

**— PRODUCT INFORMATION —**

**6KD6**

**Compactron Beam Pentode**

**FOR TV HORIZONTAL-DEFLECTION  
AMPLIFIER APPLICATIONS**

- COLOR TV TYPE
- 33 WATTS PLATE DISSIPATION
- 280 VOLTS B+
- 400 MILLIAMPERES DC CATHODE CURRENT
- OVER 1 AMPERE PEAK CURRENT

The 6KD6 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 with a very high peak current of over an ampere. This results in a basic capability to scan 90-degree large screen color picture tubes at 25 KV from 280-volt power supplies. 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† . . . . . 2.85 Amperes  
 Direct Interelectrode Capacitances, approximate§  
 Grid-Number 1 to Plate:  
 (g1 to p) . . . . . 0.8 pf  
 Input: g1 to (h + k + g2 + b.p.) . 40 pf  
 Output: p to (h + k + g2 + b.p.) . 16 pf

**MECHANICAL**

Operating Position - Any  
 Envelope - T-12, Glass  
 Base - E12-74, Button 12-Pin  
 Top Cap - C1-2, Skirted Miniature  
 Outline Drawing - EIA 12-118  
 Maximum Diameter . . . . . 1.563 Inches  
 Minimum Diameter . . . . . 1.437 Inches  
 Maximum Over-all Length. . . . 4.625 Inches  
 Maximum Seated Height . . . . . 4.250 Inches  
 Minimum Seated Height . . . . . 4.000 Inches

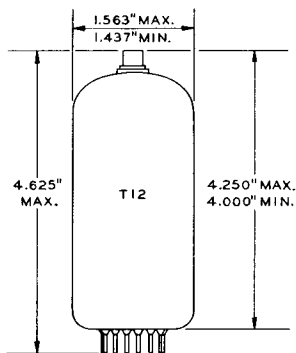
**MAXIMUM RATINGS**

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**

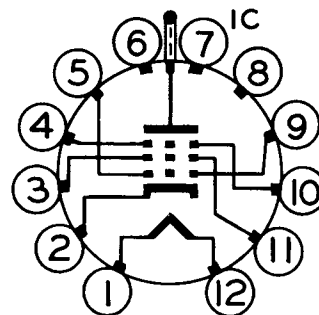


EIA 12-118

**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 - Grid Number 1
- Pin 10 - Beam Plates
- Pin 11 - Grid Number 2 (Screen)
- Pin 12 - Heater
- Cap - Plate

**BASING DIAGRAM**



EIA 12GW



**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	. . . . .	7000	Volts
Positive DC Beam Plate Voltage	. . . . .	20	Volts
Screen Voltage	. . . . .	200	Volts
Peak Negative Grid-Number 1 Voltage	. . . . .	250	Volts
Plate Dissipation# (Absolute-Maximum Value)	. . . . .	33	Watts
Screen Dissipation	. . . . .	5.0	Watts
DC Cathode Current	. . . . .	400	Milliamperes
Peak Cathode Current	. . . . .	1400	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	. . . . .	2.0	Megohms
Beam Plate Circuit Resistance	. . . . .	0.01	Megohms
Bulb Temperature $\Delta$	. . . . .	225	C

**CHARACTERISTICS AND TYPICAL OPERATION**

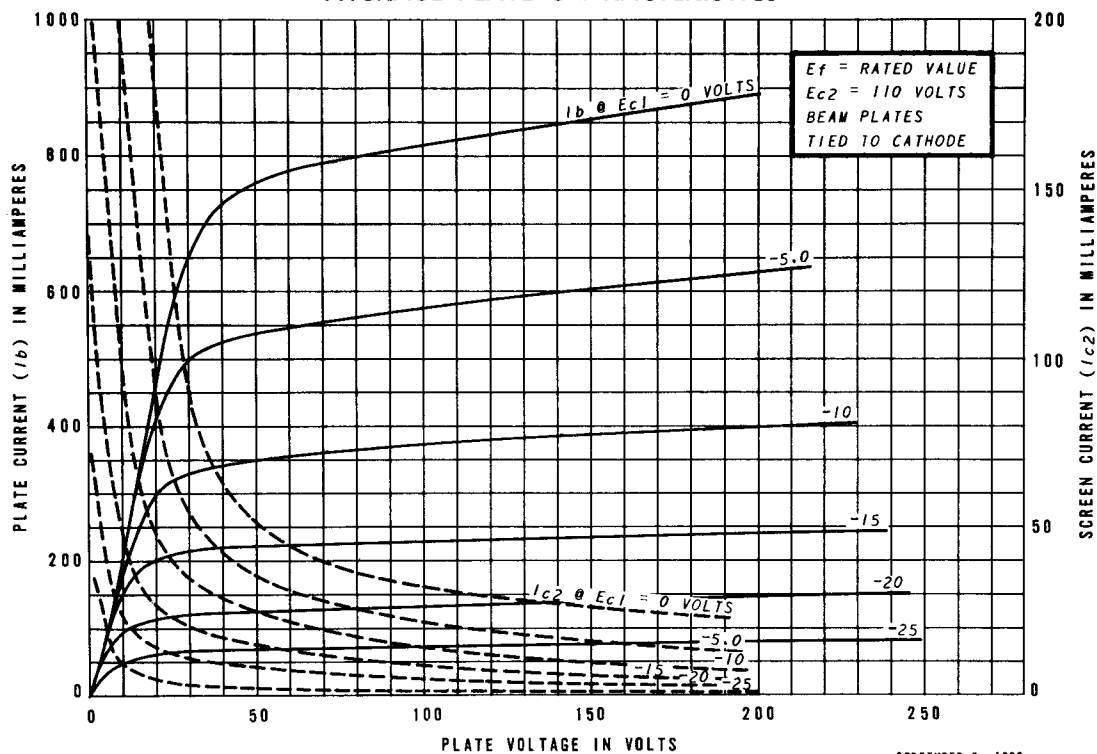
**AVERAGE CHARACTERISTICS**

Plate Voltage	. . . . .	5000	45	60	150	Volts
Beam Plates Connected to Cathode at Socket						
Screen Voltage	. . . . .	110	160	110	110	Volts
Grid-Number 1 Voltage	. . . . .	---	0	0	-22.5	Volts
Plate Resistance, approximate	. . . . .	---	---	---	6000	Ohms
Transconductance	. . . . .	---	---	---	14000	Micromhos
Plate Current	. . . . .	---	1100**	780**	100	Milliamperes
Screen Current	. . . . .	---	110**	44**	2.0	Milliamperes
Grid-Number 1 Voltage, approximate						
Ib = 1.0 Milliamperes	. . . . .	-125	---	---	-40	Volts
Triode Amplification Factor**	. . . . .	---	---	---	4.0	

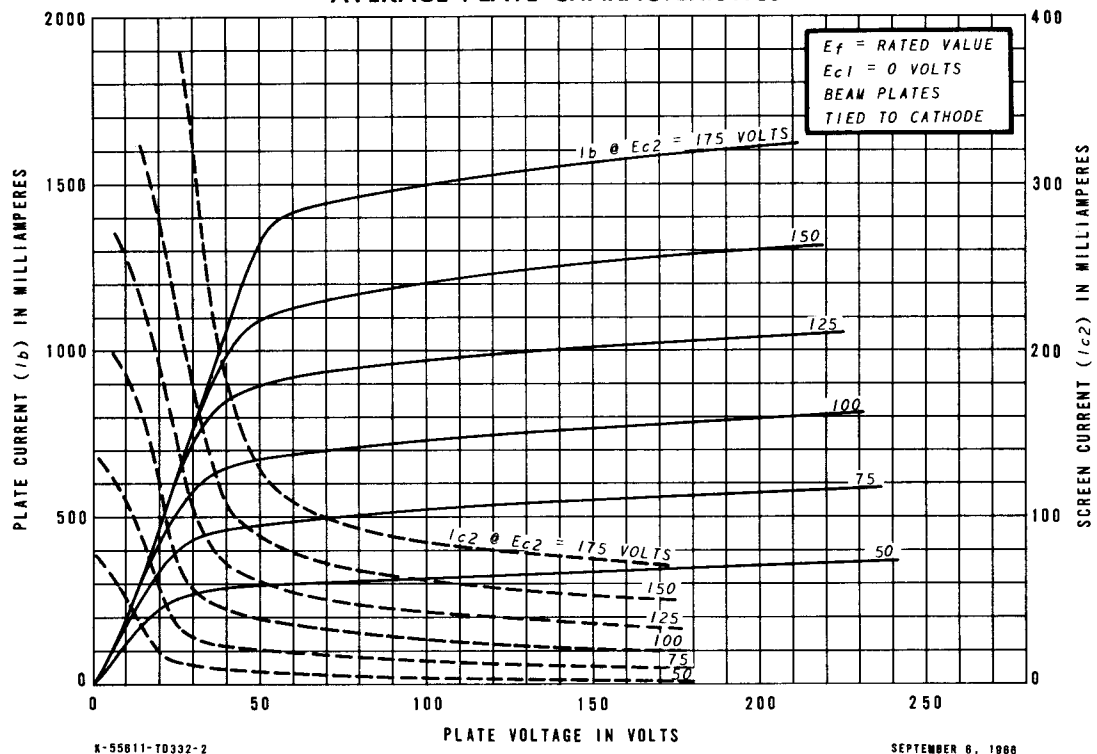
**NOTES**

- \* 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 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.
- $\Delta$  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 dissipations will be kept within ratings in order to prevent damage to the tube.
- \*\* Triode connection (screen tied to plate) with Eb = Ec2 = 150 volts, and Ecl = -22.5 volts.

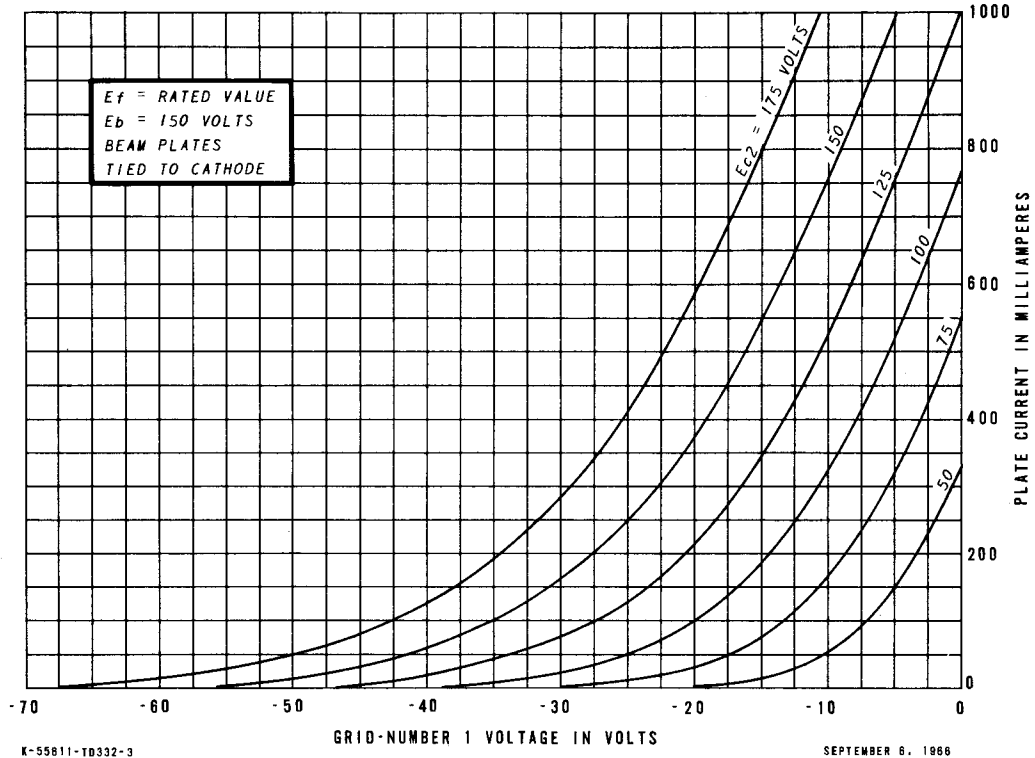
### AVERAGE PLATE CHARACTERISTICS



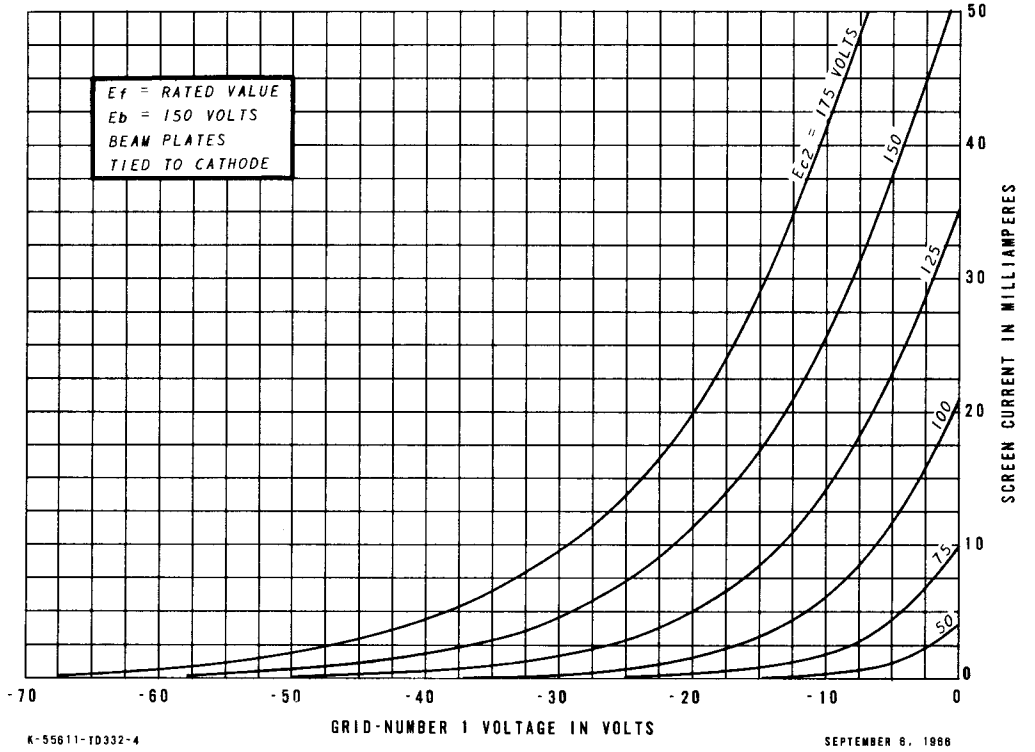
### AVERAGE PLATE CHARACTERISTICS



### AVERAGE TRANSFER CHARACTERISTICS



### AVERAGE TRANSFER CHARACTERISTICS



TUBE DEPARTMENT



Owensboro, Kentucky