2}+I_{c2}$ 6.7	$G_c=775$	1,000,000	—	—	—	
$(R_{j3}=47\text{ k}\Omega)$										
180	120	[180 Ohms]	7.7	2.4	5,100	500,000	—	—	—	
Max. Peak Inverse Plate Voltage: 330 V										
Max. D.C. Output Current: 9 mA										
125	125	[56 Ohms]	12.5	3.2	7,800	300,000	—	—	—	←Pentode unit
200	—	-6	13	—	3,300	5,750	19	—	—	←Triode unit
200	150	[180 Ohms]	9.5	2.8	6,200	300,000	—	—	—	←Dentode unit
250	250	-12.5	45	4.5	4,100	52,000	—	5,000	4.5	
250	250	-18	32	5.5	2,300	68,000	—	7,600	3.4	
120	120	-2	5.2	3.5	3,200	110,000	—	—	—	$E_{c3}=0$
250	—	-3	1.0	—	1,200	58,000	70	—	—	Triode unit
Max. Peak Inverse Plate Voltage: 4,500 V (Abs)										
Max. Peak Plate Current: 1,150 mA										
Max. D.C. Output Current: 190 mA										
250	150	[68 Ohms]	10.6	4.3	5,200	1,000,000	—	—	—	
250	—	-2	1.2	—	1,600	62,500	100	—	—	←Triode unit
200	—	-2.0	4	—	4,000	17,500	70	—	—	←Triode unit
200	150	[180 Ohms]	13	3.5	9,000	400,000	—	—	—	←Pentode unit
Max. Peak Inverse Plate Voltage: 4,400 V (Abs)										
Max. Peak Plate Current: 750 mA										
Max. D.C. Output Current: 125 mA										
250	100	[68 Ohms]	11	4.2	4,400	1,000,000	—	—	—	
150	—	[220 Ohms]	10	—	6,200	5,700	35	—	—	
250	100	-3	9	3	2,000	800,000	—	—	—	
250	$E_{c2}, E_{c4}$ 100	$E_{c1}=0$ $E_{c3}=-1.5\text{V}$	2.9	$I_{c2}+I_{c4}$ 6.8	$G_c=475$	1,000,000	—	$R_{g1}=20\text{ k}\Omega$	$I_{c1}=0.5\text{ mA}$	
Max. D.C. Plate Voltage: 700V										
Max. Peak Positive-Pulse Plate Voltage: 6,600 V (Abs.)										
Max. D.C. Cathode Current: 110 mA										
250	150	-1	7.4	2.9	4,600	1,400,000	—	—	—	
250	100	-1	9.2	3.3	3,600	1,300,000	—	—	—	

\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor



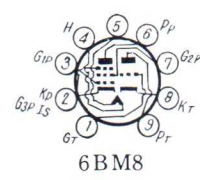
6B J 8



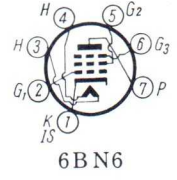
6B K 4



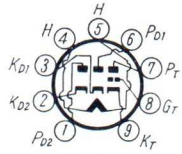
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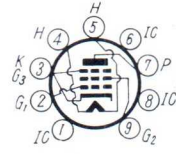
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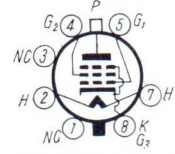
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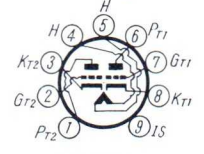
6B N 8



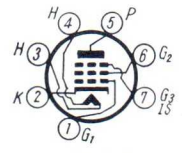
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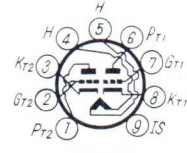
6BQ6-GTB/6CU6



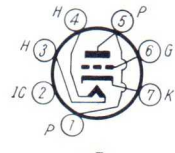
6B Q 7 A



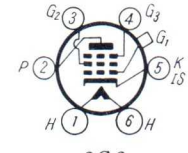
6B Z 6



6B Z 7



6C 4



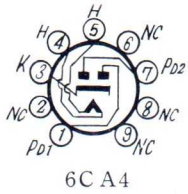
6C 6

Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
6B J 8	Twin-Diode Medium-Mu Triode	21-3	H*	6.3	0.6	Detector (Diode unit) Class A Amplifier (Triode unit)
6B K 4	Sharp-Cutoff Beam Triode	38-6	H	6.3	0.2	Voltage Control
6B K 5	Beam Power Amplifier	21-3	H	6.3	1.2	Class A Amplifier
6B M 8 (ECL82)	High-Mu Triode Power Amplifier Pentode	21-5	H	6.3	0.78	Class A Amplifier Power Amplifier
6B N 6	Beam Tube	18-3	H	6.3	0.3	Limiter, Discriminator
6B N 8	Duplex-Diode High-Mu Triode	21-3	H*	6.3	0.6	Detector (Diode unit) Class A Amp. (Triode unit)
6B Q 5 (E L 84)	Power Amplifier Pentode	21-5	H	6.3	0.76	Power Amplifier
6BQ6-GTB /6CU6	Beam Power Tube	29-6	H	6.3	1.2	Horizontal Deflection Amp. in TV Receivers
6B Q 7 A	Medium-Mu Twin Triode	21-2	H	6.3	0.4	Class A Amplifier
6B Z 6	Remote Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6B Z 7	Medium-Mu Twin Triode	21-2	H	6.3	0.4	Class A Amplifier
6C 4	Medium-Mu Triode	18-2	H	6.3	0.15	Class A Amplifier
6C 6	Sharp Cutoff Pentode	38-2	H	6.3	0.3	Detector, Amplifier
6C A 4 (E Z 81)	Full-Wave Rectifier	21-5	H	6.3	1.0	Full-Wave Rectifier
6C B 6	Sharp Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6C F 6	Sharp Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6C G 7	Medium-Mu Twin Triode	21-3	H*	6.3	0.6	Oscillator Class A Amplifier
6C G 8	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H	6.3	0.45	Oscillator, Class A Amp.
6C L 6	Power Amplifier Pentode	21-3	H	6.3	0.65	Class A Amplifier
6C S 7	Double Triode	21-3	H*	6.3	0.6	Vertical Deflection Oscillator and Amplifier
6C Z 5	Beam Power Tube	21-5	H*	6.3	0.45	Power Amplifier
6D 6	Remote Cutoff Pentode	38-2	H	6.3	0.3	Class A Amplifier
6D E 7	Double Triode	21-3	H	6.3	0.9	Vertical Deflection Oscillator and Amplifier
6D K 6	Sharp Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6D Q 5	Beam Power Tube	38-5	H	6.3	2.5	Horizontal Deflection Amplifier in TV Receivers
6D Q 6 A	Beam Power Tube	38-4	H	6.3	1.2	Horizontal Deflection Amplifier in TV Receivers

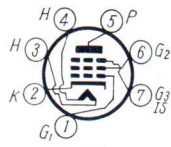
◆ Premium tubes

▲ H = Heater  
F = Filament■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor

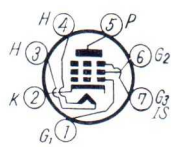




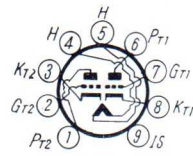
6C A4



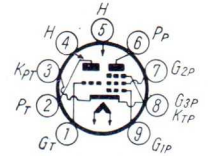
6C B6



6C F6



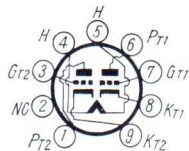
6C G7



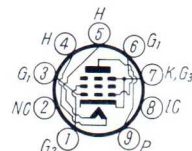
6C G8



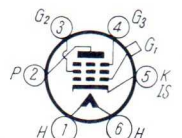
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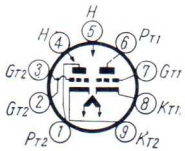
6C S7



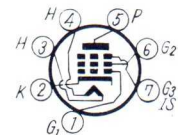
6C Z5



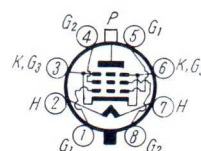
6D6



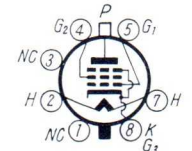
6D E7



6D K6



6D Q5



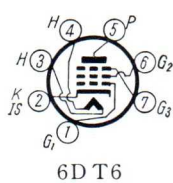
6D Q6A

### Typical Operation ■

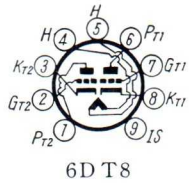
Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{r2}$ (V)	No. 1 Grid Voltage $E_{r1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{r2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_o$ (W)	Remarks
10	—	—	50	—	—	—	—	—	—	←Diode unit
250	—	—9	8	—	2,800	7,150	20	—	—	←Triode unit
Max. D.C. Plate Voltage : 25,000 V      Max. D.C. Current : 1.5 mA										
Max. Unregulated D.C. Supply Voltage : 55,000 V      Max. Plate Dissipation : 25 W										
250	250	—5	35	3.5	8,500	100,000	—	6,500	3.5	
100	—	0	3.5	—	2,500	—	70	—	—	←Triode unit
200	170	—12.5	35	6.5	6,800	20,500	—	5,600	3.4	←Pentode unit
80	60	—1.3	0.23	5	—	—	—	6,800	—	
10	—	—	50	—	—	—	—	—	—	←Diode unit
250	—	—3	1.6	—	2,500	28,000	70	—	—	←Triode unit
250	250	—7.3	48	5.5	11,300	38,000	—	5,200	6	
Max. D.C. Plate Supply Voltage : 600 V      Max. Peak Positive-Pulse Plate Voltage : 6,000 V (Abs)										
Max. Peak Negative-Pulse No. 1 Grid Voltage : 300 V      Max. D.C. Cathode Current : 112.5 mA										
150	—	[220 Ohms]	9	—	6,400	5,900	38	—	—	
125	125	[50 Ohms]	14	3.6	8,000	260,000	—	—	—	
150	—	[220 Ohms]	10	—	6,800	5,300	35	—	—	
250	—	—8.5	10.5	—	2,200	7,700	17	—	—	←Class A Amp.
300	—	—27.0	25.0	—	—	—	—	—	5.5	←Class C Amp.
250	100	—3	2.0	0.5	1,225	1,000,000	—	—	—	
Max. A.C. Plate Supply Voltage per plate 350 V      Max. D.C. Output Current : 150 mA										
Max. Peak inverse Plate Voltage : 1,000 V										
200	150	[180 Ohms]	9.5	2.8	6,200	600,000	—	—	—	
200	150	[180 Ohms]	9.5	2.8	6,200	600,000	—	—	—	
250	—	—8	9	—	2,600	7,700	20	—	—	
100	—	[100 Ohms]	8.5	—	5,800	6,900	40	—	—	←Triode unit
250	150	[200 Ohms]	7.7	1.6	4,600	750,000	—	—	—	←Pentode unit
250	150	—3	30	7	11,000	150,000	—	7,500	2.8	
250	—	—8.5	10.5	—	2,200	7,700	17	—	—	←No. 1 unit (Osc.)
250	—	—10.5	19.0	—	4,500	3,450	15.5	—	—	←No. 2 unit (Amp.)
250	250	—14	46	4.6	4,800	73,000	—	5,000	5.4	
250	100	—3	8.2	2.0	1,600	800,000	—	—	—	
250	—	—11	5.5	—	2,000	8,750	17.5	—	—	←No. 1 unit (Osc.)
150	—	—17.5	35	—	6,500	925	6	—	—	←No. 2 unit (Amp.)
125	125	[56 Ohms]	12.0	3.8	9,800	350,000	—	—	—	
Max. D.C. Plate Supply Voltage : 900 V      Max. Peak Positive-Pulse Plate Voltage 7,000 V (Abs)										
Max. D.C. Cathode Current : 285 mA										
Max. D.C. Plate Supply Voltage : 700 V      Max. Peak Positive Pulse Voltage : 6,000 V (Abs)										
Max. D.C. No. 2 Grid Voltage : 200 V      Max. D.C. Cathode Current : 140 mA										

\* Heater has controlled warm-up time for series-string operation

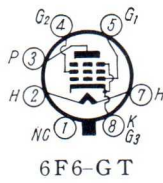
● [ ] Shows cathode-bias resistor



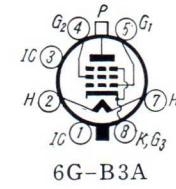
6D T6



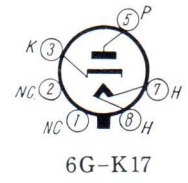
6D T8



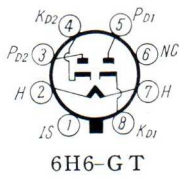
6F6-G T



6G-B3A



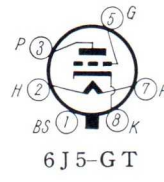
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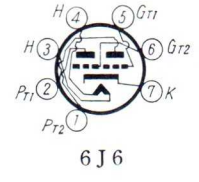
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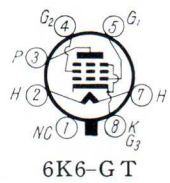
6J4-WA



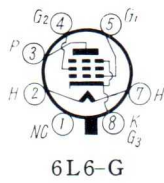
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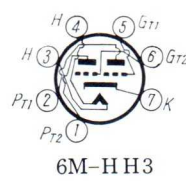
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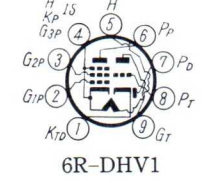
6K6-G T



6L6-G



6M-HH3

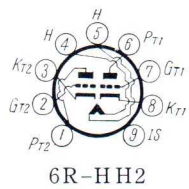


6R-DHV1

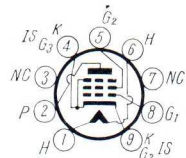
Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
6D T6	Sharp Cutoff Pentode	18-2	H	6.3	0.3	FM Limiter, Discriminator
6D T8	High-Mu Twin Triode	21-2	H	6.3	0.3	Class A Amplifier
6F6-G T	Power Amplifier Pentode	29-3	H	6.3	0.7	Power Amplifier
6G-B3A	Beam Power Tube	29-8	H	6.3	1.2	Horizontal Deflection Amplifier in TV Receivers
6G-K17	Half-Wave Rectifier	29-4	H	6.3	1.3	TV Damper Service
6H6-G T	Twin Diode	29-1	H	6.3	0.3	Detector, Rectifier
6J4WA	High-Mu Triode	18-2	H	6.3	0.4	Class A Amplifier
6J5-G T	Medium-Mu Triode	29-2	H	6.3	0.3	Class A Amplifier
6J6 ◆	Medium-Mu Twin Triode	18-2	H	6.3	0.45	Class A Amplifier
6K6-G T	Power Amplifier Pentode	29-1	H	6.3	0.4	Power Amplifier
6L6-G	Beam Power Tube	50-2	H	6.3	0.9	Power Amplifier
6M-HH3	Medium-Mu Twin Triode	18-2	H	6.3	0.45	Class A Amplifier
6R-DHV1	Diode, High-Mu Triode Remote Cutoff Pentode	21-2	H	6.3	0.48	Detector (Diode unit) Class A Amplifier (Triode unit) RF Amplifier (Pentode unit)
6R-HH2	Medium-Mu Twin Triode	21-2	H	6.3	0.45	Class A Amplifier
6R-P10	Power Amplifier Pentode	21-3	H	6.3	0.5	Power Amplifier
6R-R8C	Sharp Cutoff Pentode	21-1	H	6.3	0.3	Class A Amplifier
6S A7-G T	Pantagrid Converter	29-1	H	6.3	0.3	Converter
6S D7-G T	Remote Cutoff Pentode	29-2	H	6.3	0.3	Class A Amplifier
6S H7-G T	Sharp Cutoff Pentode	29-2	H	6.3	0.3	Class A Amplifier
6S J7-G T	Sharp Cutoff Pentode	29-2	H	6.3	0.3	Class A Amplifier
6S K7-G T	Remote Cutoff Pentode	29-2	H	6.3	0.3	Class A Amplifier
6S L7-G T	High-Mu Twin Triode	29-1	H	6.3	0.3	Class A Amplifier
6S N7-G T B	Medium-Mu Twin Triode	29-1	H *	6.3	0.6	Class A Amplifier
6S Q7-G T	Duplex Diode High-Mu Triode	29-2	H	6.3	0.3	Class A Amplifier
6T8	Triple-Diode, High-Mu Triode	21-2	H	6.3	0.45	Class A Amplifier
6U8	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H	6.3	0.45	Class A Amplifier

◆ Premium tubes

▲ H = Heater  
F = Filament■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor



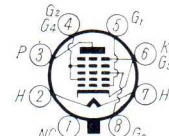
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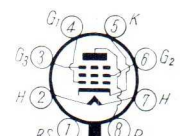
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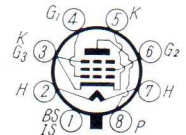
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6S A7-GT



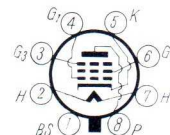
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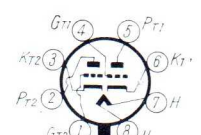
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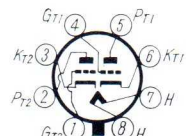
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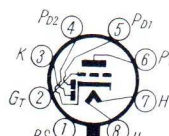
6S K7-GT



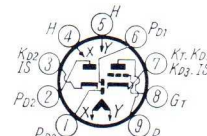
6S L7-GT



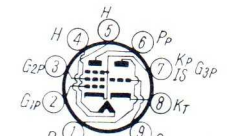
6SN7-GTB



6S Q7-GT



6T8



6U8

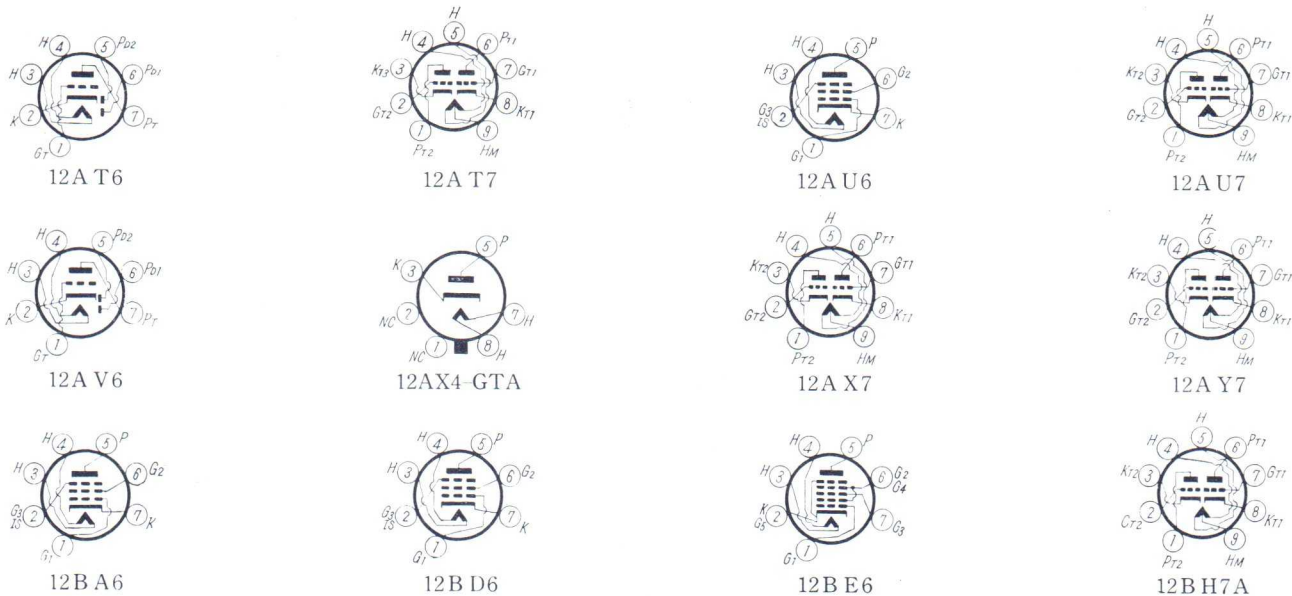
Typical Operation

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{r2}$ (V)	No. 1 Grid Voltage $E_{r1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{r2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_0$ (W)	Remarks
150	100	[560 Ohms]	1.1	2.1	800	$G_m = 515 \mu S$ ( $G_3 - P$ )		—	—	
250	—	[200 Ohms]	10	—	5,500	10,900	60	—	—	
250	250	-16.5	34	6.5	2,500	80,000	—	7,000	3.2	
Max. D.C. Plate Supply Voltage: 550 V					Max. Peak Positive-Pulse Plate Voltage: 6,600 V (Abs)					
Max. D.C. Cathode Current: 150 mA										
Max. Peak Inverse Plate Voltage: 4,500 V (Abs)					Max. Peak Plate Current: 1,050 mA					
Max. D.C. Output Current: 175 mA										
Max. Peak Inverse Plate Voltage: 420 V					Max. D.C. Output Current: 8 mA					
Max. D.C. Peak Plate Current: 48 mA										
150	—	[100 Ohms]	13.5	—	11,000	—	50	—	—	
250	—	-8	9	—	2,600	7,700	20	—	—	
100	—	[50 Ohms]	8.5	—	5,300	7,100	38	—	—	
250	250	-18	32	5.5	2,300	90,000	—	7,600	3.4	
250	250	-14	72	5.0	6,000	22,500	—	2,500	6.5	
100	—	-1	11	—	7,500	5,100	38	—	—	
250	—	-2	1.2	—	1,600	62,500	100	—	—	← Triode unit
250	100	-1	9.0	3.0	3,500	250,000	—	—	—	← Pentode unit
90	—	-1	8.5	—	8,000	4,500	36	—	—	
150	150	[60 Ohms]	36	8.0	13,500	—	—	1,800	1	
150	150	[110 Ohms]	13	4.5	12,500	150,000	—	—	—	
250	$E_{c2}, E_{c4}$ 100	$E_{c3} = -2$	3.5	$I_{c2} + I_{c4}$ 8.5	$G_c = 450$	1,000,000	$R_{g1} = 20 k\Omega$ $I_{c1} = 0.5 mA$			
250	125	-2	9.5	3.3	4,250	700,000	—	—	—	
250	150	-1	10.8	4.1	4,900	900,000	—	—	—	
250	100	-3	3.0	0.8	1,650	1,000,000	—	—	—	
250	100	-3	9.2	2.6	2,000	800,000	—	—	—	
250	—	-2	2.3	—	1,600	44,000	70	—	—	
250	—	-8	9	—	2,600	7,700	20	—	—	
250	—	-2	1.1	—	1,175	85,000	100	—	—	← Triode unit
5	—	—	20	—	—	—	—	—	—	← Diode unit
250	—	-3	1	—	1,200	58,000	70	—	—	← Triode unit
150	—	[56 Ohms]	18	—	8,500	5,000	40	—	—	← Triode unit
250	110	[68 Ohms]	10	3.5	5,200	400,000	—	—	—	← Pentode unit

\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor



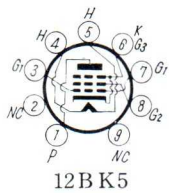


Typical Operation

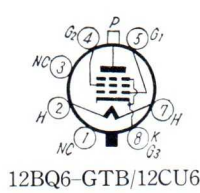
Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{c2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_0$ (W)	Remarks
250	250	-12.5	45	4.5	4,100	50,000	—	5,000	4.5	
Max. Peak Inverse Plate Voltage : 3,500 V    Max. Peak Plate Current : 600 mA Max. D.C. Cathode Current : 125 mA										
200	125	[180 Ohms]	46	2.2	8,000	28,000	—	4,000	3.8	
250	$\frac{E_{c2}, E_{c4}}{100}$	$E_{c3} = -2$ V	3.5	8.5	$G_c = 450$	1,000,000	$R_{g1} = 20$ k $\Omega$	$I_{c1} = 0.5$ mA		
Max. Peak Inverse Plate Voltage per Plate : 1,250 V Max. D.C. Output Current : 70 mA    Max. Heater Cathode Voltage : 450 V Max. Peak Inverse Plate Voltage per Plate : 1,250 V Max. D.C. Output Current : 70 mA    Max. Heater Cathode Voltage : 450 V										
250	—	-2	1.1	—	1,175	85,000	100	—	—	Triode unit
180	180	-10	15	2.5	1,750	130,000	—	12,000	1.0	
250	—	-8.5	10.5	—	2,200	7,700	17	—	—	
250	—	-11	5.5	—	2,000	8,750	17.5	—	—	←No. 1 unit (OSC.)
150	—	-17.5	35	—	6,500	925	6	—	—	←No. 2 unit (Amp.)
100	$\frac{E_{c2}, E_{c4}}{102}$	0	13.5	$I_{c2} + I_{c4}$	3,700	—	22	—	—	←Triode unit
250	$\frac{E_{c2}, E_{c4}}{102}$	-2	6.5	3.8	2,400	700,000	—	—	—	←Heptode unit (RF. Amp.)
250	$\frac{E_{c2}, E_{c4}}{102}$	-2	3.25	$I_{c2} + I_{c4}$	$G_c = 775$	1,000,000	( $R_{g3} = 47$ k $\Omega$ )	—	( $E_{c3} = 0$ V)	←Heptode unit (Converter)
Max. Peak Inverse Plate Voltage : 330 V    Max. D.C. Output Current : 9 mA Max. Peak Plate Current : 54 mA										
250	250	-12.5	45	4.5	4,100	52,000	—	5,000	4.5	
250	—	-3	1.0	—	1,200	58,000	70	—	—	←Triode unit
250	—	[200 Ohms]	10.0	—	5,500	10,900	60	—	—	
250	150	[68 Ohms]	10.6	4.3	5,200	1,000,000	—	—	—	
250	—	-8.5	10.5	—	2,200	7,700	17	—	—	
250	—	-2	1.2	—	1,600	62,500	100	—	—	←Triode unit
Max. Peak Inverse Plate Voltage : 4,400 V (Abs)    Max. Peak Plate Current : 750 mA Max. D.C. Cathode Current : 125 mA										
250	—	-2	1.2	—	1,600	62,500	100	—	—	
250	—	-4	3	—	1,750	22,800	40	—	—	
250	100	[68 Ohms]	11	4.2	4,400	1,000,000	—	—	—	
250	100	-3	9	3	2,000	800,000	—	—	—	
250	$\frac{E_{c2}, E_{c4}}{100}$	$E_{c3} = -1.5$	2.9	$I_{c2} + I_{c4}$	$G_c = 475$	1,000,000	$R_{g1} = 20$ k $\Omega$	$I_{c1} = 0.5$ mA		
250	—	-10.5	11.5	—	3,100	5,300	16.5	—	—	

\* Heater has controlled warm-up time for series-string operation

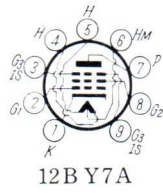
[ ] Shows cathode-bias resistor



12BK5



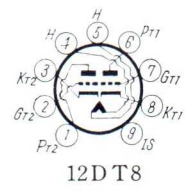
12BQ6-GTB/12CU6



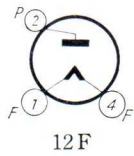
12BY7A



12DQ6A



12DT8



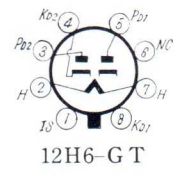
12F



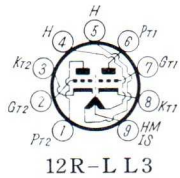
12G-B3



12G-K17



12H6-GT



12R-LL3



12SA7-GT



12SH7-GT



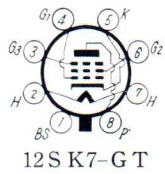
12SJ7-GT

Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
12BK5	Beam Power Tube	18-3	H*	12.6	0.6	Power Amplifier
12BQ6-GTB/12CU6	Beam Power Tube	29-6	H*	12.6	0.6	Horizontal Deflection Amplifier in TV Receivers
12BY7A	Sharp Cutoff Pentode	21-3	H*	6.3 12.6	0.6 0.3	Class A Amplifier
12DQ6A	Beam Power Tube	38-4	H*	12.6	0.6	Horizontal Deflection Amplifier in TV Receivers
12DT8	High-Mu Twin Triode	21-2	H	12.6	0.15	Class A Amplifier
12F	Half-Wave Rectifier	38-1	H	5.0	0.5	Half-Wave Rectifier
12G-B3	Beam Power Tube	29-8	H*	12.6	0.6	Horizontal Deflection Amplifier in TV Receivers
12G-K17	Half-Wave Rectifier	29-4	H*	12.6	0.6	TV Damper Service
12H6-GT	Duplex Diode	29-1	H	12.6	0.15	Detector, Rectifier
12R-LL3	Medium-Mu Twin Triode	21-2	H	12.6	0.225	Class A Amplifier
12SA7-GT	Pentagrid Converter	29-1	H	12.6	0.15	Converter
12SH7-GT	Sharp Cutoff Pentode	29-2	H	12.6	0.15	Class A Amplifier
12SJ7-GT	Sharp Cutoff Pentode	29-2	H	12.6	0.15	Class A Amplifier
12SK7-GT	Remote Cutoff Pentode	29-2	H	12.6	0.15	Class A Amplifier
12SL7-GT	High-Mu Twin Triode	29-1	H	12.6	0.15	Class A Amplifier
12SN7-GT	Medium-Mu Twin Triode	29-1	H	12.6	0.3	Class A Amplifier
12SQ7-GT	Duplex Diode High-Mu Triode	29-2	H	12.6	0.15	Detector, Class A Amplifier
18FW6	Remote Cutoff Pentode	18-2	H	18.0	0.1	Class A Amplifier
18FX6	Pentagrid Converter	18-2	H	18.0	0.1	Converter
18FY6	Duplex Diode High-Mu Triode	18-2	H	18.0	0.1	Class A Amplifier
19A3	Half-Wave Rectifier	18-3	H	19.0	0.15	Half-Wave Rectifier
19M-R9	Sharp Cutoff Pentode	18-2	H	19.0	0.1	Class A Amplifier
19M-R10	Sharp Cutoff Pentode	18-2	H	19.0	0.1	Class A Amplifier
19R-LL1	Medium-Mu Twin Triode	21-2	H	19.0	0.15	Class A Amplifier
19R-P11	Power Amplifier Pentode	21-3	H	19.0	0.2	Power Amplifier
19T8	Triple Diode High-Mu Triode	21-2	H	18.9	0.15	Detector, Class A Amplifier

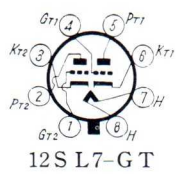
◆ Premium tubes

▲ H = Heater  
F = Filament

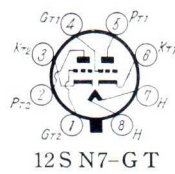
■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor



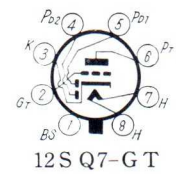
12S K7-GT



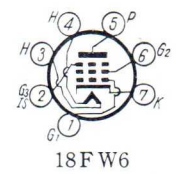
12S L7-GT



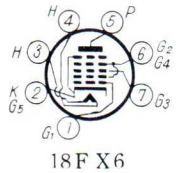
12S N7-GT



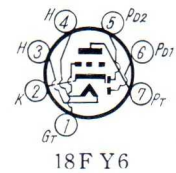
12S Q7-GT



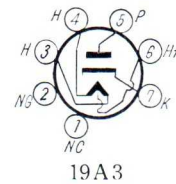
18F W6



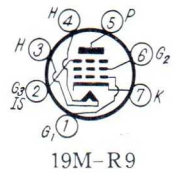
18F X6



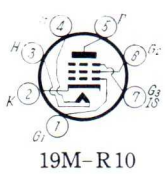
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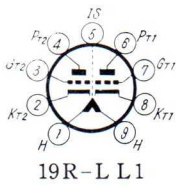
19A 3



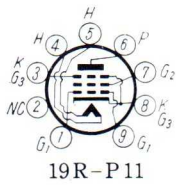
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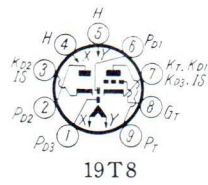
19M-R10



19R-L L1



19R-P 11



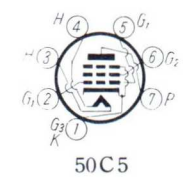
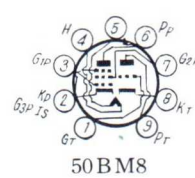
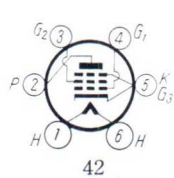
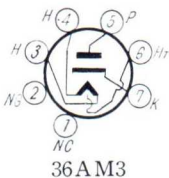
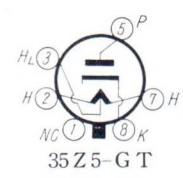
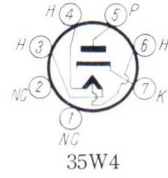
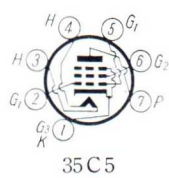
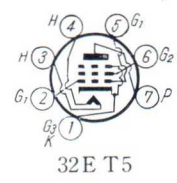
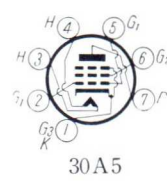
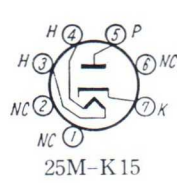
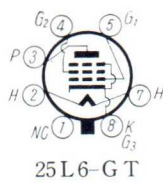
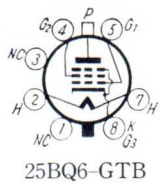
19T 8

Typical Operation

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{c2}$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_0$ (W)	Remarks
250	250	-5	35	3.5	8,500	100,000	—	6,500	3.5	
Max. D.C. Plate Supply Voltage: 600 V      Max. Peak Positive-Pulse Plate Voltage: 6,000 V (Abs)										
Max. Peak Negative-Pulse No.1 Grid Voltage: 300 V      Max. D.C. Cathode Current: 112.5 mA										
250	150	[68 Ohms]	25	6.0	12,000	90,000	—	—	—	
Max. D.C. Plate Supply Voltage: 700 V      Max. Peak Positive-Pulse Plate Voltage: 6,000 V (Abs)										
Max. D.C. No. 2 Grid Voltage: 200 V      Max. D.C. Cathode Current: 140 mA										
250	—	[200 Ohms]	10	—	5,500	10,900	60	—	—	
Max. A.C. Plate Supply Voltage: 300 V      Max. D.C. Output Current: 40 mA										
Max. D.C. Plate Supply Voltage: 550 V      Max. Peak Positive-Pulse Plate Voltage: 6,600 V (Abs)										
Max. D.C. No. 2 Grid Voltage: 200 V      Max. D.C. Cathode Current: 150 mA										
Max. Peak Inverse Plate Voltage: 4,500 V (Abs)      Max. Peak Plate Current: 1,050 mA										
Max. D.C. Output Current: 175 mA										
Max. Peak Inverse Plate Voltage: 420 V      Max. D.C. Output Current: 8 mA										
Max. Peak Plate Current: 48 mA										
150	—	[230 Ohms]	10	—	5,500	5,500	30	—	—	
250	$E_{c2}, E_{c4}$ 100	$E_{c3} = -2$	3.5	$I_{c2} + I_{c4}$ 8.5	$G_c = 450$	1,000,000	$R_{g1} = 20 \text{ k}\Omega$	$I_{c1} = 0.5 \text{ mA}$		
250	150	-1	10.8	4.1	4,900	900,000	—	—	—	
250	100	-3	3.0	0.8	1,650	1,000,000	—	—	—	
250	100	-3	9.2	2.6	2,000	800,000	—	—	—	
250	—	-2	2.3	—	1,600	44,000	70	—	—	
250	—	-8	9	—	2,600	7,700	20	—	—	
250	—	-2	1.1	—	1,175	85,000	100	—	—	←Triode unit
100	100	[68 Ohms]	11	4.4	4,400	250,000	—	—	—	
100	$E_{c2}, E_{c4}$ 100	$E_{c3} = -1.5$	2.3	$I_{c2} + I_{c4}$ 6.2	$G_c = 480$	400,000	$R_{g1} = 20 \text{ k}\Omega$	$I_{c1} = 0.5 \text{ mA}$		
100	—	-1	0.6	—	1,300	77,000	100	—	—	←Triode unit
Max. Peak Inverse Plate Voltage: 350 V      Max. D.C. Output Current: 70 mA										
120	120	-2.5	7	1.5	3,500	350,000	—	—	—	
120	120	[180 Ohms]	9.5	2.8	6,200	260,000	—	—	—	
120	—	[180 Ohms]	8.5	—	5,500	5,500	30	—	—	
120	120	-7	35	7.5	5,500	25,000	—	4,000	1	
5	—	—	20	—	—	—	—	—	—	←Diode unit
250	—	-3	1.0	—	1,200	58,000	70	—	—	←Triode unit

\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor



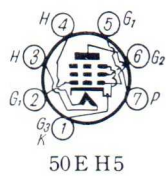
Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
25BQ6-GTB	Beam Power Tube	29-6	H	25.0	0.3	Horizontal Deflection Amplifier in TV Receivers
25L6-G T	Beam Power Tube	29-1	H	25	0.3	Power Amplifier
25M-K15	Half-Wave Rectifier	18-3	H	25.0	0.15	Half-Wave Rectifier
30A5	Power Amplifier Pentode	18-3	H	30.0	0.15	Power Amplifier
32E T5	Beam Power Tube	18-3	H	32.0	0.1	Power Amplifier
35C5	Beam Power Tube	18-3	H	35.0	0.15	Power Amplifier
35L6-G T	Beam Power Tube	29-1	H	35	0.15	Power Amplifier
35W4	Half-Wave Rectifier	18-3	H	35.0	0.15	Half-Wave Rectifier
35Z5-G T	Half-Wave Rectifier	29-1	H	35.0	0.15	Half-Wave Rectifier
36AM3	Half-Wave Rectifier	18-3	H	36.0	0.1	Rectifier
42	Power Amplifier Pentode	45-1	H	6.3	0.7	Power Amplifier
50BM8	High-Mu Triode Power Amplifier Pentode	21-5	H	50	0.1	Class A Amplifier Power Amplifier
50C5	Beam Power Tube	18-3	H	50.0	0.15	Power Amplifier
50EH5	Power Amplifier Pentode	18-3	H	50.0	0.15	Power Amplifier
50L6-G T	Beam Power Tube	29-1	H	50.0	0.15	Power Amplifier
80	Full-Wave Rectifier	45-1	F	5.0	2.0	Full-Wave Rectifier
80BK	Half-Wave Rectifier	38-1	H	5.0	0.7	Half-Wave Rectifier
C Z-501D	Sharp Cutoff Pentode	38-2	H	3.5	1.0	Class A Amplifier
C Z-504D	Power Amplifier Pentode	45-1	H	5.5	1.0	Power Amplifier
5654 ◆	Sharp Cutoff Pentode	18-1	H	6.3	0.175	Class A Amplifier
5670 ◆	Medium-Mu Twin Triode	21-1	H	6.3	0.35	Class A Amplifier
5725 ◆	Sharp Cutoff Pentode	18-1	H	6.3	0.175	Class A Amplifier
5726 ◆	Duplex Diode	18-1	H	6.3	0.3	Detector, Rectifier
5749 ◆	Remote Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
5750 ◆	Pentagrid Converter	18-2	H	6.3	0.3	Converter
5751 ◆	High-Mu Twin Triode	21-2	H	6.3 12.6	0.35 0.175	Class A Amplifier

◆ Premium tubes

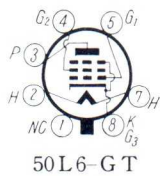
▲ H = Heater  
F = Filament

■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor

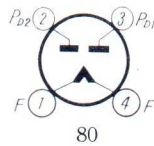




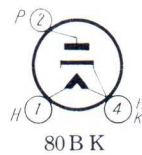
50E H5



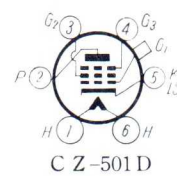
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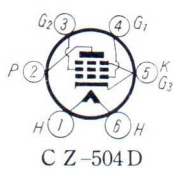
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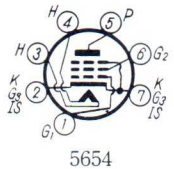
80BK



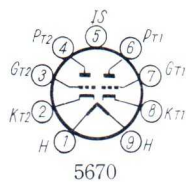
CZ-501D



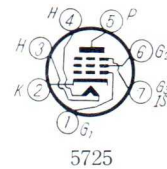
CZ-504D



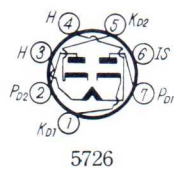
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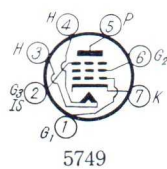
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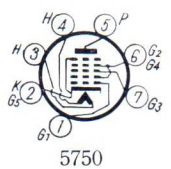
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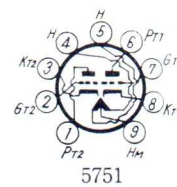
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5749



5750



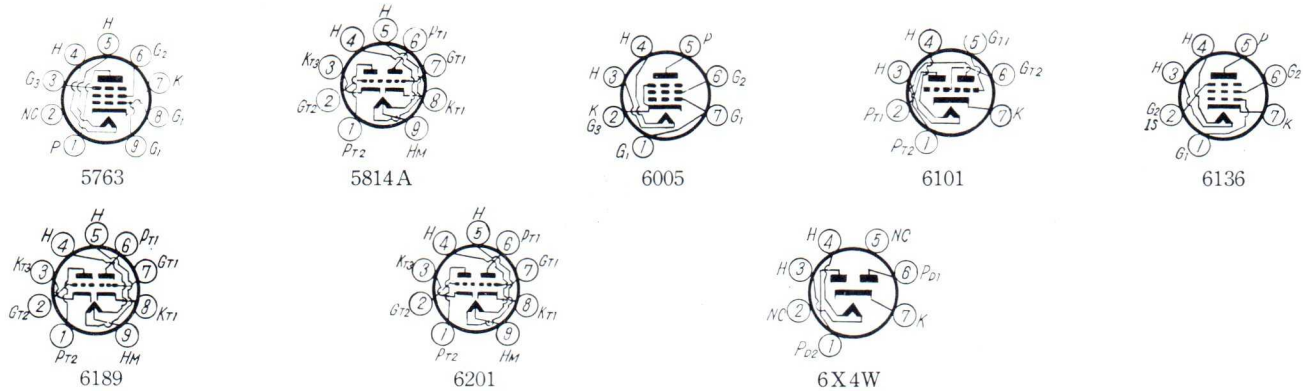
5751

Typical Operation

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{r2}$ (V)	No. 1 Grid Voltage $E_{r1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_2$ (mA)	Trans-conductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_p$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_o$ (W)	Remarks
Max. D.C. Plate Supply Voltage : 600 V				Max. Peak Positive-Pulse Plate Voltage : 6,000 V (Abs)						
Max. D.C. Cathode Current : 112.5 mA				Max. Plate Dissipation : 11 W						
110	110	-7.5	49	4	8,000	13,000	—	2,000	2.1	
200	125	[180 Ohms]	46	2.2	8,000	28,000	—	4,000	3.8	
Max. Peak Inverse Plate Voltage : 330 V				Max. D.C. Output Current : 70 mA						
Max. Peak Plate Current : 460 mA										
100	100	-6.7	43	3	9,200	22,000	—	2,400	2.1	
110	110	-7.5	30	2.8	5,500	21,500	—	2,800	1.2	
110	110	-7.5	40	3	5,800	13,000	—	2,500	1.5	
110	110	-7.5	40	3	5,800	13,000	—	2,500	1.5	
Max. Peak Inverse Plate Voltage : 330 V				Max. Output Current : 100 mA						
Max. Peak Plate Current : 600 mA										
Max. Peak Inverse Plate Voltage : 700 V				Max. Output Current : 100 mA						
Max. Peak Plate Current : 600 mA										
Max. Peak Inverse Plate Voltage : 350 V				Max. D.C. Output Current : 82 mA						
Max. Peak Plate Current : 350 mA										
250	250	-16.5	34	6.5	2,500	80,000	—	7,000	3.2	
100	—	0	3.5	—	2,500	—	70	—	—	← Triode unit
200	170	-12.5	35	6.5	6,800	20,500	—	5,600	3.4	← Pentode unit
110	110	-7.5	49	4	7,500	10,000	—	2,500	1.9	
110	115	[62 Ohms]	42	11.5	14,600	11,000	—	3,000	1.4	
110	110	-7.5	49	4	8,000	13,000	—	2,000	2.1	
Max. A.C. Plate Supply Voltage per Plate : 350 V				Max. D.C. Output Current : 125 mA						
Max. A.C. Plate Supply Voltage : 350 V				Max. D.C. Output Current : 75 mA						
250	130	-2.5	7	1.5	3,500	1,000,000	—	—	—	
250	200	-13.5	42	6	3,500	90,000	—	10,000	4	
120	120	-2	7.5	2.5	5,000	300,000	—	—	—	
150	—	[240 Ohms]	8.2	—	5,500	6,400	35	—	—	
120	120	-2	5.2	3.5	3,200	—	—	—	—	$E_{c3}=0$
Max. Peak Inverse Plate Voltage : 360 V				Max. D.C. Output Current : 9 mA						
Max. Peak Plate Current : 60 mA										
250	100	[68 Ohms]	11	4.2	4,400	1,000,000	—	—	—	
250	$E_{c2}, E_{c4}$ 100	$E_{c3} = -1.5$	2.6	$I_{c2} + I_{c4}$ 7.5	$G_c = 475$	1,000,000	$R_{g1} = 20 \text{ k}\Omega$	$I_{c1} = 0.5 \text{ mA}$	—	
250	—	-3	1	—	1,200	58,000	70	—	—	

\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor



Type	Name	Dimension Diagram	Cathode			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (V)	
5763	Beam Power Amplifier	21-3	H	6.0	0.75	Power Amplifier
5814A ◆	Medium-Mu Twin Triode	21-2	H	6.3 12.6	0.35 0.175	Class A Amplifier
6005 ◆	Beam Power Tube	18-3	H	6.3	0.45	Power Amplifier
6101 ◆	Medium-Mu Twin Triode	18-2	H	6.3	0.45	Class A Amplifier
6136 ◆	Sharp Cutoff Pentode	18-2	H	6.3	0.3	Class A Amplifier
6189 ◆	Medium-Mu Twin Triode	21-2	H	6.3 12.0	0.3 0.15	Class A Amplifier
6201 ◆	High-Mu Twin Triode	21-2	H	6.3 12.6	0.3 0.15	Class A Amplifier
6X4W ◆	Full-Wave Rectifier	18-3	H	6.3	0.6	Full-Wave Rectifier

◆ Premium tubes

▲ H = Heater  
F = Filament

■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor

Typical Operation ■

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{r2}$ (V)	No. 1 Grid Voltage $E_{r1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{r2}$ (mA)	Trans-conduc-tance $G_m$ ( $\mu$ mhos)	A.C. Plate Re-sistance $R_p$ (Ohms)	Amplifi-cation Factor $\mu$	Load Resist-ance $R_L$ (Ohms)	Power Output $P_o$ (W)	Remarks
250	250	-7.5	45	6.5	7,000	—	—	—	—	
250	—	-8.5	10.5	—	2,200	7,700	17	—	—	
250	250	-12.5	45	4.5	4,100	52,000	—	5,000	4.5	
100	—	[50 Ohms]	8.5	—	6,000	6,300	38	—	—	
250	150	[68 Ohms]	10.6	4.3	5,200	1,000,000	—	—	—	
250	—	-8.5	10.5	—	2,200	7,700	17	—	—	
250	—	[200 Ohms]	10	—	55,00	10,900	60	—	—	

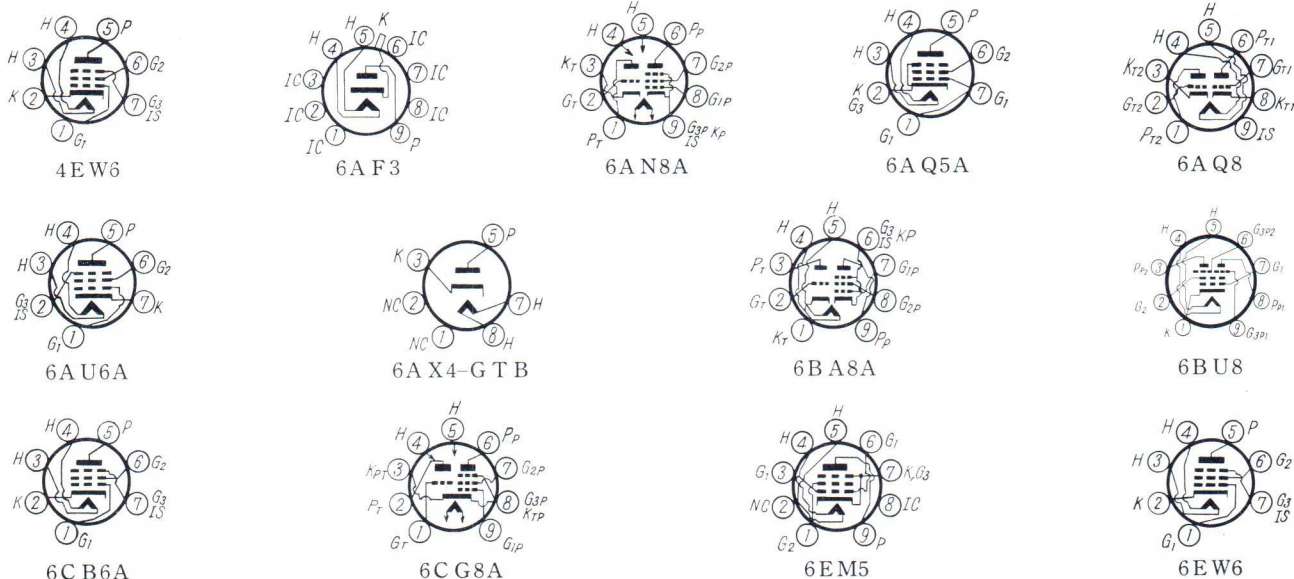
Max. A.C. Plate Supply Voltage : 325 V  
Max. Peak Inverse Plate Voltage : 1,250 V

Max. D.C. Output Current : 70 mA



\* Heater has controlled warm-up time for series-string operation

● [ ] Shows cathode-bias resistor

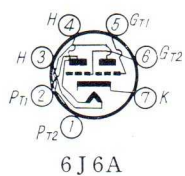


Type	Name	Dimension Diagram	Cathod			Use
			Type ▲	Voltage $E_f$ (V)	Current $I_f$ (A)	
4EW6	Sharp Cutoff Pentode	18-2	H *	4.2	0.6	Class A Amplifier
6AF3	Half-Wave Rectifier	21-6	H	6.3	1.2	TV Damper Service
6AN8A	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	6.3	0.45	Class A Amplifier
6AQ5A	Beam Power Tube	18-3	H *	6.3	0.45	Power Amplifier
6AQ8	High-Mu Twin Triode	21-2	H	6.3	0.435	Class A Amplifier
6AU6A	Sharp Cutoff Pentode	18-2	H *	6.3	0.3	Class A Amplifier
6AX4-GTB	Half-Wave Rectifier	29-1	H	6.3	1.2	TV Damper Service
6BA8A	Medium-Mu Triode Sharp Cutoff Pentode	21-3	H *	6.3	0.6	Class A Amplifier
6BU8	Sharp Cutoff Twin Pentode	21-3	H	6.3	0.3	Class A Amplifier
6CB6A	Sharp Cutoff Pentode	18-2	H *	6.3	0.3	Class A Amplifier
6CG8A	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	6.3	0.45	Oscillator Class A Amplifier
6EM5	Beam Power Tube	21-5	H	6.3	0.8	Power Amplifier
6EW6	Sharp Cutoff Pentode	18-2	H	6.3	0.4	Class A Amplifier
6J6A	Medium-Mu Twin Triode	18-2	H *	6.3	0.45	Class A Amplifier
6T8A	Triple-Diode High-Mu Triode	21-2	H *	6.3	0.45	Class A Amplifier
6U8A	Medium-Mu Triode Sharp Cutoff Pentode	21-2	H *	6.3	0.45	Class A Amplifier
8B8	High-Mu Triode Power Amplifier Pentode	21-5	H *	6.3	0.6	Class A Amplifier Power Amplifier
8BQ5	Power Amplifier Pentode	21-5	H *	8.0	0.6	Power Amplifier
8EM5	Beam Power Tube	21-5	H *	8.4	0.6	Power Amplifier
12AF3	Half-Wave Rectifier	21-6	H *	12.6	0.6	TV Damper Service
12AU7A	Medium-Mu Twin Triode	21-2	H	6.3 12.6	0.3 0.15	Class A Amplifier
12AX4-GTB	Half-Wave Rectifier	29-1	H *	12.6	0.6	TV Damper Service
12SN7-GTB	Medium-Mu Twin Triode	29-1	H *	12.6	0.3	Class A Amplifier
25EH5	Power Amplifier Pentode	18-3	H	25.0	0.3	Power Amplifier
32A8	High-Mu Triode Power Amplifier Pentode	21-5	H	32.0	0.15	Class A Amplifier Power Amplifier

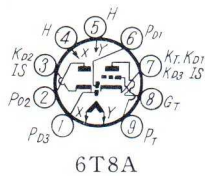
◆ Premium tubes

▲ H = Heater  
F = Filament

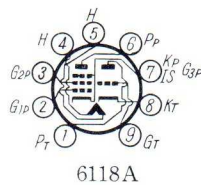
■  $G_c$  = Conversion transconductance  
 $R_{g1}$  = Grid No. 1 resistor



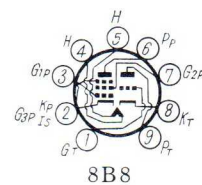
6J6A



6T8A



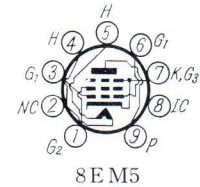
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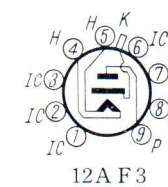
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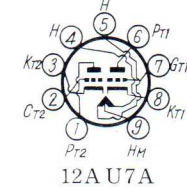
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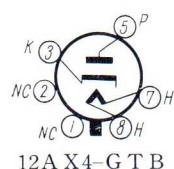
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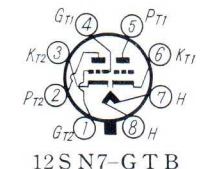
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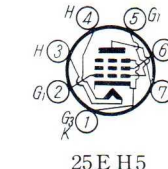
12AU7A



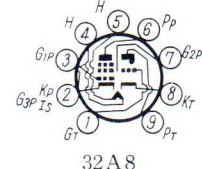
12AX4-GTB



12SN7-GTB



25EH5



32A8

Typical Operation ■

Plate Voltage $E_b$ (V)	No. 2 Grid Voltage $E_{c2}$ (V)	No. 1 Grid Voltage $E_{c1}$ (V)	Plate Current $I_b$ (mA)	No. 2 Grid Current $I_{c2}$ (mA)	Transconductance $G_m$ ( $\mu$ mhos)	A.C. Plate Resistance $R_P$ (Ohms)	Amplification Factor $\mu$	Load Resistance $R_L$ (Ohms)	Power Output $P_o$ (W)	Remarks
125	125	[56 Ohms]	11	3.2	14,000	200,000	—	—	—	
Max. Peak Inverse Plate Voltage : 4,500 V			Max. Peak Plate Current : 750 mA							
Max. D.C. Output Current : 185 mA										
200	—	—6	13	—	3,300	5,750	18	—	—	← Triode Unit
200	150	[180 Ohms]	9.5	2.8	6,200	300,000	—	—	—	← Pentode Unit
250	250	—12.5	45.0	4.5	4,100	52,000	—	5,000	4.5	
250	—	—2.3	10	—	5,900	—	57	—	—	
250	150	[68 Ohms]	10.6	4.3	5,200	1,000,000	—	—	—	
Max. Peak Inverse Plate Voltage : 5,000 V			Max. Peak Plate Current : 1,000 mA							
Max. D.C. Output Current : 165 mA										
200	—	—8	8	—	2,700	6,700	18	—	—	← Triode Unit
200	150	[180 Ohms]	13	3.5	9,000	400,000	—	—	—	← Pentode Unit
100	67.5	—	—	6.5	§ Grid Current Adjusted for 100 Microamperes D.C.					← $E_{c3} = -10$ V
100	67.5	§	2.2	3.3						← $E_{c3} = 0$ V
125	125	[56 Ohms]	13	3.7	8,000	280,000	—	—	—	
100	—	[100 Ohms]	8.5	—	5,800	6,900	40	—	—	← Triode Unit
250	150	[200 Ohms]	7.7	1.6	4,600	750,000	—	—	—	← Pentode Unit
250	250	—18	35	3	5,100	—	8.7	—	—	$\mu = G_1 - G_2$
125	125	[56 Ohms]	11	3.2	14,000	200,000	—	—	—	
100	—	[50 Ohms]	8.5	—	5,300	7,100	38	—	—	
250	—	—3	1	—	1,200	58,000	70	—	—	← Triode Unit
150	—	[56 Ohms]	18	—	8,500	5,000	40	—	—	← Triode Unit
250	110	[68 Ohms]	10	3.5	5,200	400,000	—	—	—	← Pentode Unit
100	—	0	3.5	—	2,500	—	70	—	—	← Triode Unit
200	170	—12.5	35	6.5	6,800	20,500	—	5,600	3.4	← Pentode Unit
250	250	—7.3	48	5.5	11,300	3,800	—	5,200	6	
250	250	—18	35	3	5,100	—	8.7	—	—	$\mu = G_1 - G_2$
Max. Peak Inverse Plate Voltage : 4,500 V			Max. Peak Plate Current : 750 mA							
Max. D.C. Output Current : 185 mA										
250	—	8.5	10.5	—	2,200	7,700	17	—	—	
Max. Peak Inverse Plate Voltage : 4,400 V			Max. Peak Plate Current : 1,000 mA							
Max. D.C. Output Current : 165 mA										
250	—	—8	9	—	2,600	7,700	20	—	—	
110	115	[62 Ohms]	42	11.5	14,600	11,000	—	3,000	1.4	
100	—	0	3.5	—	2,500	—	70	—	—	← Triode Unit
200	170	—12.5	32	6.5	6,800	20,500	—	5,600	3.4	← Pentode Unit

\* Heater has controlled warm-up time for series-string operation

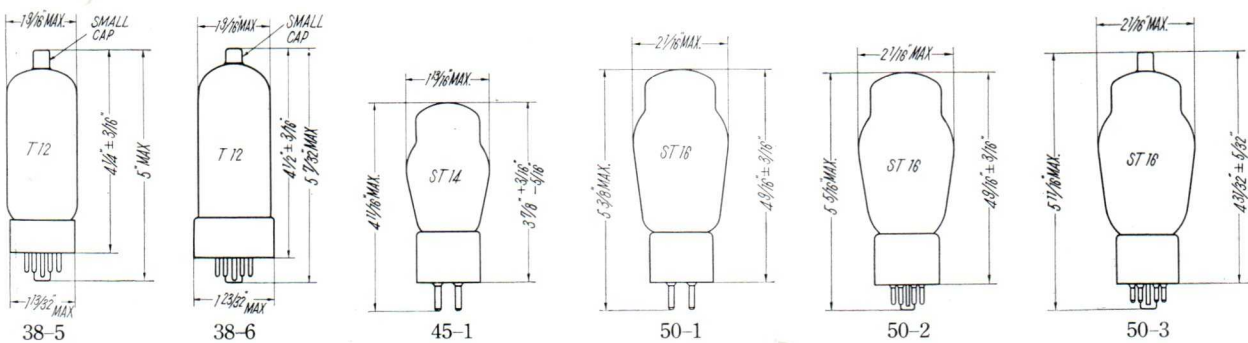
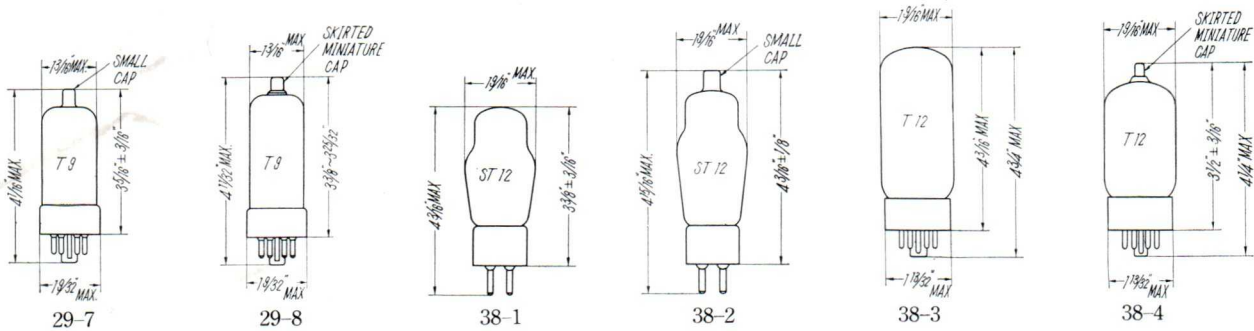
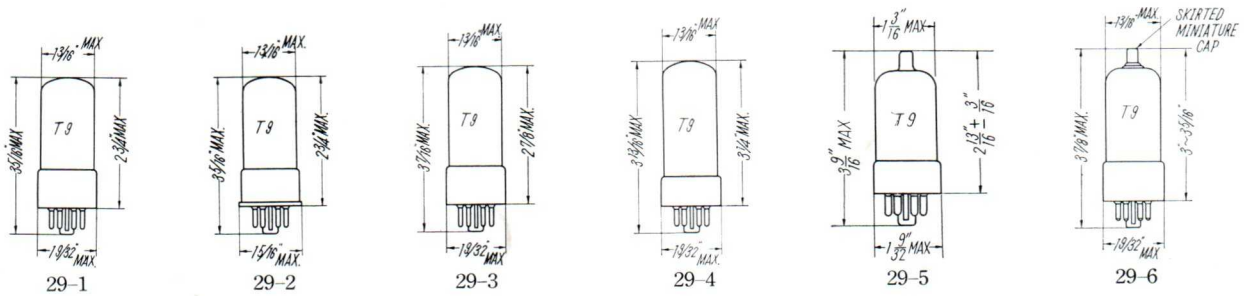
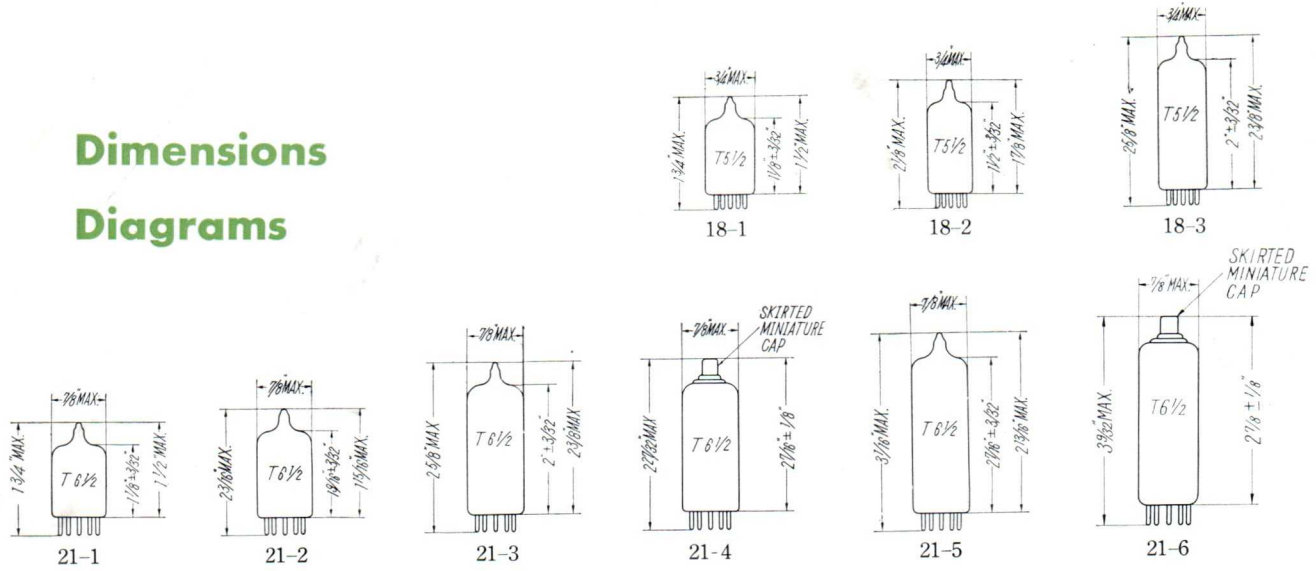
● [ ] Shows cathode-bias resistor

# HITACHI RECEIVING TUBES CLASSIFICATION CHARTS . . . . .

Filament or Heater Voltage		1.25~3.5V	5.0~6.0V	6.3V	12.6V	18.0~50V	600mA Series
Rectifier	Single Diode	1B3-G T 1G3-GT /1B3-GT 1X2B 3A3	5M-K9 12F 80BK			19A3 25M-K15 35W4 35Z5-G T 36AM3	
	Twin Diode		5R4-G Y 5R-K16 5U4-G 5U4-G B 5Y3-G T 5Z3 80	6C A4 6X4 6X4W 6X5-G T			
TV Damper	Single Diode			6A F3 6AU4-GTA 6A X4-G T 6AX4-GTB 6G-K17 6W4-G T	12A F3 12AX4-GTA 12AX4-GTB 12G-K17		12A F3 12AX4-GTA 12AX4-GTB 12G-K17
Diode Detector	Single Diode	1A3					
	Twin Diode			6A L5 6H6-G T 5726	12A L5 12H6-G T		3A L5
Power Amplifier	Twin Triode	3A5					
	Double Triode			6C S7 6DE7			6C S7 10DE7
	Beam Tube	3B4	5763	6A Q5 6A Q5A 6B G6-G 6BK5 6BQ6-GTB /6CU6 6C Z5 6D Q5 6D Q6A 6EM5 6G-B3A 6L6-G 6V6-G T 6W6-G T 6005	12A Q5 12BK5 12BQ6-GTB /12CU6 12D Q6A 12G-B3	25BQ6-GTB 25L6-G T 32E T5 35C5 35L6-G T 50C5 50L6-G T	5A Q5 5C Z5 8EM5 12BK5 12BQ6-GTB /12CU6 12D Q6A 12G-B3
	Pentode	Single Pentode	3A4 3Q4 3S4 3V4	C Z-504D	6A R5 6B Q5 6C L6 6F6-G T 6K6-G T 6R-P10 6Z-P1 42		19R-P11 25E H5 30A5 50E H5
With Triode				6BM8		32A8 50BM8	8B8
Converter & Mixer	Pentagrid	1R5		6B E6 6S A7-G T 6W-C5 5750	12B E6 12SA7-GT	18F X6	
	Triode-Heptode			6A J8	12A J7		
FM Detector	Gated Beam			6BN6			3BN6
	Pentode			6DT6			3DT6
Voltage Regulator	Beam Triode			6BK4			

Filament or Heater Voltage			1.25~3.5V	5.0V	6.3V	12.6V	18.0~50V	600mA Series		
Voltage Amplifier	Triode	Single Triode			6C4 6J5-GT					
		With two Diode			6BJ8			6BJ8		
		Medium -Mu  Twin Triode				6BC8 6BQ7A 6BZ7 6CG7 6J6 6J6A 6M-HH3 6R-HH2 6SN7-GTB 12AU7 12AU7A 12AY7 12BH7A 5670 5814A 6101 6189	12AU7 12AU7A 12AY7 12BH7A 12R-LL3 12SN7-GT 12SN7-GTB 5814A 6189	19R-LL1	4BC8 4BQ7A 4BZ7 4R-HH2 5J6 5M-HH3 7AU7 12BH7A	
			Single Triode			6J4WA				
			With Diode			6Z-DH3A				
			With two Diode			6AT6 6AV6 6BN8 6SQ7-GT	12AT6 12AV6 12SQ7-GT	18FY6	3AV6 6BN8	
				With three Diode		6T8 6T8A		19T8	5T8	
			High -Mu  Twin Triode			6AQ8 6DT8 6SL7-GT 12AT7 12AX7 5751 6201	12AT7 12AX7 12DT8 12SL7-GT 5751 6201			
			Pentode	Remote cut-off	Single Pentode	IT4		6BA6 6BD6 6BJ6 6BZ6 6D6 6SD7-GT 6SK7-GT 5749	12BA6 12BD6 12SK7-GT	18FW6
	With Diode Triode					6R-DHVI				
	Sharp cut-off	Single Pentode		IAE4 IL4 IU4  CZ-501D		6AC7-GT 6AJ5 6AK5 6AS6 6AU6 6AU6A 6BH6 6C6 6CB6 6CB6A 6CF6 6DK6 6EW6 6R-R8 6SH7-GT 6SJ7-GT 12BY7A 5654 5725 6136	12AU6 12BY7A 12SH7-GT 12SJ7-GT	19M-R9 19M-R10	3AU6 3CB6 3DK6 4EW6	
				Twin Pentode		6BU8				
				With Diode	IS5 IU5		6AM8A			5AM8
				With Medium- Mu Triode			6AN8 6AN8A 6BA8A 6CG8 6CG8A 6U8 6U8A			5AN8 5CG8 5U8 6BA8A
		With High- Mu Triode				6AW8A			6AW8A	

# Dimensions Diagrams



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