

HORIZONTAL AMPLIFIER BEAM-POWER PENTODE TYPES 6GY5 AND 21GY5

The 6GY5 and 21GY5 are 12-pin button based beam-power pentode types designed for service as output amplifier in horizontal deflection circuits in television receivers.

The 21GY5 has been designed for use in receivers which employ series connected heaters. When employed in this type of circuit, heater voltage surges are minimized because heater warm-up characteristic is controlled.

ELECTRICAL

Cathode	Coated Unipotential	
Filament:	6GY5	21GY5
Voltage (ac or dc)	6.3 ± 10%	21 Volts
Current	1.5	0.45 ± 6% Ampere
Warm-up Time (Note 1)	—	11 Seconds
Direct Interelectrode Capacitances (Unshielded):		
Grid 1 to Plate	0.7	pf
Input	22	pf
Output	9	pf

MECHANICAL

Bulb	T-12
Base	EIA E12-74
Outline	EIA 12-79
Basing	EIA 12DR
Top Cap.	C1-3, Skirted Miniature
Mounting Position	Any

HORIZONTAL DEFLECTION AMPLIFIER (Note 2)

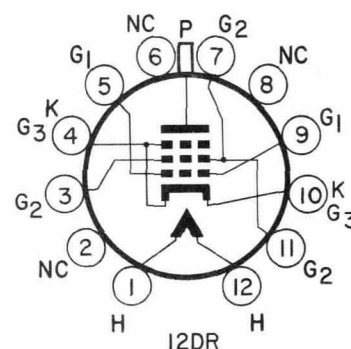
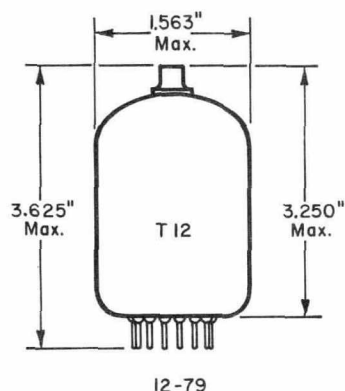
MAXIMUM RATINGS

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)	18 max. Watts
Negative D.C. Grid 1 Voltage	55 max. Volts
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	230 max. mA
Peak Cathode Current	800 max. mA
Grid 1 Circuit Resistance (Note 4)	1.0 max. Megohm
Bulb Temperature (At Hottest Point)	220 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	130	Volts
Grid 2 Voltage	130	Volts
Grid 1 Voltage	-20	Volts
Plate Current	50	Ma.
Grid 2 Current	1.75	Ma.
Transconductance	9100	μ mhos
Plate Resistance	11000	Ohms

ZERO BIAS

Plate Voltage (Note 5)	60	Volts
Grid 2 Voltage (Note 5)	130	Volts
Plate Current (Note 6)	410	Ma.
Grid 2 Current (Note 6)	24	Ma.

CUTOFF

Plate Voltage	130	5000	Volts
Grid 2 Voltage	130	130	Volts
Plate Current	1	1	Ma.
Grid 1 Voltage (Approx.)	-33	-66	Volts

TRIODE AMPLIFICATION FACTOR

Plate Voltage	130	Volts
Grid 2 Voltage	130	Volts
Grid 1 Voltage	-20	Volts
Amplification Factor	4.7	-

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.