

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	220	volts
Grid-No.2 (Screen-Grid) Voltage	140	volts
Plate Dissipation	12	watts
Grid-No.2 Input	1.4	watts

TYPICAL OPERATION AND CHARACTERISTICS

Plate Voltage	110	200	volts
Grid-No.2 Voltage	110	125	volts
Grid-No.1 Voltage	-7.5	—	volts
Cathode-Bias Resistor	—	180	ohms
Peak AF Grid-No.1 Voltage	7.5	8.5	volts
Zero-Signal Plate Current	49	46	mA
Maximum-Signal Plate Current	50	47	mA
Zero-Signal Grid-No.2 Current	4	2.2	mA
Maximum-Signal Grid-No.2 Current	10	8.5	mA
Plate Resistance (Approx.)	13000	28000	ohms
Transconductance	8000	8000	μmhos
Load Resistance	2000	4000	ohms
Total Harmonic Distortion	10	10	per cent
Maximum-Signal Power Output	2.1	3.8	watts

MAXIMUM CIRCUIT VALUES

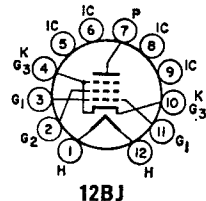
Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.1	megohm
For cathode-bias operation	0.5	megohm

6GE5

BEAM POWER TUBE

12GE5, 17GE5

Duodecar type used as horizontal-deflection-amplifier tube in television receivers. Outlines section, 15A; requires duodecar 12-contact socket. Types 12GE5 and 17GE5 are identical with type 6GE5 except for heater ratings.



12BJ

	6GE5	12GE5	17GE5	
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

Class A₁ Amplifier

CHARACTERISTICS

	Pentode Connection		Triode* Connection	
Plate Voltage	60	250	150	volts
Grid-No.2 (Screen-Grid) Voltage	150	150	150	volts
Grid-No.1 (Control-Grid) Voltage	0	-22.5	—	volts
Amplification Factor	—	—	4.4	
Plate Resistance (Approx.)	—	18000	—	ohms
Transconductance	—	7300	—	μmhos
Plate Current	345*	65	—	mA
Grid-No.2 Current	27*	1.8	—	mA
Grid-No.1 Voltage (Approx.) for plate current of 1 mA	—	-42	—	volts

* Grid No.2 tied 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.2 Voltage	220	volts
Peak Negative-Pulse Grid-No.1 Voltage	330	volts

DC Grid-No.1 Voltage	-55	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)	200	°C

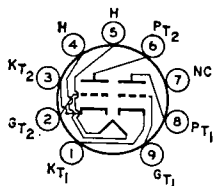
MAXIMUM CIRCUIT VALUE

Grid-No.1 Circuit Resistance	1	megohm
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Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).
 † A bias resistor or other means is required to protect the tube in absence of excitation.

Refer to chart at end of section. **6GF5**

Refer to chart at end of section. **6GF7**



9QD

DUAL TRIODE

6GF7A

10GF7A, 13GF7A

Novar types used as combined vertical-deflection oscillator and vertical-deflection amplifiers in color and black-and-white television receivers. Outlines section, 30A; requires novar 9-contact socket. For curves of average plate characteristics for Unit No.1 and Unit No.2, refer to types 6DR7 (Unit No.1) and 6EM7, respectively. Types 10GF7A and 13GF7A are identical with type 6GF7A except for heater ratings.

	6GF7A	10GF7A	13GF7A	
Heater Voltage (ac/dc)	6.3	9.7	13	volts
Heater Current	0.985	0.6	0.45	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 (Approx.):	Unit No.1		Unit No.2	
Grid to Plate	4.6	9		pF
Grid to Cathode and Heater	2.4	6.5		pF
Plate to Cathode and Heater	0.26	1.4		pF

Class A₁ Amplifier

CHARACTERISTICS	Unit No.1	Unit No.2	
Plate Voltage	250	150	volts
Grid Voltage	-3	-20	volts
Amplification Factor	64	5.4	
Plate Resistance (Approx.)	40000	750	ohms
Transconductance	1600	7200	μmhos
Grid Voltage (Approx.):			
For plate current of 10 μA	-5.5	—	volts
For plate current of 100 μA	—	-45	volts
Plate Current	1.4	50	mA
For plate voltage of 60 volts and zero grid voltage	—	95	mA
For grid voltage of -28 volts	—	10	mA

Vertical-Deflection Oscillator and Amplifier

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

MAXIMUM RATINGS (Design-Maximum Values)	Unit No.1 Oscillator	Unit No.2 Amplifier	
DC Plate Voltage	330	330	volts
Peak Positive-Pulse Plate Voltage			
(Absolute Maximum)#	—	1500•	volts
Peak Negative-Pulse Grid Voltage	400	250	volts
Peak Cathode Current	77	175	mA
Average Cathode Current	22	50	mA
Plate Dissipation	1.5	11	watts