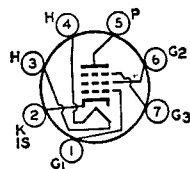


**6HZ6**

5HZ6

**SHARP-CUTOFF PENTODE**

Miniature type used as sound-detector tube in FM and color and black-and-white television receivers. Tube has two independent control grids. Outlines section, 5C; requires miniature 7-contact socket. Type 5HZ6 is identical with type 6HZ6 except for heater ratings.

**7EN**

	5HZ6	6HZ6	
Heater Voltage (ac/dc)	4.75	6.3	volts
Heater Current	0.6	0.45	ampere
Heater Warm-up Time (Average)	11	11	seconds
<b>Heater-Cathode Voltage:</b>			
Peak value	±200 max	±200 max	volts
Average value	100 max	100 max	volts
<b>Direct Interelectrode Capacitances (Approx.):</b>			
Grid No.1 to Plate		0.023	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield		8.2	pF
Grid No.1 to Grid No.3		0.09	pF
Grid No.3 to Plate		1.6	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield		7.2	pF

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

Plate Supply Voltage	150	volts
Grid-No.3 Supply Voltage	0	volts
Grid-No.2 Supply Voltage	100	volts
Grid-No.1 Supply Voltage	0	volts
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.3 Supply Voltage (Approx.) for plate current of 20 μA	-7	volts
Grid-No.1 Supply Voltage (Approx.) for plate current of 20 μA	-4.5	volts

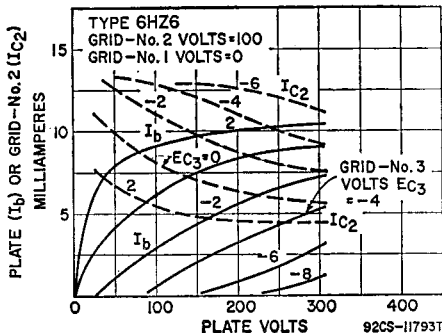
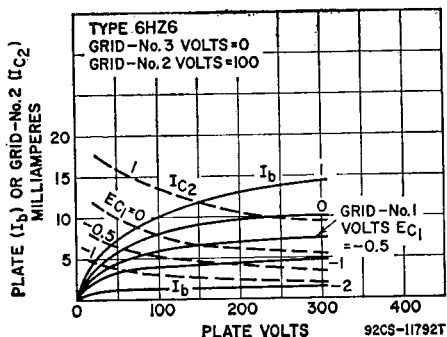
**FM Sound Detector****MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	300	volts
<b>Grid-No.3 (Control-Grid) Voltage:</b>		
Negative value (dc and peak ac)	100	volts
Positive value (dc and peak ac)	25	volts
Grid-No.2 (Screen-Grid) Supply Voltage	300	volts
Grid-No.2 Voltage	See curve page 300	
<b>Grid-No.1 (Control-Grid) Voltage:</b>		
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

Refer to chart at end of section. **6HZ8**

Refer to chart at end of section. **6J4**

Refer to chart at end of section. **6J4WA**

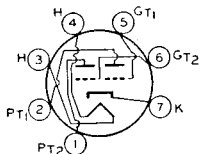
Refer to chart at end of section. **6J5**  
**6J5GT**

Refer to chart at end of section. **6J6**

**MEDIUM-MU TWIN TRIODE**

**6J6A**

5J6



**7BF**

Miniature type used as combined rf power amplifier and oscillator or as twin af amplifier. With push-pull arrangement of the grids and the plates in parallel, this type can also be used as a mixer at frequencies as high as 600 MHz. Outlines section, 5C; requires miniature 7-contact socket. Type 5J6 is identical with type 6J6A except for heater ratings.

	<b>5J6</b>	<b>6J6A</b>	
Heater Voltage (ac/dc) .....	4.7	6.3	volts
Heater Current .....	0.6	0.45	ampere
Heater Warm-up Time (Average) .....	11	11	seconds
Peak Heater-Cathode Voltage .....	±100 max	±100 max	volts
Direct Interelectrode Capacitances (Each Unit, Approx.):	<b>Unshielded</b>	<b>Shielded</b>	
Grid to Plate .....	1.6	1.6	pF
Grid to Cathode and Heater .....	2.2	2.6	pF
Plate to Cathode and Heater (Unit No.1) .....	0.4	1.6	pF
Plate to Cathode and Heater (Unit No.2) .....	0.4	1	pF

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

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

Plate Voltage .....	300	volts
Grid Voltage, Positive-bias value .....	0	volts
Plate Dissipation .....	1.5	watts

**CHARACTERISTICS**

Plate Voltage .....	100	volts
Cathode-Bias Resistor .....	50†	ohms
Amplification Factor .....	38	
Plate Resistance (Approx.) .....	7100	ohms
Transconductance .....	5300	μmhos
Plate Current .....	8.5	mA

**MAXIMUM CIRCUIT VALUES**

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

† Value is for both units operating at the specified conditions.

## RF Power Amplifier and Oscillator—Class C Telegraphy

Key-down conditions per tube without modulation

## MAXIMUM RATINGS (Design-Center Values, Each Unit)

Plate Voltage	300	volts
Grid Voltage:		
Negative-bias value	40	volts
Positive-bias value	0	volts
Plate Current	15	mA
Grid Current	8	mA
Plate Input	4.5	watts
Plate Dissipation	1.5	watts

## TYPICAL PUSH-PULL OPERATION (Both Units)

Plate Voltage	150	volts
Grid Voltage°	-10	volts
Plate Current	30	mA
Grid Current (Approx.)	16	mA
Driving Power (Approx.)	0.35	watt
Power Output (Approx.)	3.5	watts

° Obtained by grid resistor (625 ohms), cathode-bias resistor (220 ohms), or fixed supply.

<b>6J6WA</b>	Refer to chart at end of section.
<b>6J6WB</b>	Refer to chart at end of section.
<b>6J7</b>	
<b>6J7G</b>	Refer to chart at end of section.
<b>6J7GT</b>	
<b>6J8G</b>	Refer to chart at end of section.
<b>6J9</b>	Refer to chart at end of section.
<b>6J10</b>	Refer to chart at end of section. For replacement use type 6Z10/6J10.
<b>6J11</b>	Refer to chart at end of section.
<b>6JA5</b>	Refer to chart at end of section.
<b>6JB5</b>	For replacement use type 6JB5/6HE5.

**6JB5/6HE5 BEAM POWER TUBE**

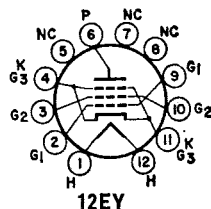
Duodecar type used as vertical-deflection amplifier in television receivers. Outlines section, 15D; requires duodecar 12-contact socket.

Heater Voltage (ac/dc)	6.3	volts
Heater Current	0.8	ampere
Heater Cathode Voltage:		
Peak value	±200 max	volts
Average value	100 max	volts
Direct Interelectrode Capacitances:		
Grid No.1 to Plate	0.49	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3	9.5	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3	6.5	pF

Class A<sub>1</sub> Amplifier

## CHARACTERISTICS

Plate Voltage	60	250	volts
Grid-No.2 (Screen-Grid) Voltage	250	250	volts
Grid-No.1 (Control-Grid) Voltage	0	-20	volts
Plate Resistance (Approx.)	—	50000	ohms
Transconductance	—	4100	μmhos
Plate Current	180*	43	mA
Grid-No.2 Current	20*	3.5	mA
Grid-No.1 Voltage (Approx.) for plate current of 100 μA	—	-50	volts



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

**Vertical-Deflection Amplifier**

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

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

DC Plate Voltage .....	350	volts
Peak Positive-Pulse Plate Voltage# .....	2500	volts
Grid-No.2 Voltage .....	300	volts
Peak Cathode Current .....	260	mA
Average Cathode Current .....	75	mA
Plate Dissipation† .....	15	watts
Grid-No.2 Input† .....	2.75	watts
Bulb Temperature (At hottest point) .....	200	°C

**MAXIMUM CIRCUIT VALUES**

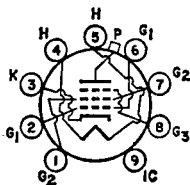
Grid-No.1-Circuit Resistance:		
For fixed-bias operation .....	1	megohm
For cathode-bias operation .....	2.2	megohms

# Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

† A resistor or other means is required to protect the tube in absence of excitation.

Refer to chart at end of section.

**6JB6**



**9QL**

**BEAM POWER TUBE**

**6JB6A**

12JB6A, 17JB6A

Novar types used as high-efficiency horizontal-deflection amplifiers in television receivers. Outlines section, 32A; requires novar 9-contact socket. Types 12JB6A and 17JB6A are identical with type 6JB6A except for heater ratings.

	<b>6JB6A</b>	<b>12JB6A</b>	<b>17JB6A</b>	
Heater Voltage (ac/dc) .....	6.3	12.6	16.8	volts
Heater Current .....	1.2	0.6	0.45	amperes
Heater Warm-up Time (Average) .....	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value .....	±200 max	±200 max	±200 max	volts
Average value .....	100 max	100 max	100 max	volts
Direct Interelectrode Capacitances (Approx.):				
Grid No.1 to Plate .....			0.2	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 .....			15	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....			6	pF

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

<b>CHARACTERISTICS</b>	<b>Triode Connection<sup>A</sup></b>	<b>Pentode Connection</b>	
Plate Voltage .....	150	60 150	volts
Grid No.3 (Suppressor Grid) .....	—	Connected to cathode at socket	
Grid-No.2 (Screen-Grid) Voltage .....	—	150 150	volts
Grid-No.1 (Control-Grid) Voltage .....	-22.5	0 -22.5	volts
Mu-Factor, Grid No.2 to Grid No.1 .....	4.4	—	
Plate Resistance (Approx.) .....	—	15000	ohms
Transconductance .....	—	7100	μmbos
Plate Current .....	—	390 <sup>•</sup> 70	mA
Grid-No.2 Current .....	—	32 <sup>•</sup> 2.1	mA
Grid-No.1 Voltage for plate current of 1 mA .....	—	— -42	volts

<sup>A</sup> Grid No.2 connected to plate.

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

**Horizontal-Deflection Amplifier**

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

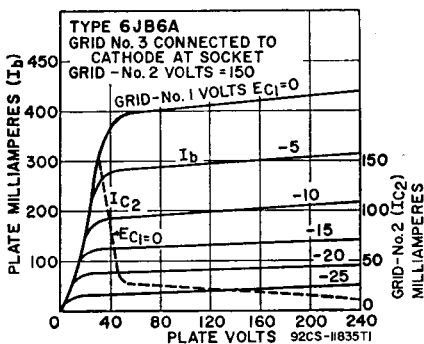
**MAXIMUM RATINGS (Design-Maximum Values)**

DC Plate Supply Voltage .....	770	volts
Peak Positive-Pulse Plate Voltage# .....	6500	volts

Peak Negative-Pulse Plate Voltage .....	1500	volts
DC Grid-No.3 Voltage† .....	70	volts
DC Grid-No.2 Voltage .....	220	volts
DC Grid-No.1 Voltage .....	-55	volts
Peak Negative-Pulse Grid-No.1 Voltage .....	330	volts
Peak Cathode Current .....	550	mA
Average Cathode Current .....	175	mA
Plate Dissipation .....	17.5	watts
Grid-No.2 Input .....	3.5	watts
Bulb Temperature (At hottest point) .....	240	°C

**MAXIMUM CIRCUIT VALUE**

Grid-No.1-Circuit Resistance, for grid-resistor-bias operation ..... 1 megohm  
 # Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).  
 † For horizontal-deflection service, a positive voltage may be applied to grid No.3 to minimize "snivets" interference in both vhf and uhf television receivers. A typical value is 30 volts.  
 • A bias resistor or other means is required to protect the tube in absence of excitation.



**6JC6**

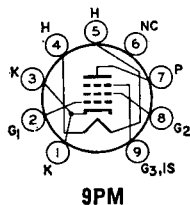
Refer to chart at end of section.

**6JC6A**

**SHARP-CUTOFF PENTODE**

3JC6A, 4JC6A

Miniature type with frame grid used in if-amplifier stages of color and black-and-white television receivers utilizing intermediate frequencies in the order of 40 MHz. Outlines section, 6B; requires miniature 9-contact socket. Type 4JC6 is identical with type 6JC6 except for heater ratings. Types 3JC6A and 4JC6A are identical with type 6JC6A except for heater ratings.



	3JC6A	4JC6A	6JC6A	
Heater Voltage (ac/dc) .....	3.5	4.5	6.3	volts
Heater Current .....	0.6	0.45	0.3	ampere
Heater Warm-up Time (Average) .....	11	11	—	seconds
Heater-Cathode Voltage:				
Peak value .....	±200 max	±200 max	±200 max	volts
Average value .....	100 max	100 max	100 max	volts
Direct Interelectrode Capacitances:				
Grid No.1 to Plate .....			0.019 max	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield .....			8.5	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield .....			3	pF

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

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

Plate Voltage .....	330	330	volts
Grid-No.3 (Suppressor-Grid) Voltage, Positive value .....	0	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage .....	330	330	volts
Grid-No.2 Voltage .....			See curve page 300

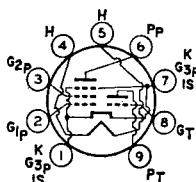
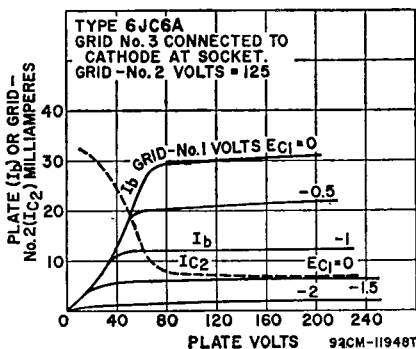
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	0	volts
Plate Dissipation	2.5	3.1	watts
Grid-No.2 Input:			
For grid-No.2 voltages up to 165 volts	0.6	0.7	watt
For grid-No.2 voltages between 165 and 330 volts		See curve page 300	

**CHARACTERISTICS**

Plate Supply Voltage	125	125	volts
Grid No.3		Connected to cathode at socket	
Grid-No.2 Supply Voltage	125	125	volts
Cathode-Bias Resistor	56	56	ohms
Plate Resistance (Approx.)	0.18	0.18	megohm
Transconductance	15000	16000	$\mu$ mhos
Plate Current	13	14	mA
Grid-No.2 Current	3.2	3.4	mA
Grid-No.1 Voltage (Approx.) for plate current of 100 $\mu$ A	-3	-3	volts

**MAXIMUM CIRCUIT VALUES**

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



9PA

**MEDIUM-MU TRIODE—  
SHARP-CUTOFF PENTODE**

**6JC8**

Miniature type used as combined vhf oscillator and mixer tube in television receivers. Outlines section, 6B; requires miniature 9-contact socket. Heater: volts (ac/dc), 6.3; amperes, 0.45; warm-up time (average), 11 seconds; maximum heater-cathode volts,  $\pm 200$  peak, 100 average.

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

MAXIMUM RATINGS (Design-Maximum Values)	Triode Unit	Pentode Unit	
Plate Voltage	275	275	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	275	volts
Grid-No.2 Voltage		See curve page 300	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	0	volts
Plate Dissipation	1.7	2.3	watts
Grid-No.2 Input:			
For grid-No.2 voltages up to 137.5 volts	—	0.45	watt
For grid-No.2 voltages between 137.5 and 275 volts	—	See curve page 300	

**CHARACTERISTICS**

Plate Voltage	125	100	125	volts
Grid-No.2 Voltage	—	70	125	volts
Grid-No.1 Voltage	-1	0	-1	volt
Amplification Factor	40	—	—	
Plate Resistance (Approx.)	6000	—	300000	ohms
Transconductance	6500	5700	5500	$\mu$ mhos
Plate Current	12	—	9	mA
Grid-No.2 Current	—	—	2.2	mA

Grid-No.1 Voltage (Approx.) for plate current of 20 $\mu$ A .....	-7	—	6.5	volts
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**MAXIMUM CIRCUIT VALUES**

Grid-No.1-Circuit Resistance:				
For fixed-bias operation .....	—	0.1		megohm
For cathode-bias operation .....	—	0.5		megohm

**6JD5**

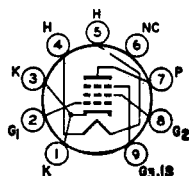
For replacement use type 6JH5/6JD5/6HZ5

**6JD6**

3JD6, 4JD6

**SHARP-CUTOFF PENTODE**

Miniature type with frame grid used as if-amplifier tube in color and black-and-white television receivers utilizing an intermediate frequency in the order of 40 MHz. **Outlines section, 6B**; requires miniature 9-contact socket. Types 3JD6 and 4JD6 are identical with type 6JD6 except for heater ratings.

**9PM**

	3JD6	4JD6	6JD6	
Heater Voltage .....	3.5	4.5	6.3	volts
Heater Current .....	0.6	0.45	0.3	ampere
Heater Warm-up Time (Average) .....	11	11	—	seconds
Heater-Cathode Voltage:				
Peak value .....		$\pm 200$ max	$\pm 200$ max	volts
Average value .....		100 max	100 max	volts
Direct Interelectrode Capacitances:				
Grid No.1 to Plate .....			0.019 max	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield .....			8.2	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield .....			3	pF

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

Plate Voltage .....	330	volts
Grid-No.3 (Suppressor-Grid) Voltage, Positive value .....	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage .....	330	volts
Grid-No.2 Voltage .....	See curve page 300	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value .....	0	volts
Plate Dissipation .....	2.5	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts .....	0.6	watt
For grid-No.2 voltages between 165 and 330 volts .....	See curve page 300	

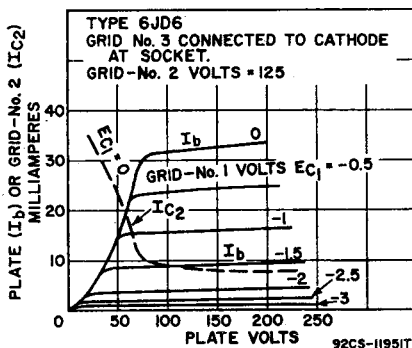
**CHARACTERISTICS**

Plate Supply Voltage .....	125	volts
Grid-No.3 Voltage .....	0	volts
Grid-No.2 Supply Voltage .....	125	volts

Grid-No.1 Supply Voltage .....	0	volts
Cathode-Bias Resistor .....	56	ohms
Plate Resistance (Approx.) .....	160000	ohms
Transconductance .....	14000	$\mu$ mhos
Plate Current .....	15	mA
Grid-No.2 Current .....	4	mA
Grid-No.1 Voltage (Approx.) for transconductance of 600 $\mu$ mhos ..	-4.5	volts

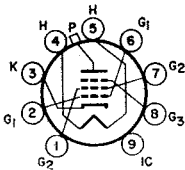
**MAXIMUM CIRCUIT VALUES**

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

Refer to chart at end of section.  
For replacement use type 6MJ6/6LQ6/6JE6C. **6JE6**

Refer to chart at end of section.  
For replacement use type 6MJ6/6LQ6/6JE6C. **6JE6A**

For replacement use type 6MJ6/6LQ6/6JE6C. **6JE6C**  
Refer to chart at end of section. **6JE8**



9QL

**BEAM POWER TUBE**

**6JF6**

17JF6, 22JF6

Novar type used as horizontal-deflection amplifier in black-and-white television receivers. Outlines section, 18E or 18F; requires novar 9-contact socket. Types 17JF6 and 22JF6 are identical with type 6JF6 except for heater ratings.

	<b>6JF6</b>	<b>17JF6</b>	<b>22JF6</b>	
Heater Voltage (ac/dc) .....	6.3	16.8	22	volts
Heater Current .....	1.6	0.6	0.45	amperes
Heater Warm-up Time (Average) ....	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value .....	$\pm 200$ max	$\pm 200$ max	$\pm 200$ max	volts
Average value .....	100 max	100 max	100 max	volts
Direct Interelectrode Capacitances (Approx.):				
Grid No.1 to Plate .....			1.2	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3 .....			22	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....			9	pF

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

<b>CHARACTERISTICS</b>	Triode Connection		Pentode Connection		
	125	—	50	130	volts
Plate Voltage .....	—	6500	—	—	volts
Peak Positive-Pulse Plate Voltage# ..	Connected to cathode at socket				
Grid No.3 (Suppressor Grid) .....	125	125	125	125	volts
Grid-No.2 (Screen-Grid) Voltage .....	—20	—	0	—20	volts
Grid-No.1 (Control-Grid) Voltage ..	4.1	—	—	—	
Triode Amplification Factor .....	—	—	—	—	
Plate Resistance (Approx.) .....	—	—	—	12000	ohms
Transconductance .....	—	—	—	10000	$\mu$ mhos
Plate Current .....	—	—	525†	80	mA
Grid-No.2 Current .....	—	—	32†	2.5	mA
Grid-No.1 Voltage for plate current of 1 mA .....	—	-125	—	-40	volts

**Horizontal-Deflection Amplifier**

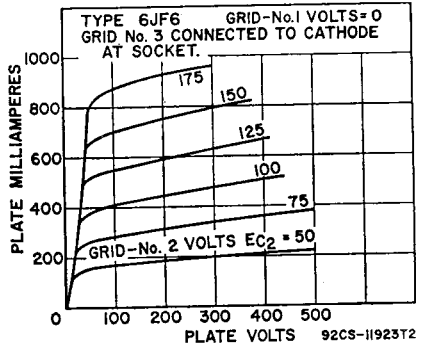
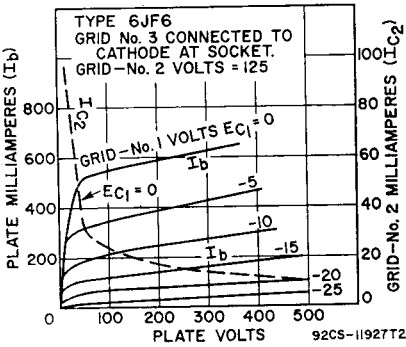
For operation in a 525-line, 30-frame system

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

DC Plate Supply Voltage .....	770	volts
Peak Positive-Pulse Plate Voltage# ..	6500	volts
Peak Negative-Pulse Plate Voltage .....	1500	volts
DC Grid-No.3 Voltage <sup>2</sup> .....	100	volts



DC Grid-No.2 Voltage .....	220	volts
Peak Negative-Pulse Grid-No.1 Voltage .....	330	volts
Peak Cathode Current .....	950	mA
Average Cathode Current .....	275	mA
Grid-No.2 Input .....	3.5	watts
Plate Dissipation† .....	17	watts
Bulb Temperature (At hottest point) .....	240	°C



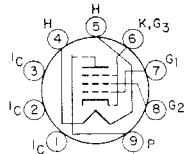
**MAXIMUM CIRCUIT VALUES**

Grid-No.1-Circuit Resistance:		
For cathode-bias operation .....	1	megohm
For grid-leak-bias operation .....	10	megohms
For fixed-bias operation .....	0.47	megohm

- Grid-No.2 connected to plate at socket.
- † This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.
- # Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).
- \* In this service, a positive value may be applied to grid No.3 to minimize "snivets" interference; a typical value for this voltage is 50 volts.
- ‡ A bias resistor or other means is required to protect the tube in absence of excitation.

**6JG5 SHARP-CUTOFF PENTODE**

Miniature type with frame grid used as video output amplifier in color television receivers. **Outlines section, 6E;** requires miniature 9-contact socket. **Heater:** volts, 6.3; amperes, 0.525; maximum heater-cathode volts, ±200 peak, 100 average.



9SF

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

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

Plate Voltage .....	330	volts
Grid-No.3 (Suppressor-Grid) Voltage, Positive value .....	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage .....	330	volts
Grid-No.2 Voltage .....	See curve page 300	
Grid-No.1 (Control-Grid) Voltage, Positive value .....	0	volts
Plate Dissipation .....	5	watts
Grid-No.2 Input .....	1.1	watts

**CHARACTERISTICS**

Plate Voltage .....	200	60	volts
Grid-No.2 Supply Voltage .....	150	150	volts
Grid-No.1 Voltage .....	—	0*	volts
Cathode-Bias Resistor, Bypassed .....	100	—	ohms
Plate Resistance (Approx.) .....	60000	—	ohms
Transconductance (Grid No.1 to Plate) .....	11500	—	μmhos
Plate Current .....	25	55	mA
Grid No.2 Current .....	5.5	18	mA
Grid-No.1 Voltage (Approx.) for plate current of 100 μA .....	—10	—	volts

**MAXIMUM CIRCUIT VALUES**

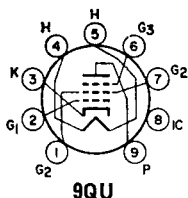
Grid-No.1-Circuit Resistance:

For fixed-bias operation .....	0.25	megohm
For cathode-bias operation .....	1	megohm

\* Applied not exceeding two seconds, to avoid damage to tube.

Refer to chart at end of section.

**6JG6**



**9QU**

**BEAM POWER TUBE**

**6JG6A**

17JG6A, 22JG6A

Novar type used as horizontal-deflection amplifier in low-B<sub>+</sub>, black-and-white television receivers. **Outlines** section, 31D; requires novar 9-contact socket. For curves of average plate characteristics, refer to type 6JF6. Types 17JG6A and 22JG6A are identical with type 6JG6A except for heater ratings.

	<b>6JG6A</b>	<b>17JG6A</b>	<b>22JG6A</b>	
Heater Voltage (ac/dc) .....	6.3	16.8	22	volts
Heater Current .....	1.6	0.6	0.45	amperes
Heater Warm-up Time (Average) .....	—	11	11	seconds
Heater-Cathode Voltage:				
Peak value .....	±200 max	±200 max	±200 max	volts
Average value .....	100 max	100 max	100 max	volts
Direct Interelectrode Capacitances:				
Grid No.1 to Plate .....			0.7	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No. 3 .....			22	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3 .....			9	pF

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

**CHARACTERISTICS**

	<b>Triode<sup>a</sup> Connection</b>	<b>Pentode Connection</b>		
Plate Voltage .....	125	50	130	volts
Grid-No.3 (Suppressor Grid) .....	—	Connected to cathode at socket		
Grid-No.2 (Screen-Grid) Voltage .....	—	125	125	volts
Grid-No.1 (Control-Grid) Voltage .....	-20	0	-20	volts
Amplification Factor .....	4.1	—	—	
Plate Resistance (Approx.) .....	—	—	12000	ohms
Transconductance .....	—	—	10000	μmhos
Plate Current .....	—	525*	80	mA
Grid-No.2 Current .....	—	32*	2.5	mA
Grid-No.1 Voltage (Approx.), for plate current of 1 mA .....	—	—	-40	volts

<sup>a</sup> With grid No.2 connected to plate at socket.

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

**Horizontal-Deflection Amplifier**

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

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

DC Plate Supply Voltage .....	770	volts
Peak Positive-Pulse Plate Voltage# .....	6500	volts
Peak Negative-Pulse Plate Voltage .....	1500	volts
DC Grid-No.3 Voltage* .....	75	volts
DC Grid-No.2 Voltage .....	220	volts
DC Grid-No.1 Voltage, Negative-bias value .....	-55	volts
Peak Negative-Pulse Grid-No.1 Voltage .....	330	volts
Peak Cathode Current .....	950	mA
Average Cathode Current .....	275	mA
Plate Dissipation† .....	17	watts
Grid-No.2 Input .....	3.5	watts
Bulb Temperature (At hottest point) .....	240	°C

**MAXIMUM CIRCUIT VALUE**

Grid-No.1-Circuit Resistance, for grid-No.1-resistor-bias operation 2.2 megohms

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

\* In a horizontal-deflection-amplifier service, a positive voltage (typical value, 30 volts) may be applied to grid No.3 to reduce "snivets" interference, which may occur in both vhf and uhf television receivers.

† A bias resistor or other means is required to protect the tube in absence of excitation.