25EC6
BEAM PENTODE

DESCRIPTION AND RATING

The 25EC6 is a beam-power pentode designed for use as the horizontal-deflection amplifier in television receivers that employ 110-degree-deflection picture tubes. Designed especially for use in receivers that operate from off-the-line rectifiers, the tube features high performance capabilities at relatively low supply voltages. It has electrical characteristics similar to those of the 25CD6-GB. In addition, the 25EC6 features a controlled heater warm-up characteristic to make it especially suited for use in television receivers that employ 600-milliampere series-connected heaters.

GENERAL

Cathode—Coated Unipotential
Heater Voltage, AC or DC ........................................... 25 Volts
Heater Current ................................................... 0.6 ± 6% Amperes
Heater Warm-up Time* ........................................... 11 Seconds
Direct Interelectrode Capacitances, approximate†
   Grid-Number 1 to Plate ....................................... 0.6 μμf
   Input .......................................................... 24 μμf
   Output ...................................................... 10 μμf

MECHANICAL

Mounting Position—Any
Envelope—T-12, Glass
Base—B8-110, Short Medium-Shell Octal 8-Pin
Top Cap—C1-1, Small

MAXIMUM RATINGS

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE‡

DESIGN-MAXIMUM VALUES

DC Plate-Supply Voltage (Boost+DC Power Supply) ........... 700 Volts
Peak Positive Pulse Plate Voltage ................................ 7000 Volts
Peak Negative Pulse Plate Voltage ................................ 1500 Volts
Screen Voltage ...................................................... 175 Volts
Peak Negative Grid-Number 1 Voltage ........................... 300 Volts
Plate Dissipation§ .................................................. 10 Watts
Screen Dissipation .................................................. 4.0 Watts
DC Cathode Current .................................................. 200 Milliampere
Peak Cathode Current .............................................. 700 Milliampere
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
   With Grid-Leak Bias ........................................... 1.5 Megohms
Bulb Temperature at Hottest Point ............................... 225° C

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>135 Volts</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>135 Volts</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td>-22.5 Volts</td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>4700 Ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>7500 Micromhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>70 Milliamperes</td>
</tr>
<tr>
<td>Screen Current</td>
<td>4.5 Milliamperes</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td>-42 Volts</td>
</tr>
<tr>
<td>Ib = 1.0 Milliamperes</td>
<td></td>
</tr>
<tr>
<td>Triode Amplification Factor†</td>
<td>3.8</td>
</tr>
</tbody>
</table>

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† 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.

¶ Triode connection (screen tied to plate) with Eb = Ec2 = 135 volts and Ec1 = -22.5 volts.
AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 135 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS

PLATE CURRENT IN MILLIAMPERES

AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 135 \text{ VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS

SCREEN CURRENT IN MILLIAMPERES