Compactron Beam Triode

The 6JK5 is a compactron frame-grid beam triode suited for use as a pulse-type high-voltage regulator in the high-voltage power supply of color television receivers.

Features of the 6JK5 include a diffusion bonded cathode coating which provides a positive bond between the cathode coating and base material, thereby practically eliminating grid-to-cathode shorts caused by cathode flaking. By operating at a relatively low potential (3500 volts), this pulse-type regulator provides much less stress on internal components than shunt regulators operating in the 25000-volt range.

**GENERAL**

**ELECTRICAL**

- Cathode - Coated Unipotential
- Heater Characteristics and Ratings
  - Heater Voltage, AC or DC*: 6.3±0.6 Volts
  - Heater Current*: 1.8 Amperes
- Direct Interelectrode Capacitances, approximate:
  - Grid to Plate: (g to p): 1.8 pf
  - Input: g to (h + k + b.p.): 22 pf
  - Output: p to (h + k + b.p.): 11 pf

**MECHANICAL**

- Operating Position - Any
- Envelope - T-12, Glass
- Base - E12-74, Button 12-Pin

**MAXIMUM RATINGS**

**HIGH-VOLTAGE REGULATOR SERVICES—DESIGN-MAXIMUM VALUES**

- Peak Plate Voltage: 5500 Volts
- Plate Dissipation: 35 Watts
- Peak Plate Current: 325 Milliamperes
- 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 DC Component: 450 Volts
- Grid-Circuit Resistance: 0.1 Megohms
- Bulb Temperature at Hottest Point: 240 °C

**PHYSICAL DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max.</td>
<td>1.563&quot;</td>
</tr>
<tr>
<td>Min.</td>
<td>1.437&quot;</td>
</tr>
<tr>
<td>Max.</td>
<td>3.875&quot;</td>
</tr>
<tr>
<td>Min.</td>
<td>3.625&quot;</td>
</tr>
</tbody>
</table>

**TERMINAL CONNECTIONS**

- Pin 1 - Heater
- Pin 2 - Grid
- Pin 3 - Beam Plate
- Pin 4 - Cathode
- Pin 5 - Internal Connection - Do Not Use
- Pin 6 - Internal Connection - Do Not Use
- Pin 7 - Plate
- Pin 8 - Plate
- Pin 9 - Internal Connection - Do Not Use
- Pin 10 - Beam Plate
- Pin 11 - Grid
- Pin 12 - Heater

**BASE DIAGRAM**

EIA 12JE
**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.

**CHARACTERISTICS AND TYPICAL OPERATION**

**AVERAGE CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse Plate Voltage</td>
<td>3500 Volts</td>
</tr>
<tr>
<td>Beam Plate Connected to Cathode at Socket</td>
<td>4.4 Volts</td>
</tr>
<tr>
<td>Negative DC Grid Voltage</td>
<td>4600 Ohms</td>
</tr>
<tr>
<td>Peak Plate Current</td>
<td>300 Milliamperes</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>300</td>
</tr>
<tr>
<td>Transconductance</td>
<td>65000 Microhos</td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>-13 Volts</td>
</tr>
<tr>
<td>Grid Voltage, approximate</td>
<td></td>
</tr>
<tr>
<td>Eb = 3500 Volts, Ib = 1.0 Milliamperes</td>
<td></td>
</tr>
</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.

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.

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**TUBE PRODUCTS DEPARTMENT**

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**GENERAL ELECTRIC**