

9AX

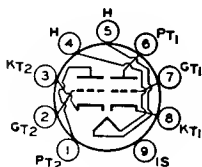
TRIPLE DIODE

6BC7

Miniature type containing three high-perveance diode units in one envelope; used in dc restorer circuits of color television receivers and in AM/FM radio receivers as a combination FM discriminator and AM detector tube. Outlines section, 6B; requires 9-contact miniature socket.

Heater Voltage (ac/dc)	6.3	volts
Heater Current	0.450	ampere
Peak Heater-Cathode Voltage	±200 max	volts
Direct Interelectrode Capacitances (Approx.):		
Diode-No.1 Plate to Diode-No.1 Cathode, Heater, and Internal Shield	3.5	pF
Diode-No.2 Plate to Diode-No.2 Cathode, Heater, and Internal Shield	5.5	pF
Diode-No.3 Plate to Diode-No.3 Cathode, Heater, and Internal Shield	3.5	pF
MAXIMUM RATINGS (Design-Center Values, Each Diode Unit)		
Peak Inverse Plate Voltage	330	volts
Peak Plate Current*	54	mA
Average Output Current	12	mA

* In rectifier service, the minimum total effective plate-supply impedance per plate is 560 ohms.



9AJ

MEDIUM-MU TWIN TRIODE

6BC8

4BC8

Miniature type used as a cascode amplifier in vhf television tuners and in push-pull cathode-drive rf amplifiers. Outlines section, 6B; requires miniature 9-contact socket. Type 4BC8 is identical with type 6BC8 except for heater ratings.

	4BC8	6BC8	
Heater Voltage (ac/dc)	4.2	6.3	volts
Heater Current	0.6	0.4	ampere
Heater Warm-up Time (Average)	11	—	seconds
Heater-Cathode Voltage:			
Peak value	±200*max	±200*max	volts
Average value	100 max	100 max	volts
Direct Interelectrode Capacitances*:			
Grid to Plate	1.2	1.2	pF
Grid to Cathode, Heater, and Internal Shield	2.6	—	pF
Cathode to Grid, Heater, and Internal Shield	—	5.5	pF
Plate to Cathode, Heater, and Internal Shield	1.3	—	pF
Plate to Grid, Heater, and Internal Shield	—	2.4	pF
Plate to Cathode	—	0.12	pF
Heater to Cathode	2.8	2.8	pF
Plate of Unit No.1 to Plate of Unit No.2	0.02 max	—	pF
Plate of Unit No.2 to Plate and Grid of Unit No.1	0.04 max	—	pF

* Rating may be as high as 300 volts under cutoff conditions, when tube is used as a cascode amplifier, the two units are connected in series, and heater is negative with respect to cathode.

* With external shield connected to internal shield.

Class A₁ Amplifier (Each Unit)

MAXIMUM RATINGS (Design-Maximum Values)		
Plate Voltage	250*	volts
Cathode Current	22	mA
Plate Dissipation	2.2	watts
CHARACTERISTICS		
Plate Supply Voltage	150	volts
Cathode-Bias Resistor	220	ohms
Plate Resistance (Approx.)	5300	ohms
Amplification Factor	35	
Transconductance	6200	μmhos
Plate Current	10	mA
Grid Voltage (Approx.) for transconductance of 50 μmhos	—13	volts

MAXIMUM CIRCUIT VALUES**Grid-Circuit Resistance**

* Rating may be as high as 300 volts under cutoff conditions, when tube is used as a cascade amplifier, the two units are connected in series, and heater is negative with respect to cathode.

6BD4
6BD4A

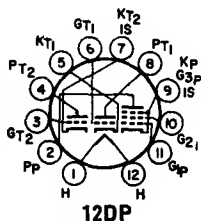
Refer to chart at end of section.

6BD6

Refer to chart at end of section.

6BD11**15BD11**
DUAL TRIODE—
SHARP-CUTOFF PENTODE

Duodecar type used in television receiver applications. The high- μ triode unit No.1 is used in general-purpose applications, the medium- μ triode unit No.2 in sync-separator circuits, and the pentode unit as a video amplifier. Outlines section, 8B; requires duodecar 12-contact socket. Type 15BD11 is identical with type 6BD11 except for heater ratings.



	6BD11	15BD11	
Heater Voltage (ac/dc)	6.3	14.7	volts
Heater Current	1.05	0.45	amperes
Heater Warm-up Time (Average)	—	11	seconds
Heater-Cathode Voltage:			
Peak value	±200 max	±200 max	volts
Average value	100 max	100 max	volts

MAXIMUM RATINGS (Design-Maximum Values)

	Triode Unit No.1	Triode Unit No.2	Pentode Unit	
Plate Voltage	330	330	330	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	—	330	volts
Grid-No.2 Voltage	—	—	See curve page 98	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	0	0	volts
Plate Dissipation	1.5	2	4	watts
Grid-No.2 Input:				
For grid-No.2 voltages up to 165 volts	—	—	1.1	watts
For grid-No.2 voltages between 165 and 330 volts	—	—	See curve page 98	

CHARACTERISTICS

	Triode Unit No.1	Triode Unit No.2	Pentode Unit	
Plate Supply Voltage	200	200	35	135
Grid-No.2 Supply Voltage	—	—	135	135
Grid-No.1 Voltage	—2	—	0	0
Cathode-Bias Resistor	—	220	—	100
Amplification Factor	68	41	—	—
Plate Resistance (Approx.)	12400	9400	—	45000
Transconductance	5500	4400	—	10400
Plate Current	7	9.2	34*	17
Grid-No.2 Current	—	—	13*	4
Grid-No.1 Voltage (Approx.) for plate current of 100 μ A	—5.5	—6.5	—	—6

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:				
For fixed-bias operation	0.5	0.5	1	megohm
For cathode-bias operation	1	1	1	megohm

* This value may be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

6BE3
6BE3/6BZ3
12BE3,
17BE3/17BZ3
HALF-WAVE
VACUUM RECTIFIER

Duodecar type used as damper tube in horizontal-deflection circuits of color and black-and-white television receivers. Outlines section, 8D; requires duodecar 12-contact socket. Types 12BE3 and 17BE3/17BZ3 are identical with type 6BE3 except for heater ratings.

