Beam Pentode

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DARK HEATER PLATE CURRENT 30 WATTS NOVAR TYPE OVERLOAD Pb 200 WATTS

The 6LQ6 is a double-ended high perveance beam power pentode. This tube is especially useful as a horizontal-deflection amplifier tube in color-TV receivers.

Features of the 6LQ6 are, the endurance of excessive plate dissipation, the withstanding of a 200 watt plate dissipation for a period of time sufficient enough to permit conventional receiver protection devices to function and the capability to meet the stringent requirements of color-television deflection circuits.

GENERAL

ELECTRICAL

Cathode – Coated Unipotential

Heater Characteristics and Ratings
Heater Voltage, AC or DC ............. 6.3 Volts
Heater Current ................ 2.3 Amperes
Direct Interelectrode Capacitances
  Grid No. 1 to Plate (G1 to P) .... 0.56 pF
  Input G1 to (K,G3,G2,H) .......... 22 pF
  Output P to (K,G3,G2,H) ........ 11 pF

MECHANICAL

Operating Position – Any
Envelope T-12
Base E9-88 Large Button Novar 9-Pin with Exhaust Tip
Top Cap C1-1 Small
Outline Drawing EIA 12-117
  Maximum Diameter ............... 1.562 Inches
  Minimum Diameter ............... 1.438 Inches
  Maximum Overall Length ......... 4.380 Inches
  Maximum Seated Height ......... 4.000 Inches
  Minimum Seated Height ........ 3.750 Inches

PHYSICAL DIMENSIONS

TERMINAL CONNECTIONS
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 – Internal Connection
  (Do Not Use)
Top Cap – Plate

BASE DIAGRAM

9 Q L
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.

### MAXIMUM RATINGS

#### DC Plate Supply Voltage
- **Peak Positive—Pulse Plate Voltage**: 990 Volts
- **Peak Negative—Pulse Plate Voltage**: 7500 Volts
- **DC Grid—No. 3 Voltage**: 1100 Volts
- **DC Grid—No. 2 (Screen—Grid) Voltage**: 75 Volts
- **DC Grid—No. 1 (Control—Grid) Voltage**: 220 Volts
- **Heater—Cathode Voltage**: 330 Volts
- **Peak**: ±200 Volts
- **Average**: 100 Volts
- **Heater Voltage, ac or dc**: 5.7 to 6.9 Volts

#### Cathode Current
- **Peak**: 1200 Milliamperes
- **Average**: 350 Milliamperes
- **Grid—No. 2 Input**: 5 Watts
- **Plate Dissipation**: 30 Watts
- **Temporary Overload Plate Dissipation**: 200 Watts
- **Envelope Temperature (at hottest point on envelope surface)**: 250°C

### 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

### CHARACTERISTICS AND TYPICAL OPERATION

#### Amplification Factor (Triode Connection)
- **Peak**: 3
- **Average**: 2.8

#### Plate Resistance (Approx.)
- **Peak**: 5800
- **Average**: 7000 Ω

#### Transconductance
- **Peak**: 580 * 130
- **Average**: 710 * 95 \(\mu\) mho

#### DC Plate Current
- **Peak**: 40 * 2.8
- **Average**: 55 * 2.4 Milliamperes

#### Cutoff DC Grid No. 1
- **Voltage for \(I_b = 1\text{mA}\)**: -120
- **Average**: -54, 125

#### Heater Voltage
- **Peak Positive—Pulse Plate Voltage**: 5000
- **Average**: 55

#### DC Plate Voltage
- **Peak**: 125
- **Average**: 125, 145

#### DC Grid No. 3 Voltage
- **Peak**: 30
- **Average**: 30

#### DC Grid No. 2 Voltage
- **Peak**: 125
- **Average**: 145

#### DC Grid No. 1 Voltage
- **Peak**: 0
- **Average**: -25

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BOGEY VALUE

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**Volt**
• Without external shield.

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

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

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

• 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 †

♦ For operation in a 525-line, 30 frame television system as described in “Standards of Good Engineering Practice Concerning Television Broadcast Stations,” Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

‡ 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.