

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

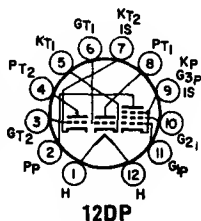
Refer to chart at end of section.

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

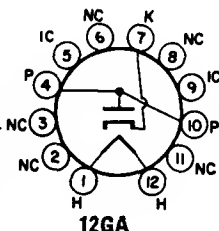
* This value may be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

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.



	6BE3	12BE3	17BE3/ 17BZ3	
Heater Voltage (ac/dc)	6.3	12.6	16.8	volts
Heater Current	1.2	0.6	0.46	ampere
Heater Warm-up Time (Average)	—	11	11	seconds
Direct Interelectrode Capacitances (Approx.):				
Plate to Cathode, and Heater			10	pF
Cathode to Heater, and Plate			8	pF
Heater to Cathode			3.4	pF

Damper Service

For operation in a 525-line, 30-frame system

MAXIMUM RATINGS (Design-Maximum Values)

Peak Inverse Plate Voltage#	5000	volts
Peak Plate Current	1200	mA
Average Plate Current	200	mA
Plate Dissipation	6.5	watts
Heater-Cathode Voltage:		
Peak value	+300	volts
Average value	+100	volts

CHARACTERISTICS, Instantaneous Value

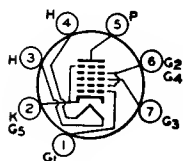
Tube Voltage Drop for dc plate current of 350 mA	25	volts
--	----	-------

Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

PENTAGRID CONVERTER

6BE6

12BE6



7CH

Miniature type used as converter in AM and FM receivers. Outlines section, 5C; requires miniature 7-contact socket. The 6BE6 is similar in performance to metal type 6SA7. For general discussion of pentagrid types, see Frequency Conversion in Electron Tube Applications section. Type 12BE6 is identical with type 6BE6 except for heater ratings.

	6BE6	12BE6	
Heater Voltage (ac/dc)	6.3	12.6	volts
Heater Current	0.3	0.15	ampere
Heater-Cathode Voltage:			
Peak value	±200 max	±200 max	volts
Average value	100 max	100 max	volts
Direct Interelectrode Capacitances:	Unshielded	Shielded*	
Grid No.2 to Plate	0.30 max	0.25 max	pF
Grid No.3 to Grid No.1	0.15 max	0.15 max	pF
Grid No.1 to Plate	0.10 max	0.05 max	pF
Grid No.3 to All Other Electrodes	7	7	pF
Grid No.1 to All Other Electrodes	5.5	5.5	pF
Plate to All Other Electrodes	8.0	13.0	pF
Grid No.1 to Cathode and Grid No.5	3	3	pF
Cathode and Grid No.5 to All Other Electrodes except Grid No.1	15	20	pF

* With external shield connected to cathode and grid No.5.

Converter

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	330	volts
Grids-No.2-and-No.4 (Screen-Grid) Voltage	110	volts
Grids-No.2-and-No.4 Supply Voltage	330	volts
Cathode Current	15.5	mA
Plate Dissipation	1.1	watts
Grids-No.2-and-No.4 Input	1.1	watts
Grid-No.3 Voltage:		
Negative-bias value	55	volts
Positive-bias value	0	volts
Heater-Cathode Voltage:		
Peak value	200	volts
Average value	100	volts

TYPICAL OPERATION (Separate Excitation)*

Plate Voltage	100	250	volts
Grids-No.2-and-No.4 (Screen-Grid) Voltage	100	100	volts
Grid-No.1 (Oscillator-Grid) Voltage (rms)	10	10	volts
Grid-No.3 (Control-Grid) Voltage	—1.5	—1.5	volts
Grid-No.1 (Oscillator-Grid) Resistor	20000	20000	ohms
Plate Resistance (Approx.)	0.4	1	megohm