# Medium-Mu Triode—
Sharp-Cutoff Pentode

9-PIN MINIATURE TYPE

## GENERAL DATA

### Electrical:

Heater, for Unipotential Cathodes:
- Voltage (AC or DC) .................. 6.3 volts
- Current at 6.3 volts .................. 0.45 ± 6% amp
- Warm-up time (Average) ............... 11 sec

Direct Interelectrode Capacitances:

<table>
<thead>
<tr>
<th></th>
<th>Without</th>
<th>With</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External</td>
<td>External</td>
</tr>
<tr>
<td>Shield</td>
<td>Shield</td>
<td></td>
</tr>
<tr>
<td>Triode Unit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid to plate</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Grid to cathode, pentode</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td>grid No.3 &amp; pentode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cathode &amp; internal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shield, and heater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plate to cathode, pentode</td>
<td>1.7</td>
<td>2.2</td>
</tr>
<tr>
<td>grid No.3 &amp; pentode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cathode &amp; internal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shield, and heater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heater to cathode</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Pentode Unit:
- Grid No.1 to plate .............. 0.02 max. 0.015 max. μuf
- Grid No.1 to cathode &
  grid No.3 & internal
  shield, grid No.2, and heater .... 5.5 5.5 μuf
- Plate to cathode & grid
  No.3 & internal shield,
  grid No.2, and heater ....... 2.6 3.4 μuf
- Heater to cathode & grid
  No.3 & internal shield ....... 3 3 μuf

## Characteristics, Class A1 Amplifier:

<table>
<thead>
<tr>
<th></th>
<th>Triode Unit</th>
<th>Pentode Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>125 volts</td>
<td>125 volts</td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>-</td>
<td>125 volts</td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>-1 volt</td>
<td>-1 volt</td>
</tr>
<tr>
<td>Amplification Factor</td>
<td>46</td>
<td>-</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>5400 ohms</td>
<td>200000 ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>8500 μmhos</td>
<td>7500 μmhos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>13.5 ma</td>
<td>12 ma</td>
</tr>
<tr>
<td>Grid-No.2 Current</td>
<td>-</td>
<td>4 ma</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) for plate μa = 10.</td>
<td>-8 volts</td>
<td>-8 volts</td>
</tr>
</tbody>
</table>
Mechanical:
Operating Position........................................... Any
Maximum Overall Length.................................... 2-3/16"
Maximum Seated Length............................... 1-15/16"
Length, Base Seat to Bulb Top (Excluding tip)..... 1-9/16" ± 3/32"
Diameter.................................................. 0.750" to 0.875"
Dimensional Outline................................. See General Section
Bulb.................................................... T6-1/2
Base.................................................. Small-Button Noval 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW.................. 9AE

Pin 1-Triode Plate
Pin 2-Pentode
   Grid No.1
Pin 3-Pentode
   Grid No.2
Pin 4-Heater
Pin 5-Heater
Pin 6-Pentode Plate
Pin 7-Pentode
    Cathode,
    Pentode
Pin 8-Triode Cathode
Pin 9-Triode Grid

HORIZONTAL-DEFLECTION OSCILLATOR

Maximum Ratings, Design-Maximum Values:

For operation in a 525-line, 30-frame system*

<table>
<thead>
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<th>Triode Unit</th>
<th>Pentode Unit</th>
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<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>330 max.</td>
</tr>
<tr>
<td>GRID-No.2 (SCREEN-GRID) SUPPLY VOLTAGE</td>
<td>–</td>
</tr>
<tr>
<td>GRID-No.2 VOLTAGE</td>
<td>–</td>
</tr>
</tbody>
</table>

GRID-No.1 (CONTROL-GRID)

VOLTAGE:

Positive-bias value... 0 max. 0 max. volts
Peak-negative value... – 175 max. volts

CATHODE CURRENT:

Peak... – 300 max. ma
Average... – 20 max. ma

GRID-No.2 INPUT:

For grid-No.2 voltages up to 165 volts...
0.55 max. watt
For grid-No.2 voltages between 165 and 330 volts...
See Grid-No.2 Input

PLATE DISSIPATION... 2.5 max. 2.5 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
Maximum Circuit Values:

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<th></th>
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<th>Pentode Unit</th>
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</thead>
<tbody>
<tr>
<td>Grid-No.1-Circuit Resistance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For fixed-bias or cathode-bias operation.</td>
<td>2.2 max.</td>
<td>2.2 max. megarhms</td>
</tr>
</tbody>
</table>

* With external shield JEDEC No. 315 connected to cathode of unit under test except as noted.
* With external shield JEDEC No. 315 connected to ground.
* As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.
* The dc component must not exceed 100 volts.
AVERAGE CHARACTERISTICS
Pentode Unit

$E_C = 6.3$ VOLTS
PLATE VOLTS = 125
GRID-N & 2 VOLTS = 125

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

GRID-N & 1 VOLTS

TRANSCONDUCTANCE ($g_{m}$) MICROMHOS

92CM-10417

RADIO CORPORATION OF AMERICA
Electron Tube Division
Harrison, N. J.
DATA 4
8-60