Beam Power Tube

NOVAR TYPE

For Horizontal-Deflection-Amplifier Service
in Low-B+, Black-and-White TV Receivers

ELECTRICAL CHARACTERISTICS

Bogey Values

Heater Voltage (AC or DC) ............. $E_h$ 6.3 V
Heater Current ...................... $I_h$ 1.600 A

Direct Interelectrode Capacitances
Without external shield
Grid No.1 to plate .................. $C_{g1-p}$ 1.2 pF
Input: $G_1$ to ($K$, $G_3$, $G_2$, $H$) .......... $C_i$ 22 pF
Output: $P$ to ($K$, $G_3$, $G_2$, $H$) .......... $C_o$ 9.0 pF

For the following characteristics, see Conditions

Amplification Factor .......... $\mu$ ........... 4.7
Triode connection $\mu$
Plate Resistance (Approx.) ....... $R_p$ ........ 18 k$\Omega$
Transconductance ................ $G_m$ ........ 7000 $\mu$hmhos
DC Plate Current ................. $I_b$ 470 $b$ mA
DC Grid-No.2 Current ............. $I_{c2}$ 32 $b$ 1.5 mA
Cutoff DC Grid-No.1 Voltage .... $E_{cl(co)}$ -75 V
	Plate mA = 1

Conditions

Heater Voltage ............. $E_h$ Bogey value V
Peak Positive-Pulse
Plate Voltage .................. $E_{bm}$ 6500 V
DC Plate Voltage ............... $E_b$ 50 125 130 V
Grid No.3 ..................... Connected to cathode at socket
DC Grid-No.2 Voltage ......... $E_{c2}$ 125 125 125 125 V
DC Grid-No.1 Voltage ......... $E_{cl}$ 0 -20 -20 V

MECHANICAL CHARACTERISTICS

Operating Position ................. Any
Type of Cathode .................. Coated Unipotential
Maximum Overall Length .......... 3.550 in
Maximum Seated Length .......... 3.170 in
Maximum Diameter ................ 1.562 in
Dimensional Outline .............. See General Section
Envelope ......................... JEDEC T12
Top Cap ......................... Skirted Miniature (JEDEC C1-2 or C1-3)
Bases (alternates)
Large-Button Novar 9-Pin (JEDEC E9-76)
Large-Button Novar 9-Pin with Exhaust Tip (JEDEC F9-88)
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

DESIGN-MAXIMUM RATINGS

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

DC Plate Supply Voltage ............... 770 V
Peak Positive-Pulse Plate Voltage ... 6500 V
Peak Negative-Pulse Plate Voltage ... 1500 V
DC Grid-No.3 Voltage ................. 75 V
DC Grid-No.2 (Screen-Grid) Voltage ... 220 V
DC Grid-No.1 (Control-Grid) Voltage ... 55 V
Negative-bias value
Peak Negative-Pulse Grid-No.1 Voltage ... 330 V
Heater-Cathode Voltage

Peak .................. ±200 V
Average .................. 100 V
Heater Voltage (AC or DC) ............... 5.7 to 6.9 V

Cathode Current

Peak .................. 950 mA
Average .................. 275 mA

Grid-No.2 Input ................. 3.5 W
Plate Dissipation ............... 17 W
Envelope Temperature ............... 240 °C

At hottest point on envelope surface

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance Rg1(ckt)

For grid-No.1-resistor-bias operation ........... 0.47 MΩ
For plate-pulsed operation (horizontal-deflection circuits only) ........... 10 MΩ

a With grid No.2 connected to plate at socket.
b This value can be measured by a method involving a recurrent waveform such that the Maximum Ratings of the tube will not be exceeded.
c Under pulse-duration condition specified in Footnote d.
d This rating is applicable where 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 horizontal scanning cycle is 10 μs.
e In horizontal-deflection-amplifier service, a positive voltage may be applied to grid No.3 to reduce interference from "snivets" which may occur in both vhf and uhf television receivers. A typical operating value for this voltage is 30 V.
f An adequate bias resistor or other means is required to protect the tube in the absence of excitation.
Typical Characteristics

$E_{b}=\text{BOGEY VALUE}$
$\text{GRID No.3 CONNECTED TO CATHODE AT SOCKET}$
$\text{GRID-No.2 VOLTS}=\pm 25$

$\text{GRID-No.2 MILLIAMPERES (I_{C2})}$

$\text{PLATE MILLIAMPERES (I_{D})}$
Typical Plate Characteristics

$E_t =$ BOGEY VALUE
GRID No. 3 CONNECTED TO
CATHODE AT SOCKET.
GRID = No. 1 VOLTS = 0

PLATE MILLIAMPERES

GRID - No. 2 VOLTS = 500
GRID - No. 2 VOLTS = 400
GRID - No. 2 VOLTS = 300
GRID - No. 2 VOLTS = 200
GRID - No. 2 VOLTS = 100
GRID - No. 2 VOLTS = 75
GRID - No. 2 VOLTS = 50
GRID - No. 2 VOLTS = 25
GRID - No. 2 VOLTS = 15
GRID - No. 2 VOLTS = 10
GRID - No. 2 VOLTS = 5
GRID - No. 2 VOLTS = 2.5
GRID - No. 2 VOLTS = 1.5
GRID - No. 2 VOLTS = 1
GRID - No. 2 VOLTS = 0.5
GRID - No. 2 VOLTS = 0

PLATE VOLTS

92CM-12652R1