

HORIZONTAL AMPLIFIER BEAM-POWER PENTODE TYPES 6GW6, 12GW6 AND 17GW6

The 6GW6, 12GW6 and 17GW6 are octal based beam-power pentode types designed for service as output amplifier in horizontal deflection circuits in television receivers. These types are characterized by high zero bias plate current, high plate current to grid 2 current ratio and high DC plate supply voltage ratings. These features with a plate dissipation rating of 17.5 watts make this tube especially desirable for its designed service.

The 12GW6 and 17GW6 have been designed for use in receivers which employ series connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When each is employed in this type of circuit with other tubes similarly designed having the same heater current rating, heater voltage surges across individual tubes are minimized inasmuch as heater warm-up characteristic is controlled.

ELECTRICAL

Cathode.....	Coated Unipotential		
Filament:	6GW6	12GW6	17GW6
Voltage (ac or dc).....	6.3 ± 10%	12.6	16.8
Current.....	1.20	0.60 ± 6%	0.45 ± 6%
Warm-up Time (Note 1).....	—	11	11
Direct Interelectrode Capacitances (Unshielded):			
Grid to Plate.....	0.5	μμf	
Input.....	17	μμf	
Output.....	7	μμf	

MECHANICAL

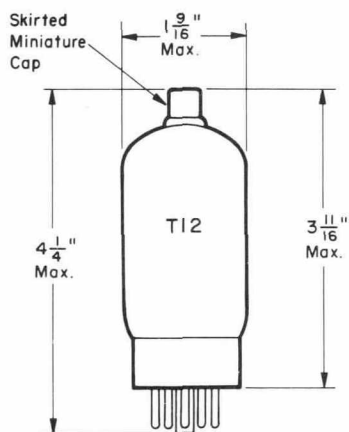
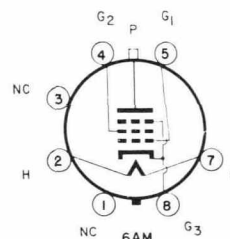
Bulb.....	T-12
Base.....	Short Medium Shell Octal (JEDEC B6-122)
Basing.....	6AM
Top Cap.....	C1-3, Skirted Miniature
Mounting Position.....	Any

HORIZONTAL DEFLECTION AMPLIFIER (Note 2)

MAXIMUM RATINGS

Design Maximum Values

D.C. Plate Supply Voltage		
(Boost + D.C. Power Supply).....	770	max. Volts
Peak Positive Plate Voltage.....	6500	max. Volts
Peak Negative Pulse Plate Voltage.....	1500	max. Volts
Plate Dissipation (Note 3).....	17.5	max. Watts
Peak Negative Grid 1 Voltage.....	330	max. Volts
D.C. Grid 2 Voltage.....	220	max. Volts
Grid 2 Dissipation.....	3.5	max. Watts
Average Cathode Current.....	175	max. Ma.
Peak Cathode Current.....	550	max. Ma.
Grid 1 Circuit Resistance (Note 4).....	1.0	max. Megohm
Bulb Temperature (At Hottest Point).....	240	max. °C
Heater-Cathode Voltage:		
Heater Negative with Respect to Cathode		
Total DC + Peak.....	200	max. Volts
Heater Positive with Respect to Cathode		
DC Component.....	100	max. Volts
Total DC + Peak.....	200	max. Volts



AVERAGE CHARACTERISTICS

PENTODE OPERATION

Plate Voltage	250	Volts
Grid 2 Voltage	150	Volts
Grid 1 Voltage	-22.5	Volts
Plate Current	70	Ma.
Grid 2 Current	2.1	Ma.
Transconductance	7100	μ mhos
Plate Resistance	15000	Ohms

ZERO BIAS

Plate Voltage (Note 5)	60	Volts
Grid 2 Voltage (Note 5)	150	Volts
Plate Current (Note 6)	390	Ma.
Grid 2 Current (Note 6)	32	Ma.

CUTOFF

Plate Voltage	250	Volts
Grid 2 Voltage	150	Volts
Plate Current	1	Ma.
Grid 1 Voltage (Approx.)	-42	Volts

TRIODE AMPLIFICATION FACTOR

Plate Voltage	150	Volts
Grid 2 Voltage	Connected to plate	
Grid 1 Voltage	-22.5	Volts
Amplification Factor	4.4	-

NOTES

1. Heater Warm-up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three times rated heater voltage divided by rated heater current.
2. For operation in a 525-line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcasting Stations; Federal Communications Commission." The duty cycle of the voltage pulse not to exceed 15% of the scanning cycle.
3. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.
4. Using grid-leak bias.
5. Applied for short interval (maximum of 2 seconds) so as not to damage tube.
6. These values can be measured by a method involving a recurrent waveform that such the plate and grid 2 dissipation will be kept within ratings to prevent damage to the tube.