6BK5—12BK5—25BK5
BEAM PENTODE

DESCRIPTION AND RATING

The 6BK5 is a miniature beam pentode designed primarily for use in the audio-frequency power output stage of television and radio receivers in which only small driving voltages are available. Features of the tube include extremely high power sensitivity, high transconductance, and high plate efficiency.

Except for heater ratings and heater-cathode voltage ratings, the 12BK5 is identical to the 6BK5. The 12BK5, as a result of its controlled heater warm-up characteristic, is especially suited for use in television receivers which employ series-connected heaters. When the 12BK5 is used in conjunction with other 600-milliampere types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

The 25BK5 differs from the 6BK5 only in heater ratings.

GENERAL

ELECTRICAL

<table>
<thead>
<tr>
<th>6BK5</th>
<th>12BK5</th>
<th>25BK5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathode—Coated Unipotential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater Voltage, AC or DC</td>
<td>6.3</td>
<td>12.6</td>
</tr>
<tr>
<td>Heater Current</td>
<td>1.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Heater Warm-up Time*</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Direct Inter-electrode Capacitances†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-Number 1 to Plate</td>
<td>0.6 µf</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>13 µf</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>5.0 µf</td>
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</tr>
</tbody>
</table>

MECHANICAL

Mounting Position—Any
Envelope—T-61/2, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES

| Plate Voltage | 250 Volts |
| Screen Voltage | 250 Volts |
| Positive DC Grid-Number 1 Voltage | 0 Volts |
| Plate Dissipation | 9.0 Watts |
| Screen Dissipation | 2.5 Watts |

Heater-Cathode Voltage

<table>
<thead>
<tr>
<th>12BK5</th>
<th>6BK5, 25BK5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Positive with Respect to Cathode DC Component</td>
<td>100</td>
</tr>
<tr>
<td>Total DC and Peak</td>
<td>200</td>
</tr>
<tr>
<td>Heater Negative with Respect to Cathode Total DC and Peak</td>
<td>200</td>
</tr>
<tr>
<td>Grid-Number 1 Circuit Resistance With Fixed Bias</td>
<td>0.1</td>
</tr>
<tr>
<td>With Cathode Bias</td>
<td>0.5</td>
</tr>
</tbody>
</table>

PHYSICAL DIMENSIONS

Supersedes ET-T799, dated 11-51
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER
Plate Voltage .................................................. 250 Volts
Screen Voltage .................................................. 250 Volts
Grid-Number 1 Voltage .............................. -5.0 Volts
Peak AF Grid-Number 1 Voltage ................. 5.0 Volts
Plate Resistance, approximate ................. 100000 Ohms
Transconductance .......................................... 8500 Micromhos
Zero-Signal Plate Current .................. 35 Milliamperes
Maximum-Signal Plate Current, approximate 37 Milliamperes
Zero-Signal Screen Current .................. 3.5 Milliamperes
Maximum-Signal Screen Current, approximate 10 Milliamperes
Load Resistance .............................................. 6500 Ohms
Total Harmonic Distortion, approximate .................. 7 Percent
Maximum-Signal Power Output ................. 3.5 Watts

* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage (V1). For this type, E=50 volts (RMS or DC), V1=10.0 volts (RMS or DC), and R=63 ohms.
† Without external shield.

![Heater of Tube under Test](image)

AVERAGE PLATE CHARACTERISTICS

\[ E_f = \text{RATED VALUE} \]
\[ E_{c1} = 0 \text{ VOLTS} \]
OPERATION CHARACTERISTICS

- \( E_f = \text{RATED VALUE} \)
- \( E_b = 250 \text{ VOLTS} \)
- \( E_{c2} = 250 \text{ VOLTS} \)
- \( E_{c1} = -5.0 \text{ VOLTS} \)
- \( E_{sig} = 3.54 \text{ VOLTS (RMS)} \)

POWER OUTPUT

TOTAL HARMONIC DISTORTION

POWER OUTPUT IN WATTS

TOTAL HARMONIC DISTORTION IN PERCENT

LOAD RESISTANCE IN OHMS

TUBE DEPARTMENT

GENERAL ELECTRIC

Schenectady 5, N. Y.