6CD6-GA—25CD6-GB
BEAM PENTODE
FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6CD6-GA 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 an extremely high permanence, high plate current at low plate and screen voltages, and a high ratio of plate to screen current. The 6CD6-GA may be used as a replacement for the 6CD6-G; it differs from the 6CD6-G by employing a straight-sided T-12 envelope and incorporating increased maximum ratings for plate dissipation, pulse plate voltage, and bulb temperature.

Except for heater ratings, the 25CD6-GB is identical to the 6CD6-GA. In addition, as a result of its controlled heater warm-up characteristic, the 25CD6-GB is especially suited for use in television receivers which employ series-connected heaters. When the 25CD6-GB 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.

GENERAL

ELECTRICAL

<table>
<thead>
<tr>
<th>Description</th>
<th>6CD6-GA</th>
<th>25CD6-GB</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>25.0</td>
</tr>
<tr>
<td>Heater Current</td>
<td>2.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Heater Warm-up Time*</td>
<td></td>
<td>11 Seconds</td>
</tr>
<tr>
<td>Direct Inter-electrode Capacitances, approximate †</td>
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<td></td>
</tr>
<tr>
<td>Grid-Number 1 to Plate</td>
<td>1.1 μμf</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>22 μμf</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>8.5 μμf</td>
<td></td>
</tr>
</tbody>
</table>

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
MECHANICAL
Mounting Position—Vertical
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-CENTER VALUES UNLESS OTHERWISE INDICATED
DC Plate-Supply Voltage (Boost + DC Power Supply).......................... 700 Volts
Peak Positive Pulse Plate Voltage ........................................... 7000 V
Peak Negative Pulse Plate Voltage .......................................... 1500 Volts
Screen Voltage ................................................................. 175 Volts
Peak Negative Grid-Number 1 Voltage ....................................... 200 Volts
Plate Dissipation ............................................................... 20 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

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS
Plate Voltage ................................................................. 60 175 Volts
Screen ................................................................. 100 175 Volts
Grid-Number 1 Voltage ...................................................... 0 175 Volts
Plate Resistance, approximate ......................................... 7200 Ohms
Transconductance .......................................................... 7700 Micromhos
Plate Current ............................................................... 230 75 Milliamperes
Screen Current .............................................................. 21 5.5 Milliamperes
Grid-Number 1 Voltage, approximate
I_e = 1.0 Milliamperes ....................................................... −55 Volts
Triode Amplification Factor # ............................................. 3.9
* 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 \( V_1 \). For this type, \( E = 100 \text{ volts (RMS or DC)} \), \( V_1 = 20.0 \text{ volts (RMS or DC)} \), and \( R = 126 \text{ ohms} \).

† 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.

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

♦ Applied for very short interval so as not to damage tube.

# Triode connection (screen tied to plate) with \( E_b = E_c2 = 175 \text{ volts} \) and \( E_c1 = -30 \text{ volts} \).