Beam Power Tube

NOVAR TYPE

For TV Horizontal-Deflection Amplifier Applications

Electrical:
Heater Ratings and Characteristics:
Voltage (AC or DC) .................. 6.3 ± 0.6 volts
Current at heater volts = 6.3 ........ 1.200 amp
Peak heater–cathode voltage:
Heater negative with respect to cathode . 200 max. volts
Heater positive with respect to cathode . 200 max. volts
Direct Interelectrode Capacitances (Approx.)
Grid No.1 to plate.................. 0.26 pf
Input: G1 to (K,G3,G2,H)............. 15.0 pf
Output: P to (K,G3,G2,H)............. 6.5 pf

Mechanical:
Operating Position........................... Any
Type of Cathode............................ Coated Unipotential
Maximum Overall Length.................. 3.180"
Maximum Seated Length................... 2.800"
Diameter.................................. 1.438" to 1.562"
Bulb..................................... T12
Base...................................... Large-Button Novar 9-Pin (JEDEC No.E9-76)
Basing Designation for BOTTOM VIEW....... 9QU

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

Characteristics, Class A1 Amplifier:
Plate Voltage.................................. 150 60 250 volts
Grid No.3.................................. — Connected to Cathode at socket
Grid-No.2 Voltage.......................... 150 150 150 volts
Grid-No.1 Voltage.......................... -22.5 0 -22.5 volts
Amplification Factor......................... 4.4 — —
Plate Resistance (Approx.).................. — — 15000 ohms
Transconductance......................... — — 7100 µmhos
Plate Current............................... — 390d 70 ma
Grid-No.2 Current.......................... — 32d 2.1 ma
Grid-No.1 Voltage (Approx.).............. — — -42 volts

for plate ma = 1
HORIZONTAL-DEFLECTION AMPLIFIER

Maximum Ratings, Design-Maximum Values:

For operation in a 525-line, 30-frame system

DC Plate Supply Voltage: 770 max. volts
Peak Positive-Pulse Plate Voltage: 6500 max. volts
Peak Negative-Pulse Plate Voltage: 1500 max. volts
DC Grid-No.3 (Suppressor-Grid) Voltage: 70 max. volts
DC Grid-No.2 (Screen-Grid) Voltage: 220 max. volts
DC Grid-No.1 (Control-Grid) Voltage:
  Negative-bias value: 55 max. volts
Peak Negative-Pulse Grid-No.1 Voltage: 330 max. volts
Cathode Current:
  Peak: 550 max. ma
  Average: 175 max. ma
Grid-No.2 Input: 3.5 max. watts
Plate Dissipation:
  17.5 max. watts
Bulb Temperature (At hottest point on bulb surface): 240 max. °C

Maximum Circuit Values:

Grid-No.1-Circuit Resistance: 1 max. megohm

a The dc component must not exceed 100 volts.
b Without external shield.
c With grid No.2 connected to plate at socket.
d This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.
e As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission.
f This rating is applicable where the duration of the voltage pulse does not exceed 15 per cent of one horizontal scanning cycle. In a 525-line, 30-frame system, 15 per cent of one horizontal scanning cycle is 10 microseconds.
g A positive voltage may be applied to grid No.3 to reduce interference from "snivets" which may occur in television receivers. A typical value for this voltage is 30 volts.
h An adequate bias resistor or other means is required to protect the tube in the absence of excitation.
* Measured from base seat to bulb-top line as determined by a ring gauge of 0.600" inside diameter.

** The minimum applies in the zone starting 0.375" from the base seat.
AVERAGE CHARACTERISTICS

$E_t = 6.3$ VOLTS
GRID No. 3 CONNECTED TO CATHODE AT SOCKET.
GRID-No. 2 VOLTS = 150

GRID-No. 2 MILLIAMPERES ($i_{c2}$)
0 25 50 75 100 125 150

GRID-No. 1 MILLIAMPERES ($i_{c1}$)
0 5 10 15 20 25

PLATE MILLIAMPERES ($i_b$)
450 400 350 300 250 200 150 100 50 0

PLATE VOLTS
100 200 300

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