



## DESCRIPTION AND RATING

### FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

The 6DQ6-B is a beam-power pentode primarily designed for use as the horizontal-deflection amplifier in television receivers. Its high zero-bias plate current at low plate and screen voltages makes the tube well suited for use in receivers that operate at low plate-supply voltages. It differs from the 6DQ6-A in having higher ratings and higher zero-bias plate current.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential  
 Heater Characteristics and Ratings  
 Heater Voltage, AC or DC\* . . . . . 6.3 ± 0.6 Volts  
 Heater Current† . . . . . 1.2 Amperes  
 Direct Interelectrode Capacitances, approximate‡  
 Grid-Number 1 to Plate: (g1 to p) . . . . . 0.5 pf  
 Input: g1 to (h+k+g2+b.p.) . . . . . 15 pf  
 Output: p to (h+k+g2+b.p.) . . . . . 7.0 pf

#### MECHANICAL

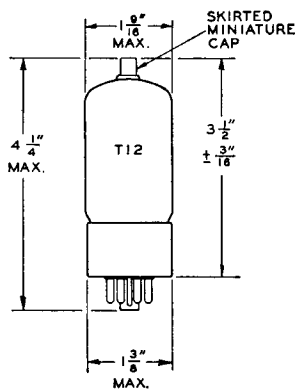
Mounting Position—Any  
 Envelope—T-12, Glass  
 Base—B6-122, Short Medium-Shell Octal 6-Pin  
 or B6-148, Short Medium-Shell Octal 6-Pin  
 or B7-111, Short Medium-Shell Octal 7-Pin  
 or B7-119, Short Medium-Shell Octal 7-Pin  
 Top Cap—C1-3, Skirted Miniature  
 Outline Drawing—EIA 12-51  
 Maximum Diameter . . . . . 1 <sup>9</sup>/<sub>16</sub> Inches  
 Maximum Over-all Length . . . . . 4 <sup>1</sup>/<sub>4</sub> Inches  
 Maximum Seated Height . . . . . 3 <sup>1</sup>/<sub>16</sub> Inches

### MAXIMUM RATINGS

#### HORIZONTAL-DEFLECTION AMPLIFIER SERVICE†—DESIGN-MAXIMUM VALUES

|   |   |
|---|---|
| DC Plate-Supply Voltage (Boost + DC Power Supply) . . . . . 770 Volts | Peak Cathode Current . . . . . 610 Milliamperes     |
| Peak Positive Pulse Plate Voltage . . . 6500 Volts                    | Heater-Cathode Voltage                              |
| Peak Negative Pulse Plate Voltage . . . 1500 Volts                    | Heater Positive with Respect to Cathode             |
| Screen Voltage . . . . . 220 Volts                                    | DC Component . . . . . 100 Volts                    |
| Peak Negative Grid-Number 1 Voltage . 330 Volts                       | Total DC and Peak . . . . . 200 Volts               |
| Plate Dissipation * . . . . . 18 Watts                                | Heater Negative with Respect to Cathode             |
| Screen Dissipation . . . . . 3.6 Watts                                | Total DC and Peak . . . . . 200 Volts               |
| DC Cathode Current . . . . . 175 Milliamperes                         | Grid-Number 1 Circuit Resistance . . . . 1.0 Megohm |
|   | Bulb Temperature at Hottest Point . . . 220 C       |

#### PHYSICAL DIMENSIONS

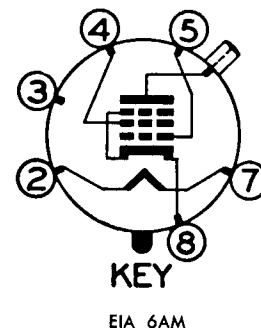


EIA 12-51

#### TERMINAL CONNECTIONS

- Pin 1—No Connection §
- Pin 2—Heater
- Pin 3—No Connection
- Pin 4—Grid Number 2 (Screen)
- Pin 5—Grid Number 1
- Pin 7—Heater
- Pin 8—Cathode and Beam Plates
- Cap—Plate

#### BASING DIAGRAM



## CHARACTERISTICS AND TYPICAL OPERATION

### AVERAGE CHARACTERISTICS

|  |      |            |       |              |
|--|------|------------|-------|--------------|
| Plate Voltage.....                       | 5000 | 60         | 250   | Volts        |
| Screen Voltage.....                      | 150  | 150        | 150   | Volts        |
| Grid-Number 1 Voltage.....               |      | 0 $\Delta$ | -22.5 | Volts        |
| Plate Resistance, approximate.....       |      |            | 18000 | Ohms         |
| Transconductance.....                    |      |            | 7300  | Micromhos    |
| Plate Current.....                       |      | 345        | 65    | Milliamperes |
| Screen Current.....                      |      | 27         | 1.8   | Milliamperes |
| Grid-Number 1 Voltage, approximate       |      |            |       |              |
| I <sub>b</sub> = 1.0 Milliamperes.....   | -100 |            | -42   | Volts        |
| Triode Amplification Factor $\phi$ ..... |      |            | 4.4   |              |

\* 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  $E_F = 6.3$  volts.

‡ Without external shield.

§ Pin 1 is omitted when either a B6-122 or B6-148 base is used.

¶ 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.

$\Delta$  Applied for short interval (two seconds maximum) so as not to damage tube.

$\phi$  Triode connection (screen tied to plate) with  $E_b = E_{c2} = 150$  volts, and  $E_{c1} = -22.5$  volts.

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.

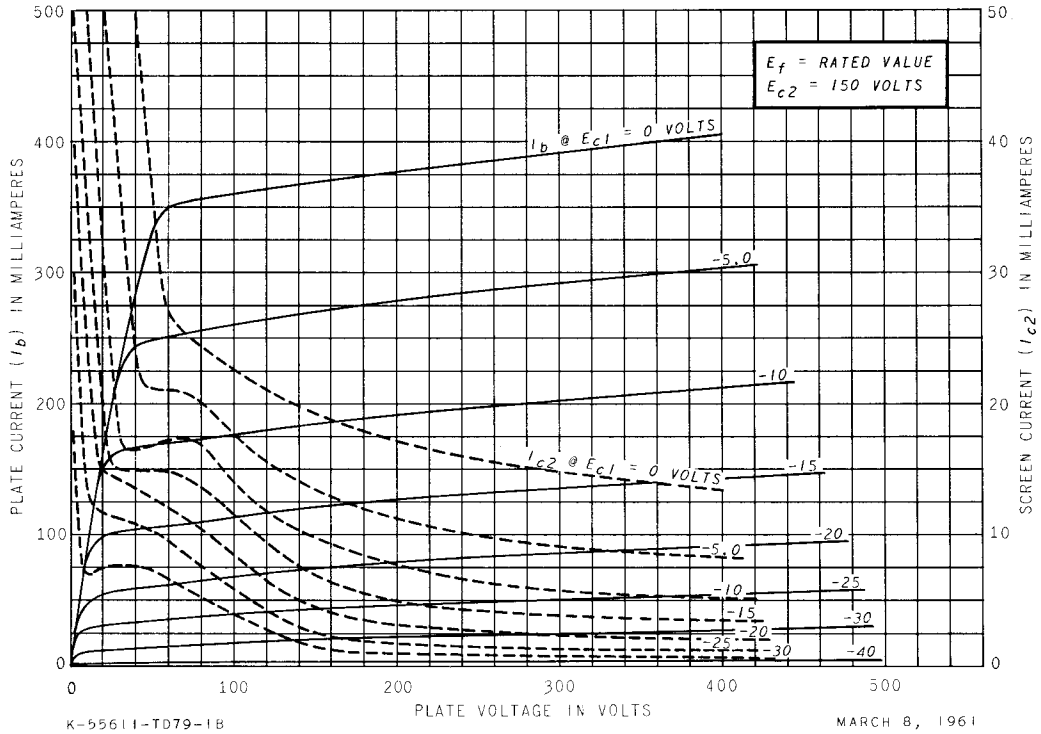
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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.

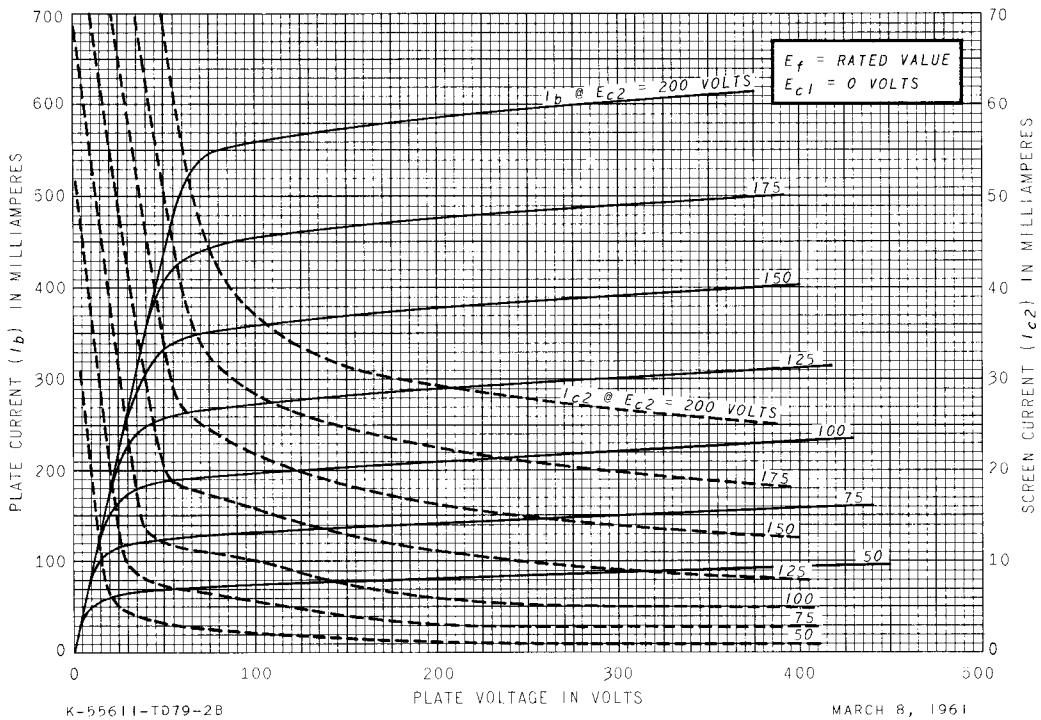
The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or

elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

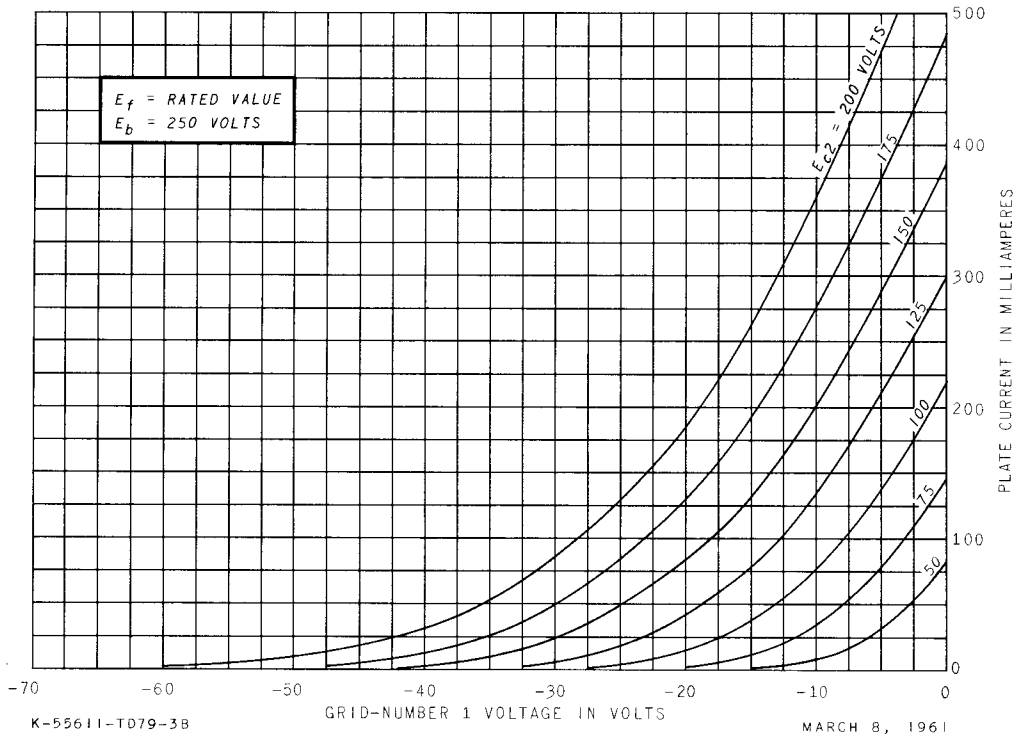
**AVERAGE PLATE CHARACTERISTICS**



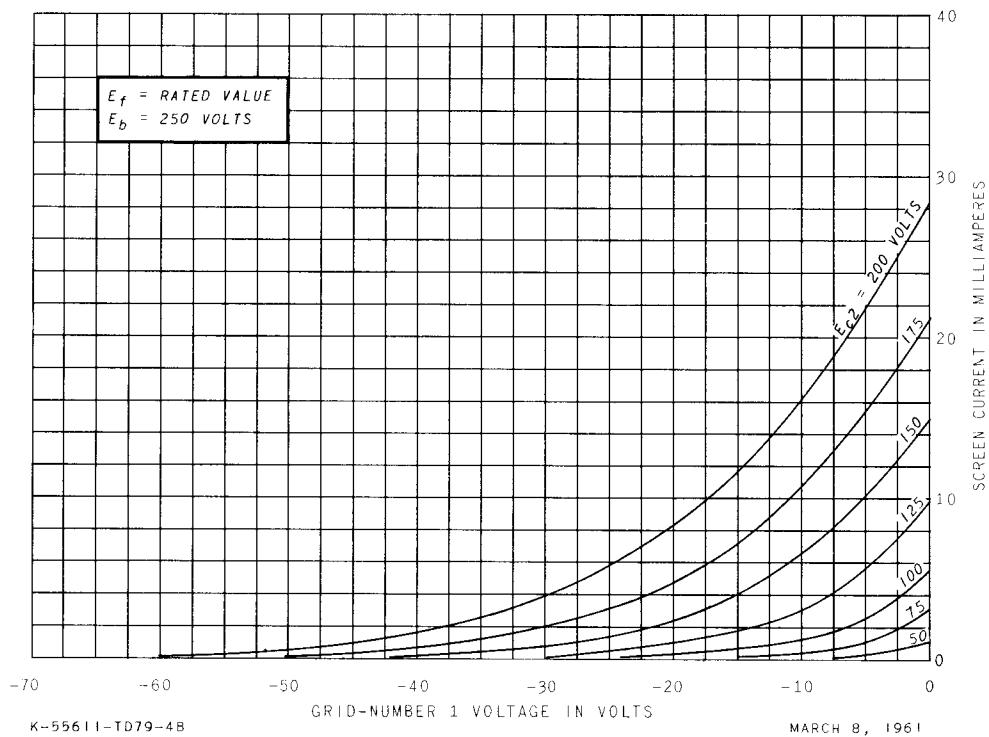
**AVERAGE PLATE CHARACTERISTICS**



### AVERAGE TRANSFER CHARACTERISTICS



### AVERAGE TRANSFER CHARACTERISTICS



RECEIVING TUBE DEPARTMENT



Owensboro, Kentucky