

# Compactron Beam Pentode

**6LB6**

**FOR TV HORIZONTAL-DEFLECTION  
AMPLIFIER APPLICATIONS**

The 6LB6 is a compactron beam-power pentode primarily designed for use as the horizontal-deflection amplifier in color television receivers. It is characterized by having a very low knee voltage, high plate-to-screen ratio, and high peak current capability. These efficiency factors make the 6LB6 widely adaptable for use in circuits using shunt or variable-bias type regulation with B+ supply voltages from 240 to over 400 volts. Its low knee minimizes "snivets" without the necessity of supplying special voltages to the beam plates.

## GENERAL

### ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC\* . . . 6.3±0.6 Volts

Heater Current† . . . . . 2.25 Amperes

Direct Interelectrode Capacitances, approximate§

Grid-Number 1 to Plate: (g1 to p) . 0.44 pf

Input: g1 to (h + k + g2 + b.p.) . 33 pf

Output: p to (h + k + g2 + b.p.) . 18 pf

### MECHANICAL

Operating Position - Any

Envelope - T-12, Glass

Base - E12-74, Button 12-Pin

Top Cap - C1-2, Skirted Miniature

Outline Drawing - EIA 12-90

Maximum Diameter . . . . . 1.563 Inches

Minimum Diameter . . . . . 1.437 Inches

Maximum Over-all Length. . . . . 4.375 Inches

Maximum Seated Height . . . . . 4.000 Inches

Minimum Seated Height . . . . . 3.750 Inches

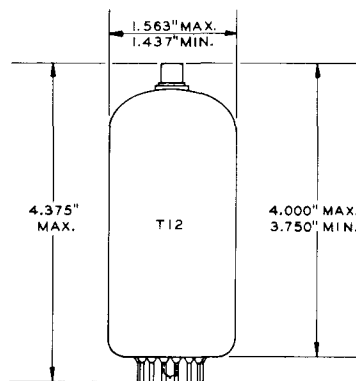
## MAXIMUM RATINGS

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.

### PHYSICAL DIMENSIONS

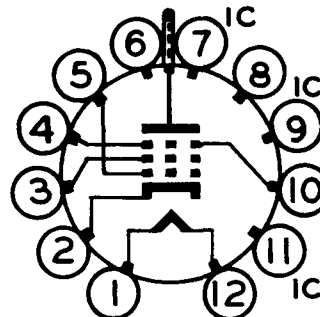


EIA 12-90

### TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Cathode
- Pin 3 - Grid Number 2 (Screen)
- Pin 4 - Beam Plates
- Pin 5 - Grid Number 1
- Pin 6 - No Connection
- Pin 7 - Internal Connection - Do Not Use
- Pin 8 - No Connection
- Pin 9 - Internal Connection - Do Not Use
- Pin 10 - Beam Plates
- Pin 11 - Internal Connection - Do Not Use
- Pin 12 - Heater
- Cap - Plate

### BASING DIAGRAM



EIA 12GJ

**MAXIMUM RATINGS (Cont'd)****HORIZONTAL-DEFLECTION AMPLIFIER SERVICE†—****DESIGN-MAXIMUM VALUES UNLESS OTHERWISE INDICATED**

|                                                                    |      |              |
|--------------------------------------------------------------------|------|--------------|
| DC Plate-Supply Voltage (Boost + DC Power Supply).                 | 990  | Volts        |
| Peak Positive Pulse Plate Voltage (Absolute Maximum Value).        | 7000 | Volts        |
| Peak Negative Pulse Plate Voltage . . . . .                        | 100  | Volts        |
| Positive DC Beam Plate Voltage . . . . .                           | 0    | Volts        |
| Screen Voltage . . . . .                                           | 200  | Volts        |
| Peak Negative Grid-Number 1 Voltage . . . . .                      | 300  | Volts        |
| Plate Dissipation# (Absolute Maximum Value).                       | 30   | Watts        |
| Screen Dissipation . . . . .                                       | 5.0  | Watts        |
| DC Cathode Current . . . . .                                       | 315  | Milliamperes |
| Peak Cathode Current . . . . .                                     | 1100 | Milliamperes |
| Heater-Cathode Voltage                                             |      |              |
| Heater Positive with Respect to Cathode                            |      |              |
| DC Component . . . . .                                             | 100  | Volts        |
| Total DC and Peak . . . . .                                        | 200  | Volts        |
| Heater Negative with Respect to Cathode                            |      |              |
| Total DC and Peak . . . . .                                        | 200  | Volts        |
| Grid Number 1 Circuit Resistance                                   |      |              |
| With Feedback-Type High Voltage Regulation . . . . .               | 1.2  | Megohms      |
| With Shunt-Type High Voltage Regulation (Switching Mode) . . . . . | 10.0 | Megohms      |
| Beam Plate Circuit Resistance . . . . .                            | 0    | Ohms         |
| Bulb TemperatureΔ . . . . .                                        | 200  | C            |

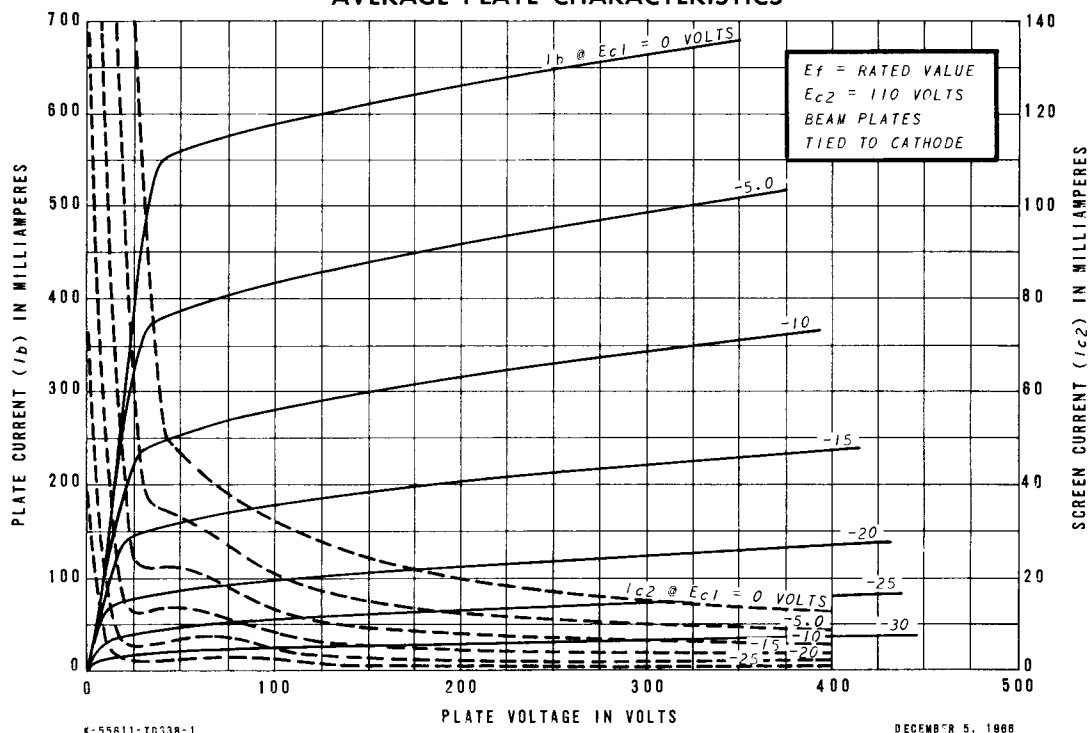
**CHARACTERISTICS AND TYPICAL OPERATION****AVERAGE CHARACTERISTICS**

|                                            |      |       |       |       |              |
|--------------------------------------------|------|-------|-------|-------|--------------|
| Plate Voltage. . . . .                     | 5000 | 45    | 50    | 150   | Volts        |
| Beam Plates Connected to Cathode at Socket |      |       |       |       |              |
| Screen Voltage . . . . .                   | 110  | 160   | 110   | 110   | Volts        |
| Grid-Number 1 Voltage . . . . .            | ---  | 0     | ---   | -20   | Volts        |
| Plate Resistance, approximate . . . . .    | ---  | ---   | ---   | 6600  | Ohms         |
| Transconductance. . . . .                  | ---  | ---   | ---   | 13400 | Micromhos    |
| Plate Current. . . . .                     | ---  | 900** | 560** | 105   | Milliamperes |
| Screen Current . . . . .                   | ---  | 110** | 46**  | 2.0   | Milliamperes |
| Grid-Number 1 Voltage, approximate         |      |       |       |       |              |
| Ib = 1.0 Milliamperes . . . . .            | -125 | ---   | ---   | -40   | Volts        |
| Triode Amplification Factor†† . . . . .    | ---  | ---   | ---   | 4.0   |              |

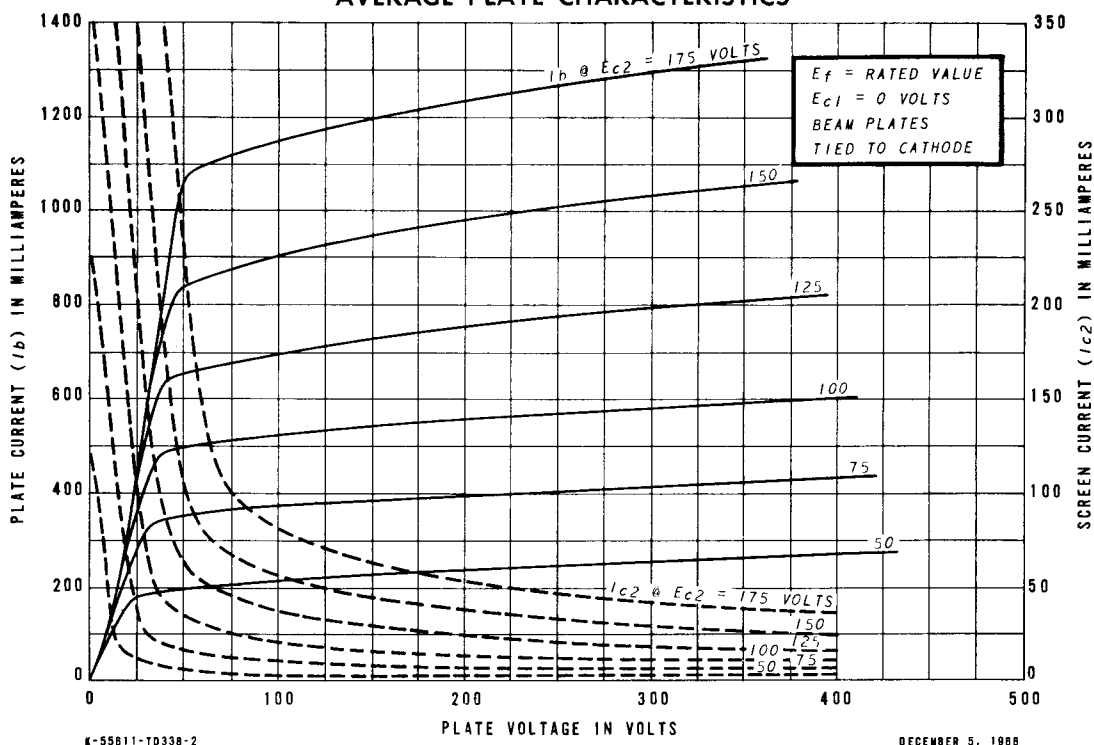
**NOTES**

- \* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.
- ‡ Heater current of a bogey tube at Ef = 6.3 volts.
- § Without external shield.
- ¶ 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 stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.
- Δ Measured using a thermocouple attached to a 0.1-inch wide phosphor-bronze ring placed at the hottest location on the bulb.
- \*\* Values measured by a method involving a recurrent waveform such that the plate and screen dissipation will be kept within ratings in order to prevent damage to the tube.
- †† Triode connection (screen tied to plate) with Eb = Ec2 = 125 volts, and Ec1 = -25 volts.

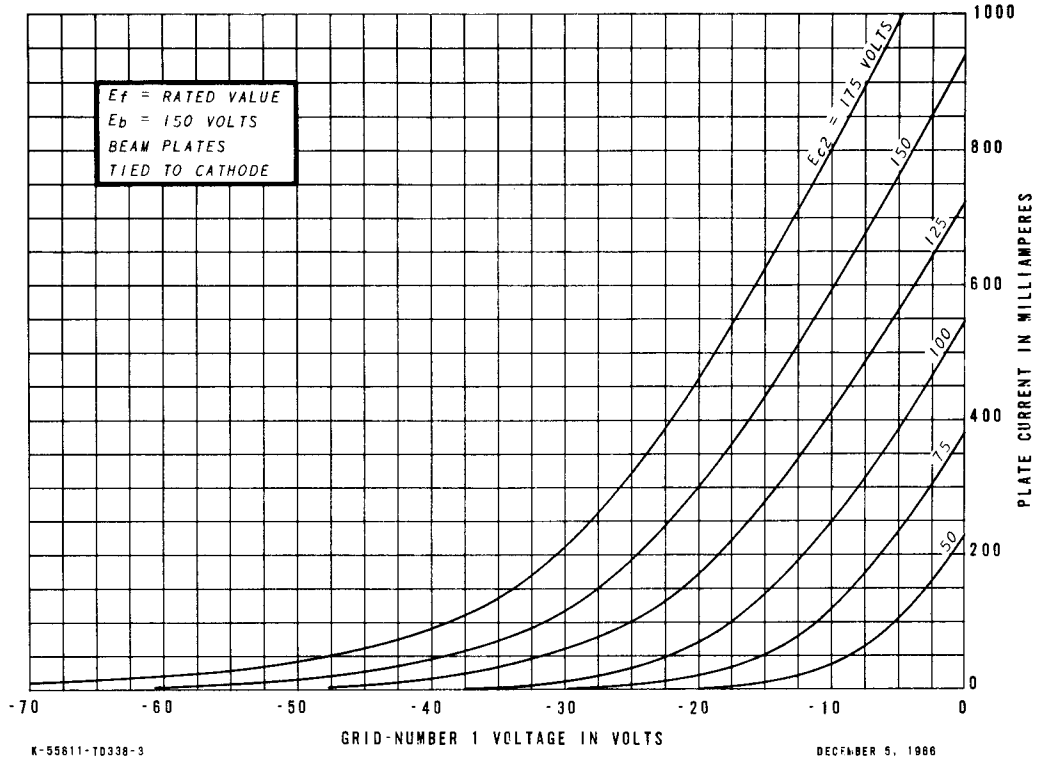
# AVERAGE PLATE CHARACTERISTICS



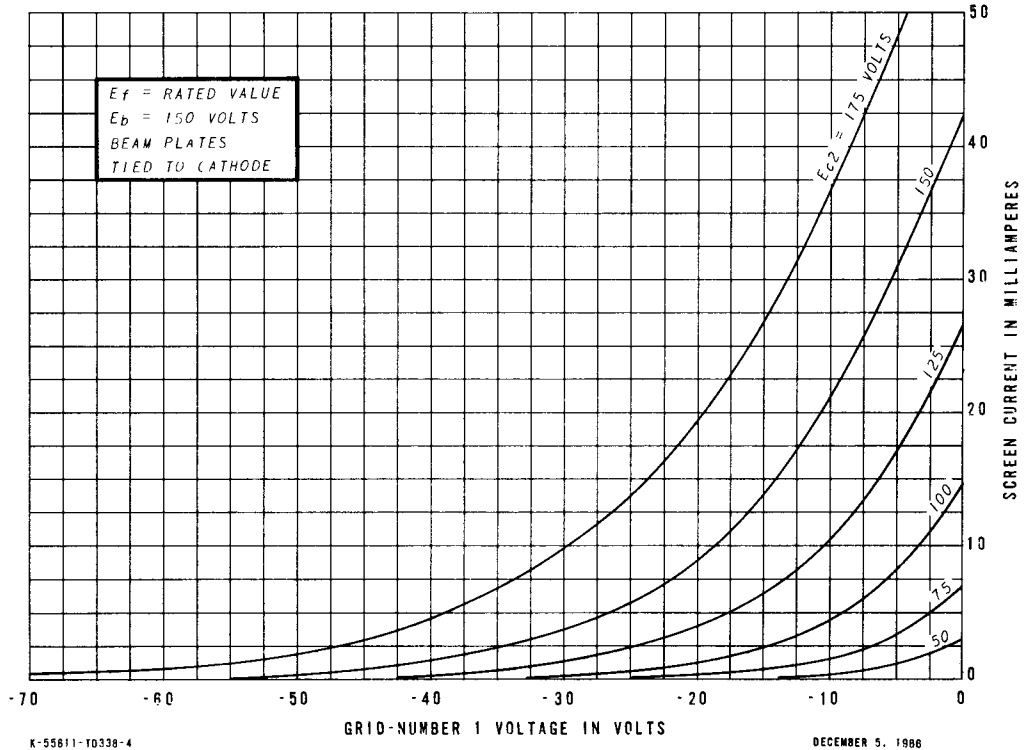
# AVERAGE PLATE CHARACTERISTICS



# AVERAGE TRANSFER CHARACTERISTICS



# AVERAGE TRANSFER CHARACTERISTICS



TUBE DEPARTMENT

**GENERAL  ELECTRIC**

Owensboro, Kentucky