Medium-Mu Triode-Sharp-Cutoff Pentode

9-PIN MINIATURE TYPE

Electrical:

Heater Characteristics and Ratings:
- Voltage (AC or DC): \( 6.3^a \) \( 6.3 \pm 0.6 \) volts
- Current \( 0.450 + 0.030 \) \( 0.450^b \) amp
- Warm-up time (Average): 11 sec
- Peak heater-cathode voltage (Each unit):
  - Heater negative with respect to cathode: \( 200 \) max. volts
  - Heater positive with respect to cathode: \( 200^c \) max. volts

Direct Interelectrode Capacitances:

<table>
<thead>
<tr>
<th></th>
<th>Without External Shield</th>
<th>With External Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Triode Unit:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid to plate</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Grid to cathode, pentode cathode &amp; pentode No. 3 &amp; internal shield, and heater</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Plate to cathode, pentode cathode &amp; pentode grid No. 3 &amp; internal shield, and heater</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Pentode Unit:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid No. 1 to plate</td>
<td>0.02 max.</td>
<td>0.01 max.</td>
</tr>
<tr>
<td>Grid No. 1 to cathode &amp; grid No. 3 &amp; internal shield, grid No. 2, and heater</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Plate to cathode &amp; grid No. 3 &amp; internal shield, grid No. 2, and heater</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pentode plate to triode plate</td>
<td>0.15 max.</td>
<td>0.03 max.</td>
</tr>
</tbody>
</table>

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>45</td>
<td></td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>5600 ohms</td>
<td>2000000 ohms</td>
</tr>
<tr>
<td>Transconductance</td>
<td>8000 ( \mu )hos</td>
<td>6500 ( \mu )hos</td>
</tr>
<tr>
<td>Plate Current</td>
<td>12 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.)</td>
<td>-7.5 volts</td>
<td>-9 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. 9FA

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

AMPLIFIER — Class A1 (Pentode Unit)

Maximum Ratings, Design-Maximum Values:
Plate Voltage . . . . . . . . . . . . 330 max. volts
Grid-No.2 (Screen-Grid) Supply Voltage. . . 330 max. volts
Grid-No.2 Voltage . . . . . . . . . . See Grid-No.2 Input Rating Chart at front of Receiving Tube Section

Grid-No.1 (Control-Grid) Voltage:
Positive-bias value . . . . . . . . 0 max. volts

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 Rating Chart at front of Receiving Tube Section

Plate Dissipation . . . . . . . . . . 2.3 max. watts

Maximum Circuit Values:
Grid-No.1-Circuit Resistance:
For fixed-bias operation. . . . . 0.25 max. megohm
For cathode-bias operation. . . . 1 max. megohm

VERTICAL-DEFLECTION OSCILLATOR (Triode Unit)

Maximum Ratings, Design-Maximum Values:
For operation in a 525-line, 30-frame system:
DC Plate Voltage . . . . . . . . 330 max. volts
Peak Negative-Pulse Grid Voltage . . 250 max. volts
Cathode Current:
Peak . . . . . . . . . . . . . . . . . . 70 max. ma
Average . . . . . . . . . . . . . . . 20 max. ma
Plate Dissipation . . . . . . . . 2 max. watts

Maximum Circuit Values:
Grid-Circuit Resistance:
For cathode-bias operation. . . . 3 max. megohms

\[ a \] At heater amperes = 0.450.
\[ b \] At heater volts = 6.3.
\[ c \] The dc component must not exceed 100 volts.
\[ d \] With external shield JEDEC No.316 connected to pin 4.
\[ e \] As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.