25DN6

BEAM PENTODE

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 25DN6 is a beam-power pentode designed primarily for use as the horizontal-deflection amplifier in television receivers which incorporate large-deflection-angle picture tubes. Features of the tube include high permeance, high plate current at low plate and screen voltages, and a high ratio of plate to screen current. As a result of its controlled heater warm-up characteristic, the 25DN6 is especially suited for use in television receivers that employ 600-milliampere, series-connected heaters.

GENERAL

ELECTRICAL
Cathode—Coated Unipotential
Heater Voltage, AC or DC ........................................ 25.0 Volts
Heater Current ...................................................... 0.6 Amperes
Heater Warm-up Time* ............................................. 11 Seconds
Direct Inter-electrode Capacitances, approximate†
  Grid-Number 1 to Plate ....................................... 0.8 μμf
  Input ............................................................... 22 μμf
  Output ............................................................ 11.5 μμf

MECHANICAL
Mounting Position—Vertical‡
Envelope—T-12, Glass
Base—B8-118, Short Medium-Shell Octal 8-Pin
Top Cap—C1-1, Small

MAXIMUM RATINGS
HORIZONTAL-DEFLECTION AMPLIFIER SERVICE§
DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

DC Plate-Supply Voltage (Boost+DC Power Supply) ... 700 Volts
Peak Positive Pulse Plate Voltage ................................ 6600 Δ Volts
Peak Negative Pulse Plate Voltage .......................... 1500 Volts
Screen Voltage ....................................................... 175 Volts
Peak Negative Grid-Number 1 Voltage ...................... 200 Volts
Plate Dissipation‡ .................................................. 15 Watts
Screen Dissipation .................................................. 3.0 Watts
DC Cathode Current .............................................. 200 Milliamperes
Peak Cathode Current ............................................ 700 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 ............................ 0.47 Megohms
Bulb Temperature at Hottest Point .......................... 225 °C

BASING DIAGRAM

KEY
RETMA 5BT

TERMINAL CONNECTIONS
Pin 1—No Connection
Pin 2—Heater
Pin 3—Cathode and Beam Plates
Pin 4—No Connection
Pin 5—Grid Number 1
Pin 6—No Connection
Pin 7—Heater
Pin 8—Grid-Number 2 (Screen)
Cap—Plate

PHYSICAL DIMENSIONS

GENERAL ELECTRIC
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tbody>
<tr>
<td>Plate Voltage</td>
<td>.50</td>
</tr>
<tr>
<td>Screen Voltage</td>
<td>125 Volts</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage</td>
<td>100</td>
</tr>
<tr>
<td>Plate Resistance, approximate</td>
<td>125 Volts</td>
</tr>
<tr>
<td>Transconductance</td>
<td>0φ</td>
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<tr>
<td>Plate Current</td>
<td>4000 Ohms</td>
</tr>
<tr>
<td>Screen Current</td>
<td>9000 Micromhos</td>
</tr>
<tr>
<td>Grid-Number 1 Voltage, approximate</td>
<td>240</td>
</tr>
<tr>
<td>I_b = 0.5 Milliamperes</td>
<td>70</td>
</tr>
<tr>
<td>Triode Amplification Factor**</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>6.3 Milliamperes</td>
</tr>
</tbody>
</table>

* The time required for the voltage across the heater to reach 80 per cent 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.

‡ Horizontal operation is permitted if pins 2 and 7 are in a vertical plane.

§ 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.

△ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

◊ 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.

φ Applied for short interval (2 seconds maximum) so as not to damage tube.

**Triode connection (screen tied to plate) with E_b = E_c2 = 125 volts and E_c1 = -18 volts.
Supersedes pages 3 and 4 dated 9-56.