RCA-6LQ8* and 11LQ8 are multiunit tubes of the 9-pin miniature type, each containing a medium-mu triode and a sharp-cutoff pentode in one envelope. These types are especially useful in black-and-white television receivers operating at low-\(B^+\) voltages.

The triode unit of the 6LQ8 and 11LQ8 can be used in sync-separator and sound-if circuits and in general-purpose voltage-amplifier applications. The pentode unit is especially suited for use as a video output tube. The use of frame-grid construction in the pentode unit results in an exceptionally high value of transconductance. The pentode unit also has a plate current characteristic with controlled knee to provide good linearity at relatively low plate voltage. High operating efficiency is achieved in these tubes through advanced design of the tube electrode geometry.

Each unit of the 6LQ8 and 11LQ8 has its own cathode with an individual base-pin terminal, to provide flexibility of circuit connections. The heater of the 11LQ8 has controlled warm-up time for use in series-heater-string arrangements.

* Formerly Developmental Type A55244.

**ELECTRICAL CHARACTERISTICS—Bogey Values**

<table>
<thead>
<tr>
<th></th>
<th>6LQ8</th>
<th>11LQ8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage, ac or dc  (E_h)</td>
<td>6.3</td>
<td>10.9</td>
</tr>
<tr>
<td>Heater Current (I_h)</td>
<td>775</td>
<td>450</td>
</tr>
<tr>
<td>Heater Warm-Up Time (t_w)</td>
<td>-</td>
<td>11</td>
</tr>
</tbody>
</table>

**Triode Unit:**

- Grid to plate \(c_{g-p}\) 2.8 pF
- Input: \(G_p + K_p + G_3p + I_p, H\) \(c_{i}\) 4.2 pF
- Output: \(P_3 + K_p + G_3p + I_p, H\) \(c_{0}\) 2.4 pF

**Pentode Unit:**

- Grid No.1 to plate \(c_{g1-p}\) 0.12 max. pF
- Input: \(G_1p + K_p + G_3p + I_p, G_2p, H\) \(c_{i}\) 14 pF
- Output: \(P_p + K_p + G_3p + I_p, G_2p, H\) \(c_{0}\) 4.8 pF
- Triode grid to pentode plate \(-\) 0.015 max. pF
- Pentode plate to triode plate \(-\) 0.17 max. pF

For the following characteristics, see Conditions below:

<table>
<thead>
<tr>
<th></th>
<th>Triode</th>
<th>Pentode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplification Factor (\mu)</td>
<td>46</td>
<td>-</td>
</tr>
<tr>
<td>Plate Resistance ((\text{Approx.})) (r_p)</td>
<td>4400</td>
<td>55000</td>
</tr>
<tr>
<td>Transconductance (\beta_m)</td>
<td>10400</td>
<td>210000</td>
</tr>
<tr>
<td>DC Plate Current (I_p)</td>
<td>15</td>
<td>16.5</td>
</tr>
<tr>
<td>DC Grid-No.2 Current (I_{c2})</td>
<td>-</td>
<td>3.1</td>
</tr>
<tr>
<td>Cutoff DC Grid-No.1 Voltage (V_{c1}) ((E_{c1}(\text{cutoff})))</td>
<td>-6</td>
<td>-4.2</td>
</tr>
</tbody>
</table>

**Conditions:**

- Heater Voltage \(E_h\) Bogey Value V
- DC Plate Supply Voltage \(E_{bb}\) 125 125 200 V
- DC Grid-No.2 Supply Voltage \(E_{c2}\) 125 125 V
- Grid No.1 Connected to negative end of \(R_k\)
- Cathode Resistor \(R_k\) 68 82 68 Ω

**MECHANICAL CHARACTERISTICS**

- Maximum Overall Length 2.625 in
- Maximum Seated Length 2.375 in
- Maximum Diameter See Dimensional Outline 0.875 in
- Envelope JEDEC Designation TS-1/2
- Base Small-Button Noval 9-Pin (JEDEC Designation EB-1)
- Dimensional Outline JEDEC Designation 6-3
- Terminal Diagram JEDEC Designation 9DX
- Type of Cathodes Coated Unipotential
- Operating Position Any

**MAXIMUM RATINGS—Design-Maximum Values**

For operation as a Class A1 Amplifier Tube

<table>
<thead>
<tr>
<th></th>
<th>Triode</th>
<th>Pentode</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Plate Voltage (E_b)</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>DC Grid-No.2 (Screen-Grid) Supply Voltage (E_{c2})</td>
<td>-</td>
<td>300</td>
</tr>
<tr>
<td>DC Grid-No.2 Voltage (E_c)</td>
<td>-</td>
<td>See GRID-No.2 INPUT RATING CHART</td>
</tr>
<tr>
<td>DC Grid-No.1 (Control-Grid) Voltage: Positive-bias value (E_{c1})</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
### Heater-Cathode Voltage:

- **Peak**: $e_{hkm}$ ± 200 V
- **Averaged**: $E_{hk(\text{av})}$ 100 V

**Heater Voltage, ac or dc (6LQ8)**

- $E_h$ 5.7 to 6.9 V

**Heater Current (11LQ8)**

- $I_h$ 420 to 480 mA

### Grid-No. 2 Input:

- $P_g2$

For $E_{c2} \leq 150$ V

For $E_{c2} > 150$ V and $\leq 300$ V

### Plate Dissipation

- $P_b$ 2 5 W

### Maximum Circuit Values

<table>
<thead>
<tr>
<th>Triode</th>
<th>Pentode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit</strong></td>
<td><strong>Unit</strong></td>
</tr>
<tr>
<td>$R_{g1(\text{ckt})}$</td>
<td>0.5 MΩ</td>
</tr>
<tr>
<td>For fixed-bias operation</td>
<td>0.1 MΩ</td>
</tr>
<tr>
<td>For cathode-bias operation</td>
<td>1 MΩ</td>
</tr>
<tr>
<td>0.25 MΩ</td>
<td></td>
</tr>
</tbody>
</table>

#### Notes:

- a Unless otherwise specified.
- b Measured without external shield in accordance with the current issue of EIA Standard RS-191.
- c As defined in the current issue of EIA Standard RS-239.
- d Measured with a dc meter.

### Typical Characteristics

**Triode Unit**

- **$E_{h}$ BOGIE VALUE**

- **Plate Resistance ($r_p$) - Megohms**

- **Plate Current - Milliamperes**

- **Transconductance ($g_m$) - Microhms**

- **Grid Volts**

**Typical Plate Characteristics**

**Triode Unit**

- **$E_{h}$ BOGIE VALUE**

- **Plate Resistance ($r_p$) - Megohms**

- **Plate Current - Milliamperes**

- **Transconductance ($g_m$) - Microhms**

- **Grid Volts**

- **Plate Milliamperes**
DIMENSIONAL OUTLINE JEDEC 6-3

Dimensions in Inches

* Measured from base seat to bulb-top line as determined by ring gauge of 0.437" inside diameter.

** Major diameter as checked by ring gauges of 0.25" thickness. The maximum gauge should clear the bulb above 0.38" from the base seat and the minimum gauge should not.

*** The diameter of the boundary cylinder as defined by the barriers of the pin alignment gauge (Gauge No.GE9-1, Sheet 30, Section 3 of EIA Standard RS-209A).

TERMINAL DIAGRAM

Bottom View

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

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