Beam Power Tube

Pb = 30 W  Novar Type  Overload Pb = 200 W
For Color-TV Horizontal-Deflection Amplifier Circuits
Using 270 V to over 400 V "B" Supplies

ELECTRICAL CHARACTERISTICS—Bogey Values

Heater Voltage, ac or dc. ....... \( E_h \) ....... \( 6.3 \) V
Heater Current ................. \( I_h \) ....... 2.5 A
Direct Interelectrode Capacitances:

\[ \begin{align*}
\text{Grid No.1 to plate} & : \quad c_{g1-p} \quad 0.56 \quad \text{pF} \\
\text{Input: G1 to (K,G3,G2,H)} & : \quad c_i \quad 22 \quad \text{pF} \\
\text{Output: P to (K,G3,G2,H)} & : \quad c_o \quad 11 \quad \text{pF}
\end{align*} \]

For the following characteristics, see Conditions below:

Amplification Factor
\( (\text{T riode Connection}) \), \( \mu \) ....... \( - \) - 3 \( ^c \) - - 2.8 \( ^d \)
Plate Resistance
\( (\text{Approx.}) \) ....... \( r_p \) ....... \( - \) - 5800 \( - \) - 7000 \( \Omega \)
Transconductance ....... \( g_m \) ....... \( - \) - 9600 \( - \) - 7500 \( \mu \text{mho} \)
DC Plate Current ....... \( I_p \) ....... 580 \( ^e \) 130 - 710 \( ^e \) 95 \( \text{mA} \)
DC Grid-No.2 Current ....... \( I_{c2} \) ....... 40 \( ^e \) 2.8 - 55 \( ^e \) 2.4 \( \text{mA} \)
Cutoff DC Grid-No.1
Voltage for \( I_p = 1 \text{mA} \) ....... \( E_{c1(co)} \) ....... -120 - -54 -125 - -60 \( \text{V} \)

Conditions:

Heater Voltage ....... \( E_h \) ....... \( 6.3 \) V
Peak Positive-Pulse
Plate Voltage ....... \( e_{bm} \) ....... 5000 - - 5000 - - \( \text{V} \)
DC Plate Voltage ....... \( E_b \) ....... 55 175 - 60 175 \( \text{V} \)
DC Grid-No.3 Voltage ....... \( E_{c3} \) ....... 30 30 30 30 30 30 \( \text{V} \)
DC Grid-No.2 Voltage ....... \( E_{c2} \) ....... 125 125 125 145 145 145 \( \text{V} \)
DC Grid-No.1 Voltage ....... \( E_{c1} \) ....... 0 -25 - 0 -35 \( \text{V} \)

MECHANICAL CHARACTERISTICS

Dimensional Outline ....... JEDEC No.12-117
Envelope ....... JEDEC Designation T12
Top Cap ....... Small (JEDEC Designation C1-1)
Base ....... Large-Button Novar 9-Pin with Exhaust Tip (JEDEC Designation E9-88)
Terminal Connections
(See TERMINAL DIAGRAM) .......... JEDEC Designation 9QL
Type of Cathode ..................... Coated Unipotential

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 $m$ .......... $e_{bm}$ 7500 V
Peak Negative-Pulse Plate Voltage .......... $-e_{bm}$ 1100 V
DC Grid-No.3 Voltage $n$ .......... $E_{c3}$ 75 V
DC Grid-No.2 (Screen-Grid) Voltage .......... $E_{c2}$ 220 V
Peak Negative-Pulse Grid-No.1
(Control-Grid) Voltage .......... $-e_{clm}$ 330 V
Heater-Cathode Voltage:
Peak .......... $e_{hkm}$ 1200 V
Average .......... $E_{hk}$ 100 V
Heater Voltage, ac or dc .......... $E_h$ 5.7 to 6.9 V

Cathode Current:
Peak .......... $i_{km}$ 1200 mA
Average .......... $I_{kav}$ 350 mA

Grid-No.2 Input .......... $P_{g2}$ 5 W
Plate Dissipation $p$ .......... $P_b$ 30 W
Temporary Overload Plate Dissipation $q$ .......... $P_b$ 200 W

Envelope Temperature (at hottest point
on envelope surface) .......... $T_E$ 250 °C

MAXIMUM CIRCUIT VALUES

Grid-No.1 Circuit Resistance:
For grid-No.1-resistor-bias operation .......... $R_{g1(ckt)}$ 0.47 MΩ
For plate-pulsed operation (horizontal-
deflection circuits only) .......... - 10 MΩ

TERMINAL DIAGRAM (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-191.

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

c Conditions: $E_b = E_{c2} = 125 \text{ V}, E_{c1} = -25 \text{ V}$.

d Conditions: $E_b = E_{c2} = 145 \text{ V}, E_{c1} = -35 \text{ V}$.

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

f Under pulse-duration condition specified in Footnote m.
Designed to mate with connector of 0.360-inch cap, generally available from your local RCA Distributor.

Designed to mate with “Novar 9-Contact” Socket generally available from your local RCA Distributor.

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

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 μs.

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.

Total continuous or accumulated time not to exceed 40 seconds.

**TYPICAL CHARACTERISTICS**

- $E_h = BOGEY VALUE$
- GRID-No.3 VOLTS = 30
- GRID-No.1 VOLTS = 0

![Graph showing typical characteristics](92CM-13054RI)