Gated-Beam Discriminator

FOR FM AND TV LIMITER AND DISCRIMINATOR APPLICATIONS

The 6KS6 is a miniature gated-beam tube primarily designed to perform the combined functions of the limiter, discriminator, and audio-voltage amplifier in FM and television receivers.

**GENERAL**

**ELECTRICAL**
- Cathode - Coated Unipotential
- Heater Characteristics and Ratings
  - Heater Voltage, AC or DC*: 6.3±0.6 Volts
  - Heater Current*: 0.3 Amperes
- Direct Interelectrode Capacitances:
  - Grid-Number 1 to All: 4.6 pf
  - Grid-Number 3 to All: 3.4 pf
  - Grid-Number 1 to Grid-Number 3, maximum: 0.005 pf

**MECHANICAL**
- Operating Position - Any
- Envelope - T-5 1/2, Glass
- Base - E7-1, Miniature Button 7-Pin
- Outline Drawing - EIA 5-3
  - Maximum Diameter: 0.750 Inches
  - Minimum Diameter: 0.650 Inches
  - Maximum Over-all Length: 2.625 Inches
  - Maximum Seated Height: 2.375 Inches

**MAXIMUM RATINGS**
- Plate-Supply Voltage: 330 Volts
- Accelerator-Supply Voltage: 330 Volts
- Peak Positive Grid-Number 1 Voltage: 60 Volts
- DC Cathode Current: 13 Milliamperes
- Heater-Cathode Voltage
  - Heater Positive with Respect to Cathode: 100 Volts
  - Total DC and Peak: 200 Volts
- Heater Negative with Respect to Cathode
  - Total DC and Peak: 200 Volts

**PHYSICAL DIMENSIONS**

**TERMINAL CONNECTIONS**
- Pin 1 - Cathode, Focus Electrode, and Internal Shield
- Pin 2 - Grid Number 1 (Signal or Limiter)
- Pin 3 - Heater
- Pin 4 - Heater
- Pin 5 - Grid Number 2 (Accelerator)
- Pin 6 - Grid Number 3 (Quadrature)
- Pin 7 - Plate

**BASE DIAGRAM**

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.
MAXIMUM RATINGS (Cont’d)

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.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Average</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>135</td>
<td>135</td>
<td>135</td>
</tr>
<tr>
<td>Accelerator Voltage</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accelerator-Supply Voltage</td>
<td>280</td>
<td>280</td>
<td></td>
</tr>
<tr>
<td>Accelerator Resistor</td>
<td>33000</td>
<td>33000</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 Voltage</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 3 Voltage</td>
<td>4.0</td>
<td>4.0</td>
<td>0</td>
</tr>
<tr>
<td>Plate Current</td>
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<td></td>
</tr>
<tr>
<td>Accelerator Current</td>
<td>4.5</td>
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<td></td>
</tr>
<tr>
<td>Grid-Number 1 Transconductance</td>
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<td>360</td>
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</tr>
<tr>
<td>Grid-Number 3 Transconductance</td>
<td></td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
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<td></td>
<td>-4</td>
</tr>
<tr>
<td>Ib = 20 Microamperes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-Number 3 Voltage, approximate</td>
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<tr>
<td>Ib = 20 Microamperes</td>
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</tbody>
</table>

NOTES

* 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.

† Heater current of a bogey tube at Ef = 6.3 volts.

§ Without external shield.