6GY6
PENTODE
FOR GATED AGC AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6GY6 is a miniature, dual-control pentode primarily intended for gated AGC amplifier service in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential
Heater Characteristics and Ratings

<table>
<thead>
<tr>
<th>Series Circuit*</th>
<th>Parallel Circuit‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage, AC or DC . . . 6.3</td>
<td>6.3±0.6§ Volts</td>
</tr>
<tr>
<td>Heater Current . . . 0.45±0.03§</td>
<td>0.45§ Amperes</td>
</tr>
<tr>
<td>Heater Warm-up Time, average# . . 11</td>
<td>--- Seconds</td>
</tr>
</tbody>
</table>

Direct Interelectrode CapacitancesΔ

- Grid Number 1 to Plate: (g1 to p). . . 0.026 pf
- Grid Number 1 to All except Plate: (g1 to h + k + g2 + g3 + i.s.) . . . 8.0 pf
- Grid Number 1 to Grid Number 3: (g1 to g3). . . . . . . . 0.12 pf
- Grid Number 3 to Plate: (g3 to p). . . 1.6 pf
- Grid Number 3 to All: (g3 to h + k + g1 + g2 + p + i.s.) . . . . . 6.5 pf

MECHANICAL

Operating Position - Any
Envelope - T-5 1/2, Glass
Base - E7-1, Miniature Button 7-Pin
Outline Drawing - EIA 5-2

- Maximum Diameter. . . 0.750 Inches
- Maximum Over-all Length 2.125 Inches
- Maximum Seated Height . 1.875 Inches

MAXIMUM RATINGS

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

PHYSICAL DIMENSIONS

TERMINAL CONNECTIONS

Pin 1 - Grid Number 1
Pin 2 - Cathode and Internal Shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid Number 2 (Screen)
Pin 7 - Grid Number 3 (Suppressor)

BASING DIAGRAM

EIA 5-2
MAXIMUM RATINGS (Cont’d)

DESIGN-MAXIMUM VALUES

Plate Voltage ........................................... 300 Volts
Peak Positive-Pulse Plate Voltage** ................. 600 Volts
Grid-Number 3 Voltage
  Positive Value (DC and Peak) .................... 0 Volts
  Negative Value (DC and Peak) ................. 100 Volts
Screen-Supply Voltage, ................................ 300 Volts
Screen Voltage - See Screen Rating Chart
Positive DC Grid-Number 1 Voltage ................. 0 Volts
Negative DC Grid-Number 1 Voltage ................. 50 Volts
Plate Dissipation ..................................... 1.7 Watts
Screen Dissipation .................................... 1.0 Watts
Heater-Cathode Voltage
  Heater Positive with Respect to Cathode
    DC Component ...................................... 100 Volts
    Total DC and Peak .............................. 200 Volts
  Heater Negative with Respect to Cathode
    Total DC and Peak .............................. 200 Volts
Grid-Number 1 Circuit Resistance
  With Fixed Bias ..................................... 0.22 Megohms
  With Cathode Bias .................................. 0.47 Megohms
Grid-Number 3 Circuit Resistance .................... 0.68 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Supply Voltage ................................. 150 Volts
Grid-Number 3 Supply Voltage .................... 0 Volts
Screen Supply Voltage, .............................. 100 Volts
Grid-Number 1 Supply Voltage .................... 0 Volts
Cathode-Bias Resistor ............................... 180 Ohms
Plate Resistance, approximate ...................... 0.14 Megohms
Transconductance, Grid-Number 1 to Plate .... 3700 Micromhos
Transconductance, Grid-Number 3 to Plate .... 750 Micromhos
Plate Current ......................................... 3.7 Milliampere
Screen Current ........................................ 3.0 Milliampere
Grid-Number 1 Voltage, approximate
  Ib = 20 Microamperes ............................. -4.5 Volts
Grid-Number 3 Voltage, approximate
  Ib = 20 Microamperes ............................. -7.0 Volts

NOTES

* Operated with the heater in series with the heaters of other tubes having the same bogey heater current.
† Operated with the heater in parallel with the heaters of other tubes having the same bogey heater voltage.
§ For parallel heater operation, the equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance; for series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.
¶ Heater current of a bogey tube at Ef = 6.3 volts.
# The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.
△ Without external shield.
** For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.
AVERAGE TRANSFER CHARACTERISTICS

$E_t = \text{RATED VALUE}$
$E_b = 150 \text{ VOLTS}$
$E_{c2} = 100 \text{ VOLTS}$

PLATE CURRENT IN MILLIAMPERES

SCREEN CURRENT IN MILLIAMPERES

GRID-NUMBER 1 VOLTAGE IN VOLTS

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky