The 24LQ6 is a beam—power pentode primarily designed for use as the horizontal—deflection amplifier in color television receivers. Control testing gives the assurance the 24LQ6 is capable of withstanding a 200 watt plate dissipation for 40 seconds, sufficient time to permit conventional receiver protective devices to function.

The 24LQ6 has a maximum plate dissipation rating of 30 watts, a maximum grid—No. 2 input rating of 5 watts and a 0.600 ampere/24.0 volt heater having a controlled 11 second warm—up time for use in series heater—string arrangement.

**GENERAL**

**ELECTRICAL**

Cathode — Coated Unipotential

Heater Characteristics and Ratings

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage, AC or DC</td>
<td>24.0  Volts</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.6 Ampere</td>
</tr>
<tr>
<td>Heater Warm Up Time</td>
<td>11 Seconds</td>
</tr>
</tbody>
</table>

Direct Inter electrode Capacitances, approximate:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid—Number 1 to Plate (g1 to p)</td>
<td>0.56 pf</td>
</tr>
<tr>
<td>Input: G1 to (K,G3,G2,H)</td>
<td>22 pf</td>
</tr>
<tr>
<td>Output: P to (K,G3,G2,H)</td>
<td>11 pf</td>
</tr>
</tbody>
</table>

**MECHANICAL**

Operating Position ........ Any

Envelope .................... T—12

Base ....E9—88, Large Button Novar 9 Pin With Exhaust Tip

Outline Drawing ............ 12—117

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Diameter</td>
<td>1.562 ''</td>
</tr>
<tr>
<td>Minimum Diameter</td>
<td>1.438 '' *</td>
</tr>
<tr>
<td>Maximum Overall Length</td>
<td>4.380 ''</td>
</tr>
<tr>
<td>Maximum Seated Height</td>
<td>4.000 ''</td>
</tr>
<tr>
<td>Minimum Seated Height</td>
<td>3.750 ''</td>
</tr>
</tbody>
</table>

* Applies to the minimum diameter except in the area of the seal.

**PHYSICAL DIMENSIONS**

**TERMINAL CONNECTIONS**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grid No. 2</td>
</tr>
<tr>
<td>2</td>
<td>Grid No. 1</td>
</tr>
<tr>
<td>3</td>
<td>Cathode</td>
</tr>
<tr>
<td>4</td>
<td>Heater</td>
</tr>
<tr>
<td>5</td>
<td>Heater</td>
</tr>
<tr>
<td>6</td>
<td>Grid No. 1</td>
</tr>
<tr>
<td>7</td>
<td>Grid No. 2</td>
</tr>
<tr>
<td>8</td>
<td>Grid No. 3</td>
</tr>
<tr>
<td>9</td>
<td>Internal Connection</td>
</tr>
</tbody>
</table>

(Do Not Use)

Top Cap — Plate

**BASING DIAGRAM**
MAXIMUM RATINGS

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE—
DESIGN-MAXIMUM VALUES UNLESS OTHERWISE INDICATED

DC Plate—Supply Voltage .......................................................... 990 Volts
Peak Positive Pulse Plate Voltage † ........................................... 7500 Volts
Peak Negative Pulse Plate Voltage ............................................ 1100 Volts
DC Grid Number 3 Voltage ‡ ...................................................... 75 Volts
Screen Voltage ..................................................................... 220 Volts
Peak Negative Pulse Grid Number 1 Voltage ......................... 330 Volts
Plate Dissipation ▲ ................................................................ 30 Watts
Grid Number 2 Input ................................................................. 5.0 Watts
Average Cathode Current ......................................................... 350 Milliamperes
Peak Cathode Current ............................................................... 1200 Milliamperes
Heater Cathode Voltage
Peak ........................................................................... ≠200 Volts
Average ........................................................................ 100 Volts
Temporary Overload Plate Dissipation ‡ ‡ ......................... 200 Watts
Bulb Temperature (at hottest point) ........................................... 250°C
Heater Current .................................................................... 560 to 640 mA

MAXIMUM CIRCUIT VALUES
Grid No. 1 Circuit Resistance
For grid—No. 1—resistor bias operation ..................................... 0.47 MΩ
For plate—pulsed operation (horizontal—deflection circuits only) 10 MΩ

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

Heater Voltage .............................................................. BOGey VALUE Volts
Peak Positive Pulse Plate Voltage § ..................................... 5000 5000 Volts
Grid Number 1 Voltage ................................................... 0 0 Volts
Screen Voltage ......................................................... 125 125 125 145 145 145 Volts
DC Grid Number 3 Voltage ............................................. 30 30 30 30 30 30 Volts
Transconductance ........................................................... 9600 9600 μmho
Plate Current .................................................................. 130 130 Milliamperes
Screen Current ................................................................. 40 40 Milliamperes
Cutoff DC Grid No. 1 Voltage
1b = 1 mA ....................................................................... 120 54 125 60 Volts
Triode Amplification Factor * ........................................... 3 3 2.8
Plate Resistance (Approximate) .......................................... 5800 7000 Ω
DC Plate Voltage ................................................................. 55 175 60 175 Volts
NOTES

- Measured without external shield in accordance with the current issue of EIA Standard RS-191.

- With grid No. 3 and grid No. 2 connected, respectively to cathode and plate at socket.

- Conditions: \( E_b = E_c_2 = 145 \text{ V}, \quad E_c_1 = -35 \text{ V} \).

- Conditions: \( E_b = E_c_2 = 125 \text{ V}, \quad E_c_1 = -25 \text{ V} \).

- This value can be measured by a method involving a recurrent waveform such that the Maximum Ratings of the tube will not be exceeded.

† This rating is applicable when the duration of the voltage pulse does not exceed 15% of one horizontal scanning cycle. In a 525-line, 30-frame system, 15% of one scanning cycle is 10 \( \mu \text{s} \).

‡ In horizontal-deflection-amplifier service, a positive voltage should be applied to grid No. 3 to reduce interference from "snivets", which may occur in both vhf and uhf television receivers, and to increase power output. A typical value is 30 V.

▲ An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

§ Under pulse-duration condition specified in Footnote †.