Beam Power Tube
T12 Novar Type

High Pervance Beam Power Tube
For Horizontal-Deflection Amplifier
Service in Low B+ Color-TV Receivers
- Plate Dissipation = 33 W
- RCA Dark Heater
- Peak Cathode Current = 1400 mA

ELECTRICAL CHARACTERISTICS — Bogey Values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage, ac or dc</td>
<td>6.3 V</td>
</tr>
<tr>
<td>Heater Current</td>
<td>2.85 A</td>
</tr>
<tr>
<td>Direct Interelectrode Capacitances:</td>
<td></td>
</tr>
<tr>
<td>Grid No. 1 to plate</td>
<td>1.0 pF</td>
</tr>
<tr>
<td>Input: G1 to (K, G3, G2, H)</td>
<td>40 pF</td>
</tr>
<tr>
<td>Output: P to (K, G3, G2, H)</td>
<td>16 pF</td>
</tr>
</tbody>
</table>

For the following characteristics, see Conditions below:

Amplification Factor (Triode Connection) = -4

Plate Resistance
(Approx.) = 6000 Ω
Transconductance = 14000 μmho
DC Plate Current = 125 mA
DC Grid-No. 2 Current = 3.3 mA

Cutoff DC Grid-No. 1 Voltage = -40 V

Conditions:
Heater Voltage = 6.3 V
Peak Positive-Pulse Plate Voltage = 5000 V
DC Plate Voltage = 175 V
DC Grid-No. 3 Voltage = 0 V
DC Grid-No. 2 Voltage = 110 V
DC Grid-No. 1 Voltage = -21 V

MECHANICAL CHARACTERISTICS

Envelope = JEDEC T-12
Top Cap = Small (JEDEC C1-1)
Base = Large-Button Novar 9-Pin with Exhaust Tip (JEDEC E9-88)

Terminal Connections
(See TERMINAL DIAGRAM) = JEDEC 9QL
Type of Cathode = Coated Unipotential
Operating Position = Any
MAXIMUM RATINGS – Design-Maximum Values

For operation as a Horizontal-Deflection-Amplifier Tube in a 525-line, 30-frame system.

DC Plate Supply Voltage \( E_{bb} \) 990 V
Peak Positive-Pulse Plate Voltage \( E_{pm} \) 7000 V
Peak Negative-Pulse Plate Voltage \( -E_{pm} \) 1100 V
DC Grid-No. 3 Voltage \( E_{c3} \) 75 V
DC Grid-No. 2 (Screen-Grid) Voltage \( E_{c2} \) 250 V
Peak Negative-Pulse Grid-No. 1 (Control-Grid) Voltage \( -E_{c1m} \) 330 V
Heater-Cathode Voltage:
  Peak \( E_{hkm} \) \( \pm 200 \) V
  Average \( E_{hk} \) 100 V
Heater Voltage: 6MC6 \( E_h \) 5.7 to 6.9 V
Heater Current: 36MC6 \( I_h \) 0.42 to 0.48 A
Cathode Current:
  Peak \( I_{km} \) 1400 mA
  Average \( I_{k(avg)} \) 400 mA
Grid-No. 2 Input \( P_{g2} \) 5 W
Plate Dissipation \( P_b \) 33 W
Envelope Temperature (at hottest point on envelope surface) \( T_E \) 250 °C

MAXIMUM CIRCUIT VALUES

Grid-No. 1 Circuit Resistance: \( R_{g(ckt)} \)
  Cathode bias 1.0 megohm
  (with min. \( R_K = 100 \Omega \))
  Grid-resistor bias 10.0 megohms
  (with signal peak clamped to zero bias)
  Fixed bias \( 0.47 \) megohm
  (where positive grid current is not drawn)

TERMINAL DIAGRAM – JEDEC 9QL (Bottom View)

Pin 1 – Grid No. 2
Pin 2 – Grid No. 1
Pin 3 – Cathode
Pin 4 – Heater
Pin 5 – Heater
Pin 6 – Grid No. 1
Pin 7 – Grid No. 2
Pin 8 – Grid No. 3
Pin 9 – Do Not Use
Top Cap – Plate

\( a \) Measured without external shield in accordance with the current issue of EIA Standard RS-191B.

\( b \) With grid No. 3 and grid No. 2 connected, respectively, to cathode and plate at socket.
Conditions: $E_b = E_c2 = 175\, \text{V}, E_c1 = -21\, \text{V}.$

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

Under pulse-duration condition specified in Footnote g.

As defined in the current issue of EIA Standard RS-239A.

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 $\mu$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.
DIMENSIONAL OUTLINE
JEDEC No. 12-117

1.562 (39.6)
1.438* (36.6*)

* Applies to the min. dia. except in the area of the seal

4.380 (111.25)
Max.

Dimensions in inches (mm)

TYPICAL PLATE CHARACTERISTICS

\[ E_h = \text{BOGEY VALUE} \]
GRID-No. 3 VOLTS=30
GRID-No. 2 VOLTS=110

RCA Electronic Components
DATA 2