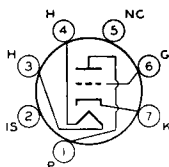


**6AB4****HIGH-MU TRIODE**

Miniature type used as cathode-drive amplifier, frequency converter, or oscillator at frequencies up to 300 MHz in television and FM receivers. **Outlines section, 5C**; requires miniature 7-contact socket. **Heater:** volts (ac/dc), 6.3; amperes, 0.15. For operation as resistance-coupled amplifier, refer to **Resistance-Coupled Amplifier section**. For maximum ratings, characteristics, and curves refer to type 12AT7.

**5CE****6AB5/6N5**

Refer to chart at end of section.

**6AB7**

Refer to chart at end of section.

**6AC5GT**

Refer to chart at end of section.

**6AC7**

Refer to chart at end of section.

**6AC7W**

Refer to chart at end of section.

**6AC10****8AC10, 12AC10A****HIGH-MU TRIPLE TRIODE**

Duodecar type used in matrixing (color-difference) circuits of color television receivers. **Outlines section, 8B**; requires duodecar 12-contact socket. Types 8AC10 and 12AC10A are identical with type 6AC10 except for heater ratings.

	<b>6AC10</b>	<b>8AC10</b>	<b>12AC10A</b>	volts ampere seconds
Heater Voltage (ac/dc) .....	6.3	8.4	12.5	
Heater Current .....	0.6	0.45	0.3	
Heater Warm-up Time (Average) .....	11	11	11	
Heater-Cathode Voltage:				
Peak value .....	±200 max	±200 max	±200 max	volts
Average value .....	100 max	100 max	100 max	volts

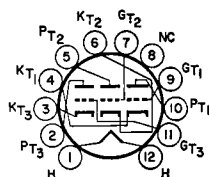
**12FE****Class A<sub>1</sub> Amplifier****MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage .....	330	volts
Plate Dissipation .....	2	watts

**CHARACTERISTICS**

Plate Voltage .....	200	volts
Cathode-Bias Resistor .....	150	ohms
Amplification Factor .....	62	
Plate Resistance (Approx.) .....	10700	ohms
Transconductance .....	5800	μmhos
Plate Current .....	9	mA
Grid Voltage (approx.) for plate current of 100 μA .....	-5	volts

**MAXIMUM CIRCUIT VALUE**

Grid-Circuit Resistance .....	0.5	megohm
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**6AD6G**

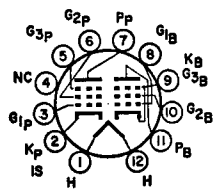
Refer to chart at end of section.

**6AD7G**

Refer to chart at end of section.

**6AD10****BEAM POWER TUBE—  
SHARP-CUTOFF PENTODE**

Duodecar type used as FM detector and audio-frequency output amplifier in color and black-and-white television receivers. **Outlines section, 8B**; requires duodecar 12-contact socket.

**12EZ**

Heater Voltage (ac/dc)	6.3	volts
Heater Current	1.05	amperes
Heater-Cathode Voltage:		
Peak value	±200 max	volts
Average value	100 max	volts
Direct Interelectrode Capacitances:		
Beam Power Unit:		
Grid No.1 to Plate	0.26	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	11	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	11	pF
Pentode Unit:		
Grid No.1 to Plate	0.024	pF
Grid No.3 to Plate	3.4	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	8	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield	9.5	pF
Grid No.1 to Grid No.3	0.12	pF
Plate of Beam Power Unit to Plate of Pentode Unit	0.34	pF

**Beam Power Unit as Class A<sub>1</sub> Amplifier**

**MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	275	volts
Grid-No.2 (Screen-Grid) Voltage	275	volts
Plate Dissipation	10	watts
Grid-No.2 Input	2	watts

**TYPICAL OPERATION**

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	-8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	mA
Maximum-Signal Plate Current	39	mA
Zero-Signal Grid-No.2 Current	2.5	mA
Maximum-Signal Grid-No.2 Current	7	mA
Plate Resistance (Approx.)	0.1	megohm
Transconductance	6500	μmhos
Load Resistance	5000	ohms
Total Harmonic Distortion	10	per cent
Maximum-Signal Power Output	4.2	watts

**MAXIMUM CIRCUIT VALUES**

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.25	megohm
For cathode-bias operation	0.5	megohm

**Pentode Unit as Class A<sub>1</sub> Amplifier**

**CHARACTERISTICS**

Plate Supply Voltage	150	volts
Grid No.3 (Control Grid)	Connected to negative end of cathode resistor	
Grid-No.2 (Screen-Grid) Voltage	100	volts
Grid No.1 (Control Grid)	Connected to negative end of cathode resistor	
Cathode-Bias Resistor	180	ohms
Plate Resistance (Approx.)	0.11	megohm
Transconductance, Grid No.1 to Plate	3400	μmhos
Transconductance, Grid No.3 to Plate	600	μmhos
Plate Current	3.2	mA
Grid-No.2 Current	3.2	mA
Grid-No.1 Voltage (Approx.) for plate current of 20 μA	-4.5	volts
Grid-No.3 Voltage (Approx.) for plate current of 20 μA	-7	volts

**Pentode Unit as FM Sound Detector**

**MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	300	volts
Grid-No.3 Voltage:		
Negative-bias value	100	volts
Positive-bias value	25	volts
Grid-No.2 Supply Voltage	300	volts
Grid-No.2 Voltage		
Grid-No.1 Voltage:	See curve page 300	
Negative-bias value	-50	volts
Positive-bias value	0	volts
Plate Dissipation	1.7	watts
Grid-No.3 Input	0.1	watt
Grid-No.2 Input:		
For grid-No.2 voltages up to 150 volts	1	watt
For grid-No.2 voltages between 150 and 300 volts	See curve page 300	

**MAXIMUM CIRCUIT VALUES**

Grid-No.3-Circuit Resistance .....	0.68	megohm
Grid-No.1-Circuit Resistance:		
For fixed-bias operation .....	0.22	megohm
For cathode-bias operation .....	0.47	megohm

**6AE5GT**

Refer to chart at end of section.

**6AE6G**

Refer to chart at end of section.

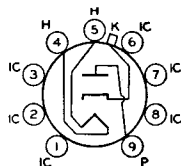
**6AE7GT**

Refer to chart at end of section.

**6AF3**

12AF3,  
12AF3/12BR3/12RK19

Miniature type used as a damper tube in horizontal-deflection circuits of television receivers. Outlines section, 7C; requires miniature 9-contact socket. Socket terminals 1, 2, 3, 6, 7, and 8 should not be used as tie points. It is especially important that this tube, like other power-handling tubes, be adequately ventilated. Types 12AF3 and 12AF3/12BR3/12RK19 are identical with type 6AF3 except for heater ratings.

**HALF-WAVE  
VACUUM RECTIFIER****9CB**

Heater Voltage (ac/dc) .....	6.3	12.6	volts
Heater Current .....	1.2	0.6	amperes
Heater Warm-up Time (Average) .....	—	11	seconds

**6AF3**      **12AF3**  
12AF3/12BR3/  
12RK19

**Damper Service**

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

**MAXIMUM RATINGS (Design-Maximum Values)**

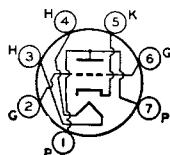
Peak Inverse Plate Voltage# .....	4500	volts	
Peak Plate Current .....	750	mA	
Average Plate Current .....	185	mA	
Bulb Temperature (At hottest point) .....	210	°C	
Heater-Cathode Voltage:			
Peak value .....	+300	—4500	volts
Average value .....	+100	—1000	volts

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

**6AF4****6AF4A**

2AF4B/2DZ4,  
3AF4A/3DZ4

Miniature types used as local oscillators in uhf television receivers covering the frequency range of 470 to 890 MHz. Outlines section, 5C and 5B, respectively; requires miniature 7-contact socket. Types 2AF4B/2DZ4 and 3AF4A/3DZ4 are identical with type 6AF4A except for heater and heater-cathode ratings.

**MEDIUM-MU TRIODE****7DK**

Heater Voltage (ac/dc) .....	2.35	3.15	6.3	volts
Heater Current .....	0.6	0.45	0.225	ampere
Heater Warm-up Time (Average) .....	11	11	—	seconds
Heater-Cathode Voltage:				
Peak value .....	±180 max	±50 max	±50 max	volts
Average value .....	100 max	25 max	25 max	volts
Direct Interelectrode Capacitances:*				
Grid to Plate .....			1.9	pF
Grid to Cathode and Heater .....			2.2	pF
Plate to Cathode and Heater .....			1.4	pF
Heater to Cathode (External Shield connected to plate) .....			2.2	pF

\* With external shield connected to cathode, except as noted.

**Class A<sub>1</sub> Amplifier**

**CHARACTERISTICS**

Plate Supply Voltage .....	80	volts
Cathode-Bias Resistor .....	150	ohms
Amplification Factor .....	13.5	
Plate Resistance (Approx.) .....	2100	ohms
Transconductance .....	6500	μmhos
Plate Current .....	17.5	mA

**UHF Oscillator**

**MAXIMUM RATINGS (Design-Maximum Values)**

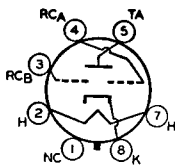
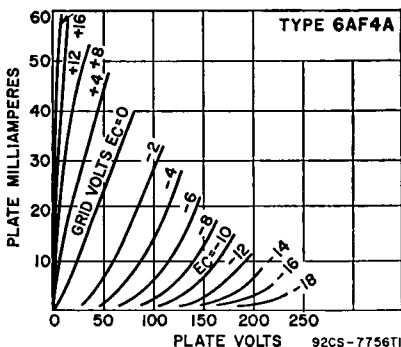
Plate Voltage .....	150	volts
Grid Voltage, Negative-bias value .....	50	volts
Grid Current .....	2	mA
Plate Dissipation .....	2.5	watts
Average Cathode Current .....	24	mA

**TYPICAL OPERATION AS OSCILLATOR AT 1000 MHZ**

Plate Supply Voltage .....	100	volts
Plate Resistor .....	220	ohms
Grid Resistor .....	10000	ohms
Plate Current .....	17	mA
Grid Current (Approx.) .....	750	μA

**MAXIMUM CIRCUIT VALUES**

Grid-Circuit Resistance:		
For fixed-bias operation .....		Not recommended
For cathode-bias operation .....	0.5	megohm



**7AG**

socket. **Heater:** volts (ac/dc), 6.3; amperes, 0.15. **Maximum ratings in indicator service:** fluorescent-target volts, 250 max, 125 min; ray-control-electrode supply volts, 250 max; peak heater-cathode volts, 90 max. **Typical operation:** fluorescent-target volts, 250; fluorescent-target mA, 3.75; ray-contact-electrode volts (approx. for 0° shadow angle), 155; ray-control-electrode volts (approx. for 100° shadow angle), 0.

**ELECTRON-RAY TUBE**

**6AF6G**