35GL6
BEAM PENTODE

DESCRIPTION AND RATING

The 35GL6 is a miniature beam pentode primarily designed for use in the audio-frequency power output stage of radio receivers. Features include high power sensitivity and high efficiency at relatively low plate and screen voltages. The heater of the 35GL6 is tapped to permit operation of a panel lamp.

GENERAL

ELECTRICAL
Cathode—Coated Unipotential
Heater Voltage, AC or DC* .................................. 35 ± 10% Volts
Heater-Tap Voltage* .................................. 7.0 Volts
Heater Current* .................................. 0.15 Amperes
Direct Inter-electrode Capacitances, approximate†
    Grid-Number 1 to Plate .......................... 0.5 µµf
    Input .................................. 14 µµf
    Output .................................. 9.5 µµf

MECHANICAL
Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES
Heater-Tap Voltage when Panel Lamp Fails, RMS .................. 14 Volts
Plate Voltage .................................. 150 Volts
Screen Voltage .................................. 130 Volts
Plate Dissipation .................................. 5.5 Watts
Screen Dissipation .................................. 1.1 Watts
Heater-Cathode Voltage
    Heater Positive with Respect to Cathode .................. 200 Volts
    Heater Negative with Respect to Cathode .................. 200 Volts
Grid-Number 1 Circuit Resistance
    With Fixed Bias .................................. 0.1 Megohms
    With Cathode Bias .................................. 0.5 Megohms
Bulb Temperature at Hottest Point .................................. 225 °C

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

These values are chosen by the tube manufacturer to provide acceptable serviceability of the tube, taking responsibility 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 boqey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, variation in characteristics of all other tubes in the equipment, equipment control adjustment, load variation, signal variation, and environmental conditions.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

BASING DIAGRAM

TERMINAL CONNECTIONS
Pin 1—Cathode and Beam Plates
Pin 2—Grid Number 1
Pin 3—Heater
Pin 4—Heater
Pin 5—Grid Number 2 (Screen)
Pin 6—Heater Tap
Pin 7—Plate

PHYSICAL DIMENSIONS
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>110 Volts</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>110 Volts</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage</td>
<td>7.5 Volts</td>
</tr>
<tr>
<td>Peak AF Grid-Number 1 Voltage</td>
<td>7.5 Volts</td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>12000 Ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>7500 Micromhos</td>
</tr>
<tr>
<td>Zero-Signal Plate Current</td>
<td>45 Milliamperes</td>
</tr>
<tr>
<td>Maximum-Signal Plate Current</td>
<td>47 Milliamperes</td>
</tr>
<tr>
<td>Zero-Signal Screen Current</td>
<td>3.0 Milliamperes</td>
</tr>
<tr>
<td>Maximum-Signal Screen Current</td>
<td>9.0 Milliamperes</td>
</tr>
<tr>
<td>Load Resistance</td>
<td>2500 Ohms</td>
</tr>
<tr>
<td>Total Harmonic Distortion, approximate</td>
<td>8 Percent</td>
</tr>
<tr>
<td>Maximum-Signal Power Output</td>
<td>1.8 Watts</td>
</tr>
</tbody>
</table>

* Operation without panel lamp.
† Without external shield.

The 35GL6 has a heater tap, which may be used for operating a 6.3-volt, 150-milliamperes panel lamp in equipment employing semiconductor rectifiers. The table below gives the required values of panel-lamp shunting resistor for various rectifier load currents.

SHUNTING RESISTOR REQUIRED WITH PANEL LAMP NUMBER 40 OR NUMBER 47 (See Typical Circuit)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage (Pin 3 to Pin 4)</td>
<td>32 Volts</td>
</tr>
<tr>
<td>Heater-Tap Voltage (Pin 4 to Pin 6)</td>
<td>5.0, 5.5, 5.5 Volts</td>
</tr>
<tr>
<td>Heater Current (Between Pins 3 and 6)</td>
<td>150, 150, 150 Milliamperes</td>
</tr>
<tr>
<td>Panel-Lamp Shunting Resistor</td>
<td>370, 175, 120 Ohms</td>
</tr>
<tr>
<td>Rectifier Load Current†</td>
<td>60, 70, 80, 90, 100, 110, 120 Milliamperes</td>
</tr>
</tbody>
</table>

TYPICAL CIRCUIT FOR OPERATION

WITH PANEL LAMP

\[ R_s = \text{Panel-lamp shunting resistor} \]

DROP ACROSS R AT 0.15 AMPERE SHOULD EQUAL
DIFFERENCE BETWEEN LINE VOLTAGE AND TOTAL
OF ALL RATED HEATER VOLTAGES

† Higher load currents will require smaller values of panel-lamp shunting resistor. For maximum panel-lamp life, the shunting resistor should be selected to allow a panel-lamp voltage of 5.5 volts with full rectifier load current.
AVERAGE TRANSFER CHARACTERISTICS

\[ E_r = \text{RATED VALUE} \]
\[ E_b = 110 \text{ VOLTS} \]


**OPERATION CHARACTERISTICS**

- **$P_T = \text{RATED VALUE}$**
- **$E_b = 110 \text{ VOLTS}$**
- **$E_{c2} = 110 \text{ VOLTS}$**
- **$E_{c1} = -7.5 \text{ VOLTS}$**
- **$E_{sig} = 5.3 \text{ VOLTS (RMS)}$**

**Power Output**

**Total Harmonic Distortion in Percent**

**Plate Current**

**Screen Current**

**Maximum-Signal Plate or Screen Current in Milliamperes**

**Load Resistance in Ohms**

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