COMPACTRON BEAM PENTODE
FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6HB5 is a compactron beam-power pentode designed for use as the horizontal-deflection amplifier in television receivers.

GENERAL

Cathode - Coated Unipotential

ELECTRICAL

Heater Characteristics and Ratings
Heater Voltage, AC or DC* . . . 6.3±0.6 Volts
Heater Current† . . . . . . . . 1.5 Amperes
Direct Interelectrode Capacitances, approximate‡
  Grid-Number 1 to Plate: (g1 to p) . 0.4 pf
  Input: g1 to (h + k + g2 + b.p.) . 22 pf
  Output: p to (h + k + g2 + b.p.) . 9.0 pf

MECHANICAL

Operating Position - Any
Envelope - T-12, Glass
Base - E12-74, Button 12-Pin
Outline Drawing - EIA 12-58
  Maximum Diameter . . . . . 1.563 Inches
  Maximum Over-all Length. . . . 3.375 Inches
  Maximum Seated Height . . . 3.000 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

<table>
<thead>
<tr>
<th>Pin</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heater</td>
</tr>
<tr>
<td>2</td>
<td>Grid Number 2 (Screen)</td>
</tr>
<tr>
<td>3</td>
<td>Grid Number 1</td>
</tr>
<tr>
<td>4</td>
<td>Cathode and Beam Plates</td>
</tr>
<tr>
<td>5</td>
<td>Internal Connection - Do Not Use</td>
</tr>
<tr>
<td>6</td>
<td>Internal Connection - Do Not Use</td>
</tr>
<tr>
<td>7</td>
<td>Plate</td>
</tr>
<tr>
<td>8</td>
<td>Internal Connection - Do Not Use</td>
</tr>
<tr>
<td>9</td>
<td>Internal Connection - Do Not Use</td>
</tr>
<tr>
<td>10</td>
<td>Cathode and Beam Plates</td>
</tr>
<tr>
<td>11</td>
<td>Grid Number 1</td>
</tr>
<tr>
<td>12</td>
<td>Heater</td>
</tr>
</tbody>
</table>

BASE DIAGRAM

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither 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)

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE — DESIGN-MAXIMUM VALUES

DC Plate-Supply Voltage (Boost + DC Power Supply) .............................................. 770 Volts
Peak Positive Pulse Plate Voltage ........................................................................... 6000 Volts
Peak Negative Pulse Plate Voltage .......................................................................... 1500 Volts
Screen Voltage ........................................................................................................ 220 Volts
Negative DC Grid-Number 1 Voltage ......................................................................... 55 Volts
Peak Negative Grid-Number 1 Voltage ...................................................................... 330 Volts
Plate Dissipation ...................................................................................................... 18 Watts
Screen Dissipation ................................................................................................... 3.5 Watts
DC Cathode Current ................................................................................................ 230 Milliamperes
Peak Cathode Current ............................................................................................... 800 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
    Total DC and Peak. ............................................................................................ 200 Volts
  Grid-Number 1 Circuit Resistance .......................................................................... 1.0 Megohms
  Bulb Temperature at Hottest Point ......................................................................... 220° C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage ............................................................................................................ 5000 60 130 Volts
Screen Voltage ......................................................................................................... 130 130 130 Volts
Grid-Number 1 Voltage ........................................................................................... --- 0# -20 Volts
Plate Resistance, approximate. ................................................................................ --- --- 11000 Ohms
Transconductance .................................................................................................. --- --- 9100 Micromhos
Plate Current .......................................................................................................... --- 410 50 Milliamperes
Screen Current ........................................................................................................ --- 24 1.75 Milliamperes
Grid-Number 1 Voltage, approximate
  Ib = 1.0 Milliamperes ............................................................................................ -66 --- -33 Volts
Triode Amplification FactorΔ .................................................................................. --- --- 4.7

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.

¶ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

# Applied for short interval (two seconds maximum) so as not to damage tube.

Δ Triode connection (screen tied to plate) with Eb = Ec2 = 130 volts and Ec1 = -20 volts.