

COMPACTRON BEAM PENTODE

FOR TV VERTICAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6HE5 is a compactron beam pentode designed for use as the vertical-deflection amplifier in television receivers.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	
Heater Characteristics and Ratings	
Heater Voltage, AC or DC*	6.3 ± 0.6 Volts
Heater Current †	0.8 Amperes
Direct Interelectrode Capacitances, approximate ‡	
Grid-Number 1 to Plate: (g1 to p)	0.54 pf
Input: g1 to (h+k+g2+b.p.)	9.5 pf
Output: p to (h+k+g2+b.p.)	7.0 pf

MECHANICAL

Operating Position—Any	
Envelope—T-9, Glass	
Base—E12-70, Button 12-Pin	
Outline Drawing—EIA 9-60	
Maximum Diameter	1.188 Inches
Maximum Over-all Length	2.875 Inches
Maximum Seated Height	2.500 Inches

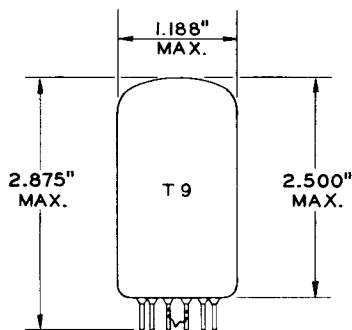
MAXIMUM RATINGS

VERTICAL-DEFLECTION AMPLIFIER SERVICE §
DESIGN-MAXIMUM VALUES

DC Plate Voltage	350 Volts
Peak Pulse Plate Voltage	2500 Volts
Screen Voltage	300 Volts
Plate Dissipation ¶	12 Watts
Screen Dissipation ¶	2.75 Watts
DC Cathode Current	75 Milliamperes
Peak Cathode Current	260 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 Fixed Bias	1.0 Megohms
With Cathode Bias	2.2 Megohms
Bulb Temperature at Hottest Point	200 C

PHYSICAL DIMENSIONS

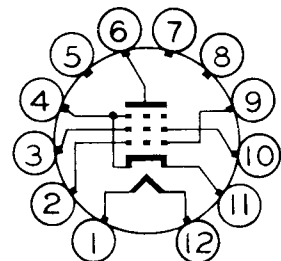


EIA 9-60

TERMINAL CONNECTIONS

- Pin 1—Heater
- Pin 2—Grid Number 1
- Pin 3—Grid Number 2 (Screen)
- Pin 4—Cathode and Beam Plates
- Pin 5—No connection
- Pin 6—Plate
- Pin 7—No Connection
- Pin 8—No Connection
- Pin 9—Grid Number 1
- Pin 10—Grid Number 2 (Screen)
- Pin 11—Cathode and Beam Plates
- Pin 12—Heater

BASING DIAGRAM



EIA 12EY

MAXIMUM RATINGS (CONT'D)

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.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	60	250	Volts
Screen Voltage	250	250	Volts
Grid-Number 1 Voltage	0 #	-20	Volts
Plate Resistance, approximate	—	50000	Ohms
Transconductance	—	4100	Micromhos
Plate Current	180	43	Milliamperes
Screen Current	20	3.5	Milliamperes
Grid-Number 1 Voltage, approximate I _b = 100 Microamperes	—	-50	Volts

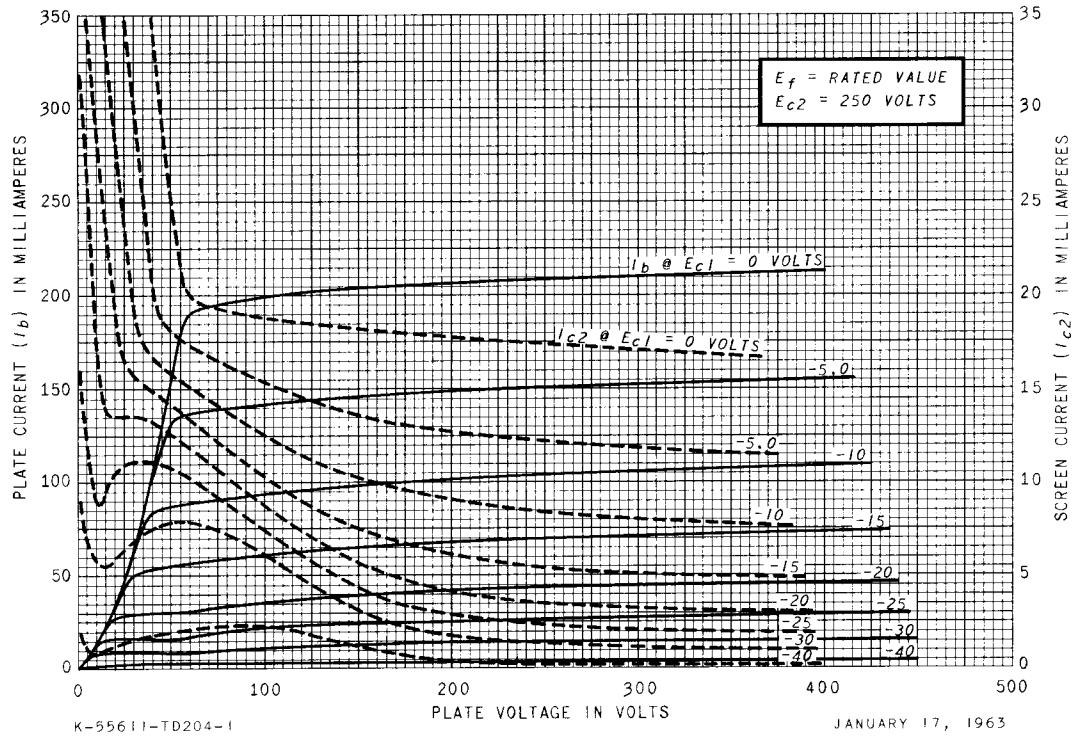
NOTES

- * 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 E_f = 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.
- # Applied for short interval (two seconds maximum) so as not to damage tube.

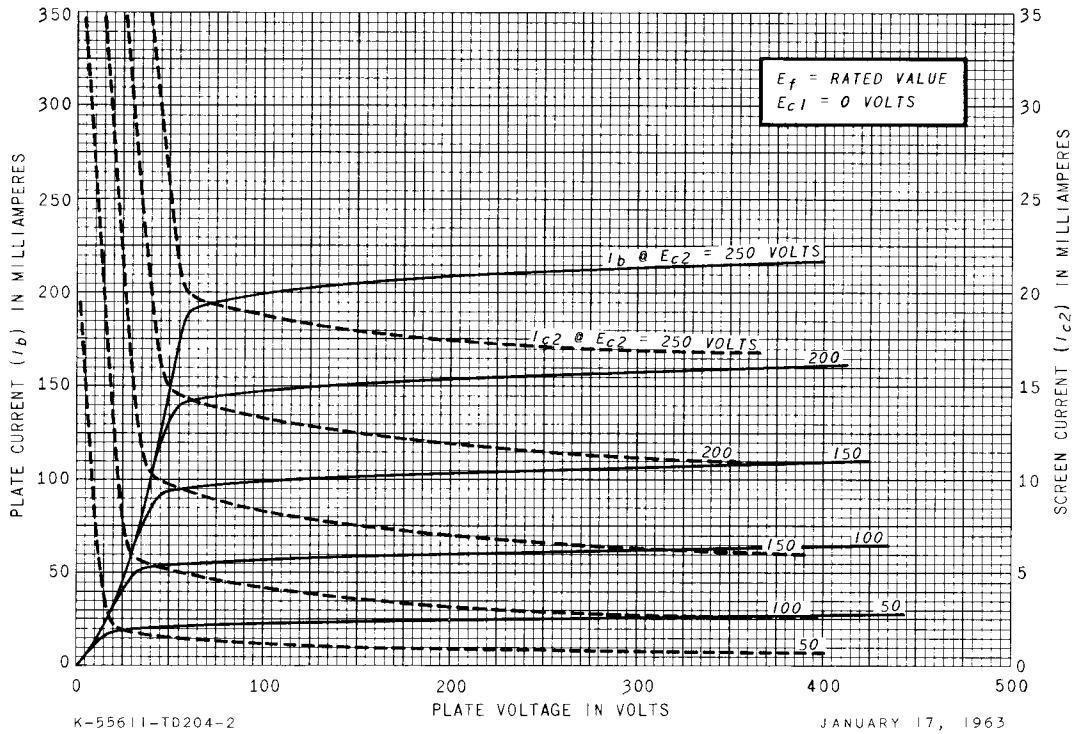
The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or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

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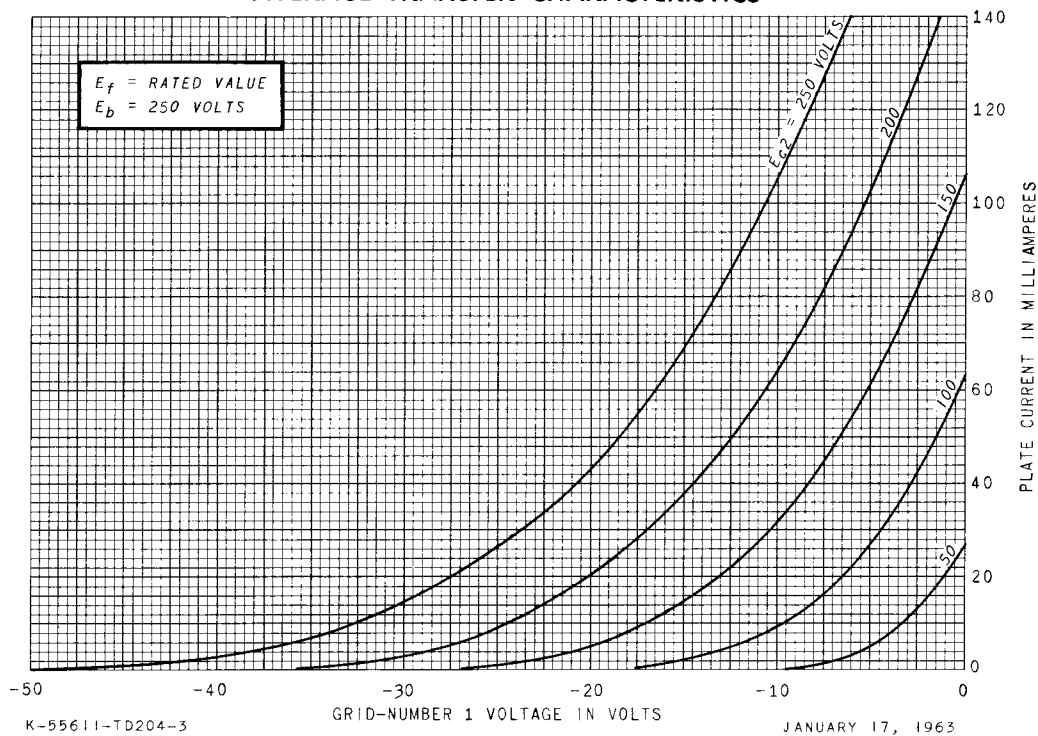
AVERAGE PLATE CHARACTERISTICS



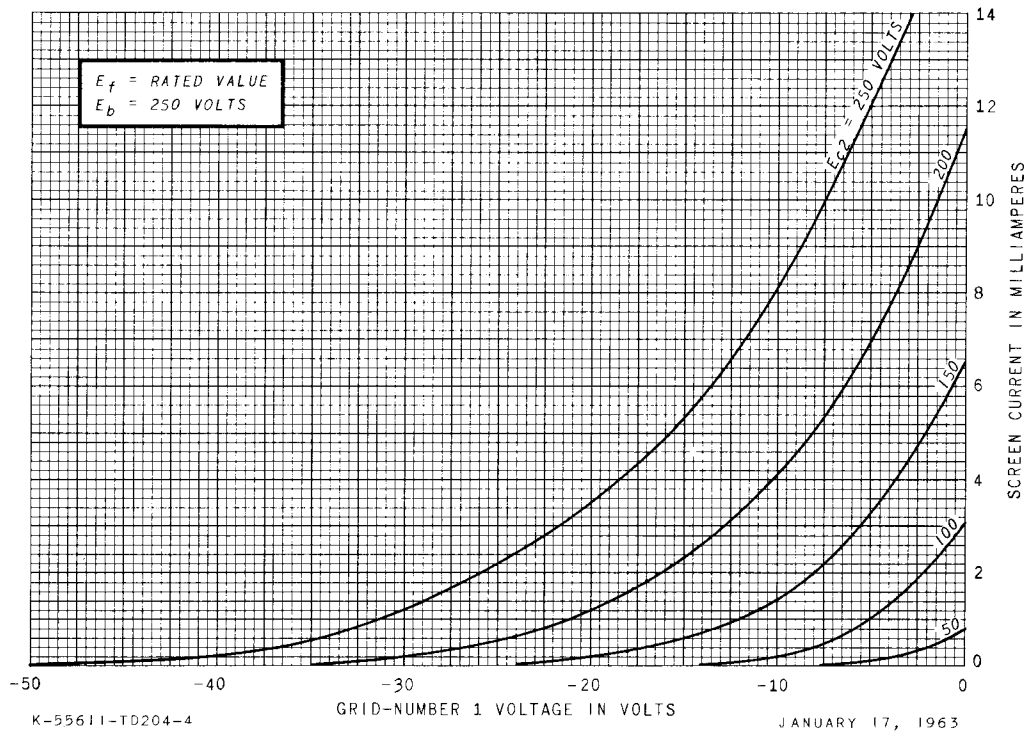
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



RECEIVING TUBE DEPARTMENT

GENERAL  ELECTRIC

Owensboro, Kentucky