Medium-Mu Triode—Sharp-Cutoff Pentode

9-PIN MINIATURE TYPE
For VHF Oscillator-Mixer Service in TV Receivers

Electrical:

Heater Characteristics and Ratings:
Voltage (AC or DC) .................. 6.3 ± 0.6\textsuperscript{a} volts
Current at heater volts = 6.3 ... 0.450\textsuperscript{b} amp
Warm-up time (Average) ............ 11 sec
Peak heater-cathode voltage:
Heater negative with respect to cathode .... 200 max. volts
Heater positive with respect to cathode .... 200\textsuperscript{c} max. volts

Direct Inter-electrode Capacitances:

Triode Unit:
G\textsubscript{T} to P\textsubscript{T} ............... 1.9 pf
Input: G\textsubscript{T} to (K+G\textsubscript{3} P+I\textsubscript{S}, H) ... 3.0 pf
Output: P\textsubscript{T} to (K+G\textsubscript{3} P+I\textsubscript{S}, H) ... 1.9 pf

Pentode Unit:
G\textsubscript{1P} to P\textsubscript{P} ............... 0.010 max. pf
Input: G\textsubscript{1P} to (K+G\textsubscript{3} P+I\textsubscript{S}, G\textsubscript{2} P, H) ... 5.0 pf
Output: G\textsubscript{1P} to (K+G\textsubscript{3} P+I\textsubscript{S}, G\textsubscript{2} P, H) ... 3.4 pf
H to K* .................. 3.8 pf

Characteristics, Class A\textsubscript{1} Amplifier:

<table>
<thead>
<tr>
<th>Triode Unit</th>
<th>Pentode Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Supply Voltage .......... 150</td>
<td>125 volts</td>
</tr>
<tr>
<td>Grid-No.2 Supply Voltage ....... -</td>
<td>125 volts</td>
</tr>
<tr>
<td>Grid-No.1 Supply Voltage ....... 0</td>
<td>-1 volts</td>
</tr>
<tr>
<td>Cathode Resistor ............... 56</td>
<td>- ohms</td>
</tr>
<tr>
<td>Amplification Factor .......... 40</td>
<td>-</td>
</tr>
<tr>
<td>Plate Resistance (Approx.) ...... 5000</td>
<td>200,000 ohms</td>
</tr>
<tr>
<td>Transconductance ............... 8500</td>
<td>6400 \mu\text{hos}</td>
</tr>
<tr>
<td>Plate Current ..................... 18</td>
<td>12 ma</td>
</tr>
<tr>
<td>Grid-No.2 Current ............... -</td>
<td>4 ma</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) ...... for plate (\mu)a = 10 .......... -12</td>
<td>-9 volts</td>
</tr>
</tbody>
</table>

Mechanical:

Operating Position .................. Any
Type of Cathode .................. Coated Unipotential
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 Nova 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW. . . . . . . . . . . . . 90A

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

AMPLIFIER — Class A₁

Maximum Ratings, Design-Maximum Values:

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<th>Triode Unit</th>
<th>Pentode Unit</th>
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<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>See Grid-No. 2 Input Rating Chart at front of Receiving Tube Section</td>
</tr>
<tr>
<td>Grid-No. 1 (Control-Grid) Voltage: Positive-bias value</td>
<td>0 max.</td>
</tr>
<tr>
<td>Grid-No. 2 Input: For grid-No. 2 voltages up to 165 volts</td>
<td>—</td>
</tr>
<tr>
<td>For grid-No. 2 voltages between 165 and 330 volts</td>
<td>See Grid-No. 2 Input Rating Chart at front of Receiving Tube Section</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>2.5 max.</td>
</tr>
</tbody>
</table>

Maximum Circuit Values:

| Grid-No. 1 Circuit Resistance: For fixed-bias operation | 0.5 max. | 0.25 max. | megohm |
| For cathode-bias operation | 1.0 max. | 0.5 max. | megohm |

a For parallel heater operation.
b For series heater operation current must be limited to 0.450 ± 0.030 amperes.
c The dc component must not exceed 100 volts.
d With external shield JEDEC No.315 connected to cathode except as noted.
e With external shield JEDEC No.315 connected to ground.
AVERAGE CHARACTERISTICS
Pentode Unit

$E_p = 6.3$ VOLTS
PLATE VOLTS = 125
GRID-N02 VOLTS = 125

TRANSCONDUCTANCE ($g_m$) - MICROMOS

PLATE ($I_b$) OR GRID-N02 ($I_{c2}$) MILLIAMPERES

GRID-N01 VOLTS