Sharp-Cutoff Pentode

7-PIN MINIATURE TYPE
With Heater Having Controlled Warm-Up Time

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:
Voltage (AC or DC) ..................... 6.3 volts
Current at 6.3 volts .................... 0.3 ± 6% amp
Warm-up time (Average) .............. 11 sec
Direct Interelectrode Capacitances:

<table>
<thead>
<tr>
<th>Without External Shield</th>
<th>With External Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pentode Connection:</strong></td>
<td></td>
</tr>
<tr>
<td>Grid No.1 to plate, . .</td>
<td>0.0035 max.</td>
</tr>
<tr>
<td>Grid No.1 to cathode,</td>
<td>0.0035 max.</td>
</tr>
<tr>
<td>grid No.3 &amp; internal</td>
<td>μf</td>
</tr>
<tr>
<td>shield, grid No.2,</td>
<td></td>
</tr>
<tr>
<td>and heater .............</td>
<td>5.5</td>
</tr>
<tr>
<td>Plate to cathode, grid</td>
<td>5.5</td>
</tr>
<tr>
<td>No.3 &amp; internal shield,</td>
<td>μf</td>
</tr>
<tr>
<td>grid No.2, and heater.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Triode Connection:</strong></td>
<td></td>
</tr>
<tr>
<td>Grid No.1 to plate,</td>
<td>2.6</td>
</tr>
<tr>
<td>grid No.3 &amp; internal</td>
<td>μf</td>
</tr>
<tr>
<td>shield, and grid No.2.</td>
<td>2.6</td>
</tr>
<tr>
<td>Grid No.1 to cathode</td>
<td>3.2</td>
</tr>
<tr>
<td>and heater .............</td>
<td>μf</td>
</tr>
<tr>
<td>Plate, grid No.3 &amp;</td>
<td>1.2</td>
</tr>
<tr>
<td>internal shield, and</td>
<td>μf</td>
</tr>
<tr>
<td>grid No.2 to cathode</td>
<td>8.5</td>
</tr>
<tr>
<td>and heater .............</td>
<td></td>
</tr>
</tbody>
</table>

Characteristics, Class A1 Amplifier:

**Pentode Connection**
Plate Supply Voltage .................. 100 250 250 volts
Grid No.3 ............................ Connected to cathode at socket
Grid-No.2 Supply Voltage ............. 100 125 150 volts
Cathode Resistor ..................... 150 100 68 ohms
Plate Resistance (Approx.) .......... 0.5 1.5 1 megohms
Transconductance .................... 3900 4500 5200 μhos
Plate Current ........................ 5 7.6 10.6 ma
Grid-No.2 Current ................. 2.1 3 4.3 ma
Grid-No.1 Voltage (Approx.) for plate μa = 100 ........ -4.2 -5.5 -6.5 volts

**Triode Connection**
Plate Supply Voltage .................. 250 volts
Cathode Resistor ..................... 330 ohms
Amplification Factor ................ 36
Plate Resistance (Approx.) 7500 ohms
Transconductance 4800 µhmos
Plate Current. 12.2 ma

Mechanical:
Operating Position............................. Any
Maximum Overall Length...................... 2-1/8"
Maximum Seated Length...................... 1-7/8"
Length, Base Seat to Bulb Top (Excluding tip). 1-1/2" ± 3/32"
Diameter....................................... 0.650" to 0.750"
Dimensional Outline.......................... See General Section
Bulb........................................... T5-1/2
Base.............................. Small-Button miniature 7-Pin (JEDEC No.E7-1)
Basing Designation for BOTTOM VIEW............ 7BK

Pin 1 - Grid No.1
Pin 2 - Grid No.3,
Internal Shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid No.2
Pin 7 - Cathode

AMPLIFIER — Class A1

Maximum Ratings, Design-Maximum Values:

<table>
<thead>
<tr>
<th>Connection</th>
<th>Triode</th>
<th>Pentode</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE.</td>
<td>275 max.</td>
<td>330 max.</td>
</tr>
<tr>
<td>GRID No.3 (SUPPRESSOR GRID)</td>
<td></td>
<td>Connect to cathode at socket</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN-GRID)</td>
<td></td>
<td>330 max.</td>
</tr>
<tr>
<td>GRID-No.2 VOLTAGE.</td>
<td></td>
<td>See Grid-No.2 Input</td>
</tr>
</tbody>
</table>

Rating Chart at front of Receiving Tube Section

GRID-No.1 (CONTROL-GRID)
VOLTAGE:
Positive-bias value. 0 max. 0 max. volts

GRID-No.2 INPUT:
For grid-No.2 voltages up to 165 volts...... 0.75 max. watt
For grid-No.2 voltages between 165 and 330 volts. 0.75 max. See Grid-No.2 Input
Rating Chart at front of Receiving Tube Section

PLATE DISSIPATION. 3.5 max. 3.5 max. watts

PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode ... 200 max. 200* max. volts
Heater positive with respect to cathode ... 200* max. 200* max. volts

Typical Operation as Resistance-Coupled Amplifier:
See RESISTANCE-COUPLED-AMPLIFIER CHART No.8 at front of this Section
With external shield JEDEC No. 316 connected to cathode.
Grid No. 3 and grid No. 2 connected to plate.
The dc component must not exceed 100 volts.
AVERAGE PLATE CHARACTERISTICS
Pentode Connection

$E_{c}=6.3$ VOLTS
GRID N°3 CONNECTED TO CATHODE AT SOCKET,
GRID−N°2 VOLTS =150
AVERAGE CHARACTERISTICS
Pentode Connection

$E_C = 6.3$ VOLTS
GRID N°3 CONNECTED TO
CATHODE AT SOCKET.
GRID-N°2 VOLTS = 100

$\text{PLATE (I_B$ OR GRID-N°2 (I_C2) MILLIAMPERES}$

92CM-6611R3
AVERAGE CHARACTERISTICS
Pentode Connection

$E_f = 6.3$ VOLTS
PLATE VOLTS = 250
GRID N=3 CONNECTED TO CATHODE AT SOCKET.

<table>
<thead>
<tr>
<th>CURVES</th>
<th>GRID - N=2 VOLTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
</tr>
</tbody>
</table>

PLATE ($I_b$) OR GRID - N=2 ($I_{C2}$) MILLIAMPERES

GRID - N=1 VOLTS

92CM-6623R3

RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.
AVERAGE CHARACTERISTICS
Pentode Connection

E₁ = 6.3 VOLTS
PLATE VOLTS = 250
GRID NO. 3 CONNECTED TO
CATHODE AT SOCKET.
AVERAGE PLATE CHARACTERISTICS
Triode Connection

$E_F = 6.3 \text{ VOLTS}$
GRID No. 3 AND GRID No. 2
CONNECTED TO PLATE.

PLATE MILLIAMPERES

PLATE VOLTS

92CM-6854RI

RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.