ELECTRONIC INNOVATIONS IN ACTION

TUBES

—PRODUCT INFORMATION—

Triode-Pentode

6LR8

FOR TV VERTICAL-DEFLECTION OSCILLATOR AND AMPLIFIER APPLICATIONS

■ COLOR TV TYPE ■ T-12 ENVELOPE ■ TRIODE-PENTODE

The 6LR8 is a triode-pentode containing a high-mu triode and a beam pentode. The triode is designed for service as a vertical-deflection oscillator, and the pentode as a vertical-deflection amplifier in television receivers. The 6LR8 utilizes a T-12 bulb and features a 9-pin glass button base with a 0.687-inch pin circle.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

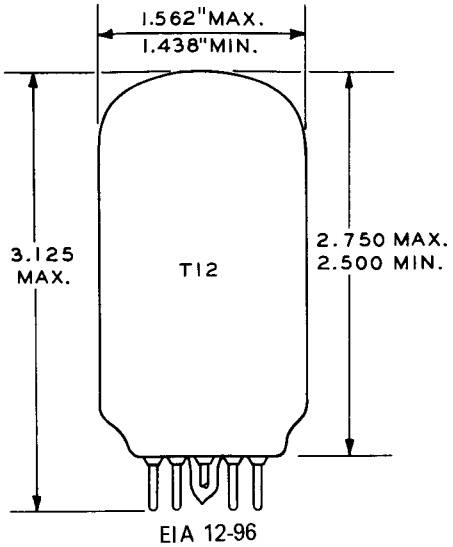
Heater Characteristics and Ratings		
Heater Voltage, AC or DC ★	6.3±0.6	Volts
Heater Current ●	1.5	Amperes
Direct Interelectrode Capacitances ▲		
Pentode Section		
Grid-Number 1 to Plate: maximum (Pg1 to Pp)	0.7	pf
Input: Pg1 to (h+Pk+Pg2+b.p.)	16	pf
Output: Pp to (h+Pk+Pg2+b.p.)	9.0	pf
Triode Section		
Grid to Plate: (Tg to Tp)	6.0	pf
Input: Tg to (h+Tk)	6.5	pf
Output: Tp to (h+Tk)	1.6	pf
Coupling		
Pentode Grid-Number 1 to Triode Plate: (Pg1 to Tp)	0.12	pf
Pentode Plate to Triode Plate: (Pp to Tp), maximum	0.32	pf

MECHANICAL

Operating Position - Any
Envelope - T-12, Glass
Base - E9-88, Button 9-Pin
Outline Drawing - EIA 12-96

Maximum Diameter	1.562	Inches
Minimum Diameter	1.438	Inches
Maximum Over-all Length	3.125	Inches
Maximum Seated Height	2.750	Inches
Minimum Seated Height	2.500	Inches

PHYSICAL DIMENSIONS

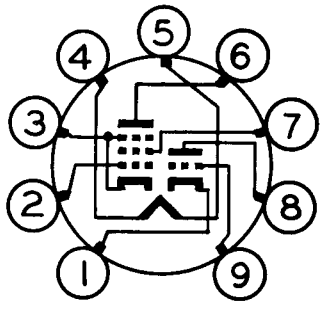


EIA 12-96

TERMINAL CONNECTIONS

Pin 1 - Triode Cathode
Pin 2 - Pentode Grid-Number 1
Pin 3 - Pentode Cathode and Beam Plates
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Pentode Plate
Pin 7 - Pentode Grid-Number 2 (Screen)
Pin 8 - Triode Plate
Pin 9 - Triode Grid

BASING DIAGRAM



EIA 9QT

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

	Vertical Oscillator Service ♦	Vertical Deflection Amplifier ♦	
Plate Voltage	400	400	Volts
Screen Voltage	---	300	Volts
Peak Positive Pulse Plate Voltage	---	2500	Volts
Peak Negative Grid-Number 1 Voltage	400	250	Volts
Plate Dissipation §	2.5	14	Watts
Screen Dissipation §	---	2.75	Watts
Average Cathode Current	30	75	Milliamperes
Peak Cathode Current	105	260	Milliamperes
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	---	1.0	Megohm
With Cathode Bias	2.2	2.2	Megohms
Bulb Temperature at Hottest Point ⊕		210	°C

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

	Triode Section	Pentode Section		
Plate Voltage	250	45	135	Volts
Screen Voltage	---	125	120	Volts
Grid-Number 1 Voltage	-4	0 □	-10	Volts
Plate Current	2.3	200	56	Milliamperes
Screen Current	---	20	3.0	Milliamperes
Transconductance	3600	---	9300	Micromhos
Amplification Factor	58	---	6.5 †	
Plate Resistance, approximate	16000	---	12000	Ohms
Grid Voltage, approximate				
Ib = 10 Microamperes	-6.6	---	---	Volts
Grid-Number 1 Voltage, approximate				
Ib = 1.0 Milliampere	---	---	-26	Volts
Grid-Number 1 Voltage, approximate				
Ib = 100 Microamperes	---	---	-30	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 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.

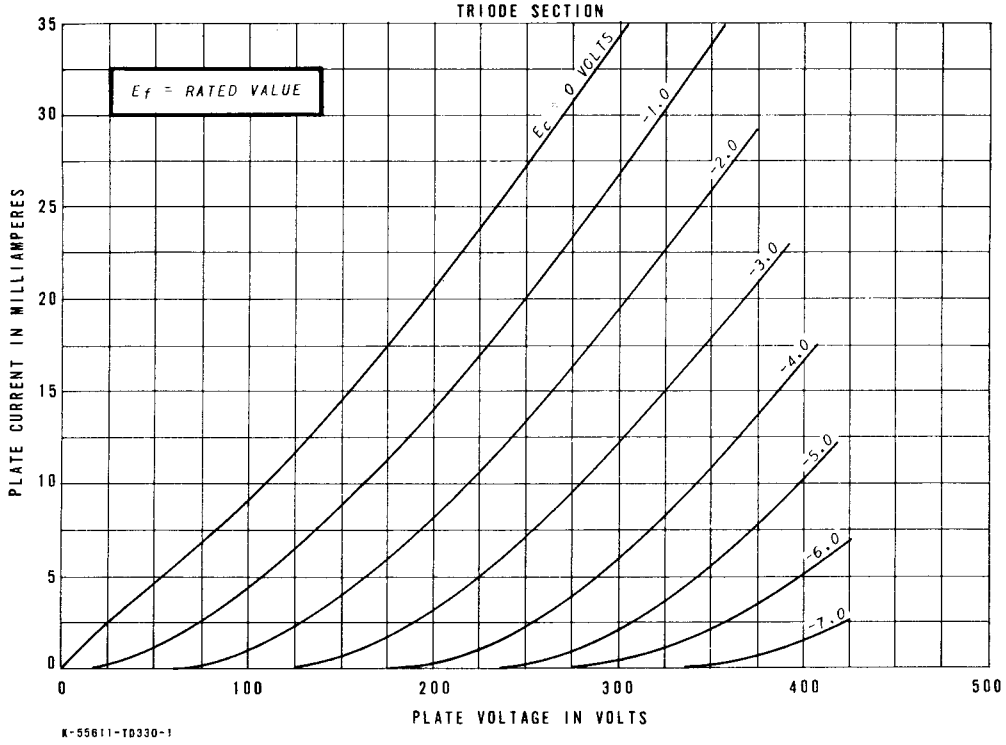
§ In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

⊕ Measured with an infrared themometer, Ircon Model 700 BC or equivalent, at an ambient temperature of 40° C.

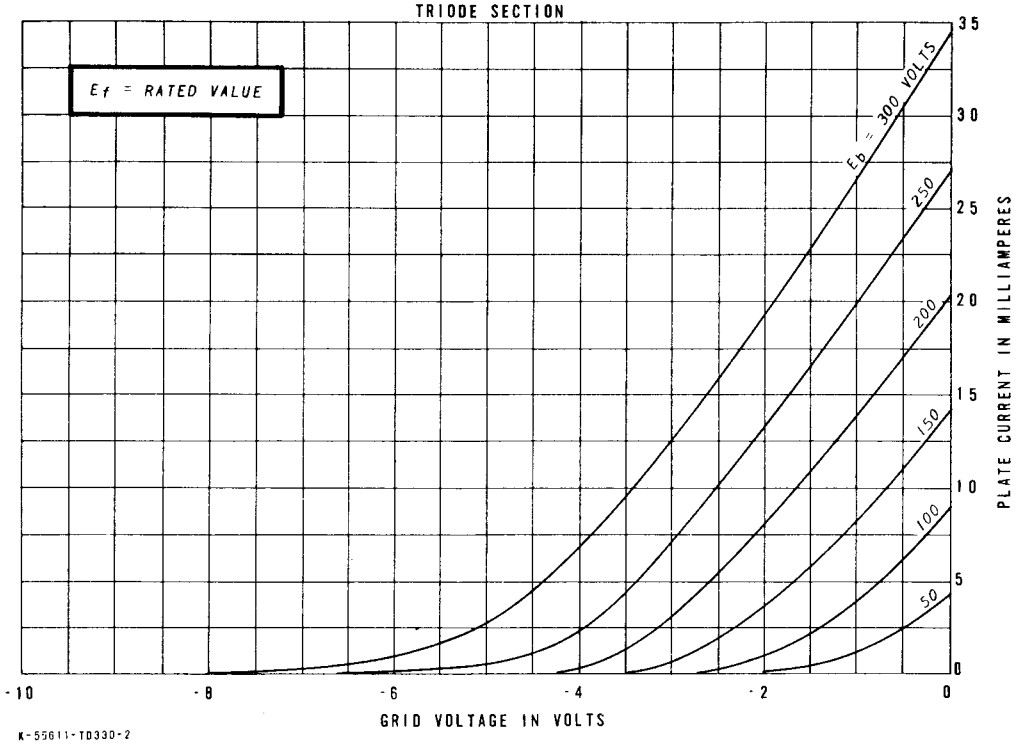
□ Applied for short interval (two seconds maximum) so as not to damage tube.

† Triode connection (screen tied to plate) with Eb = Ec2 = 120 volts, and Ec1 = -10 volts.

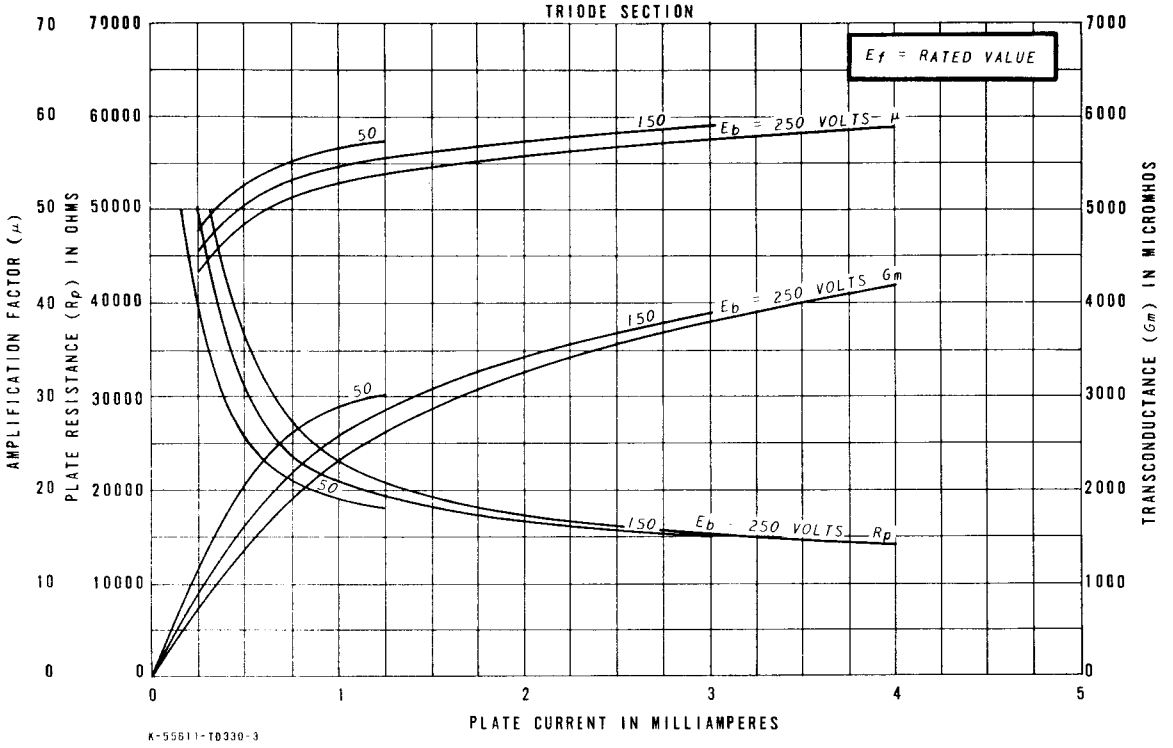
AVERAGE PLATE CHARACTERISTICS



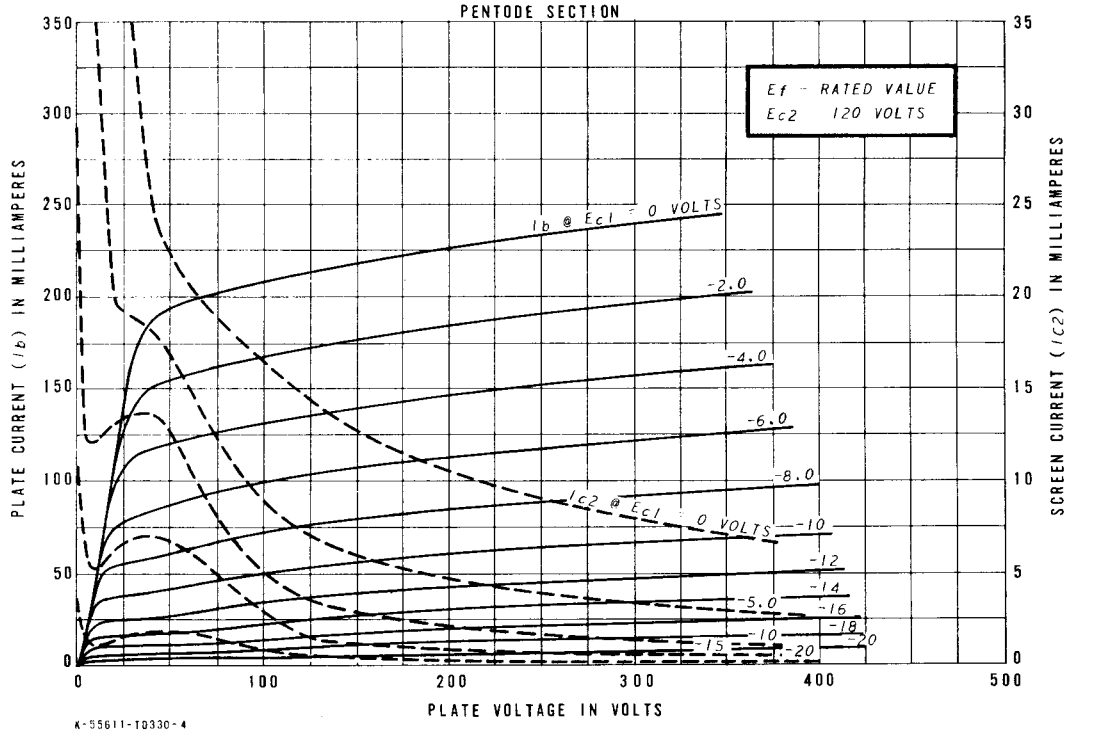
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



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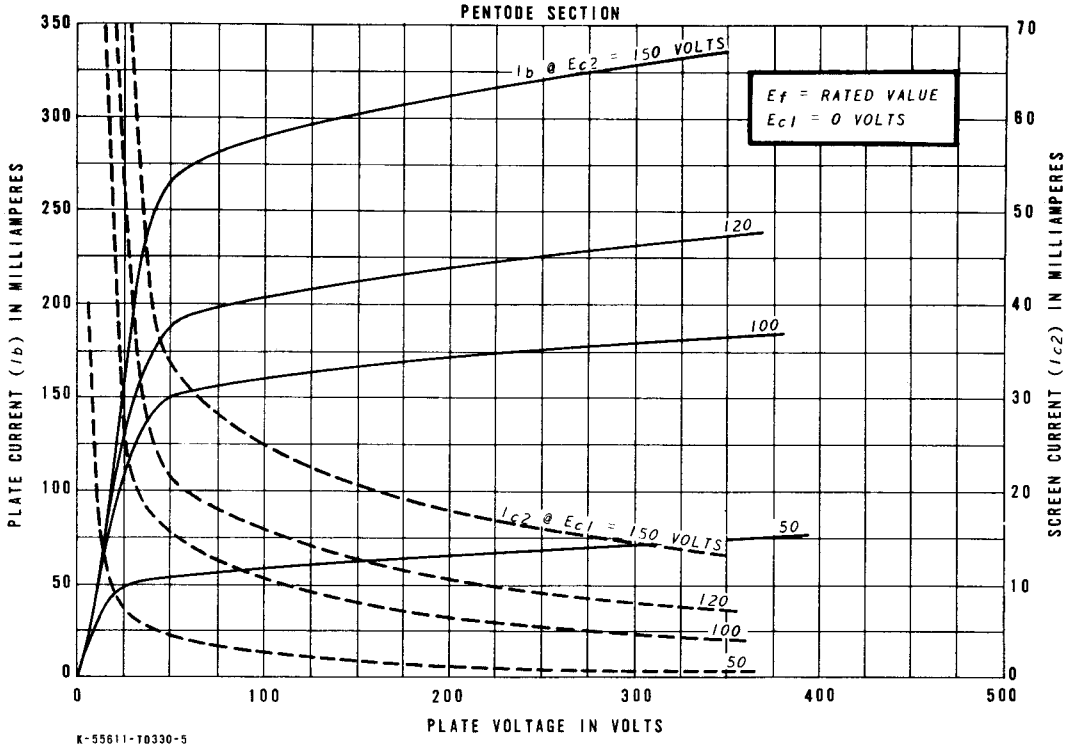

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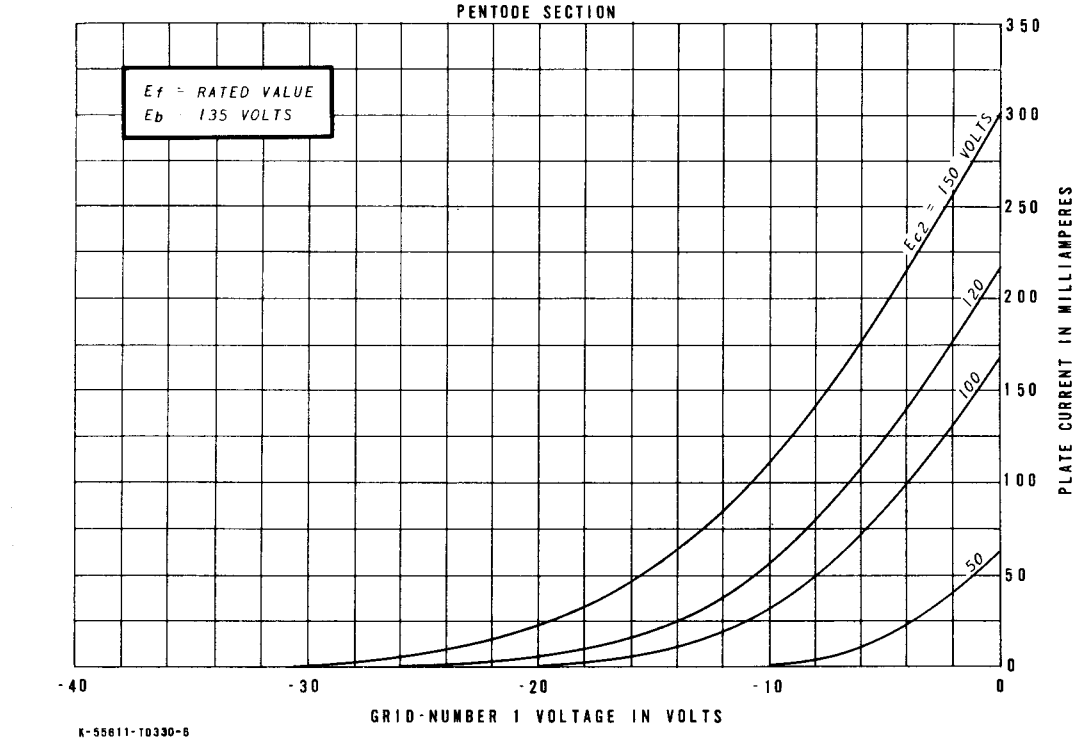
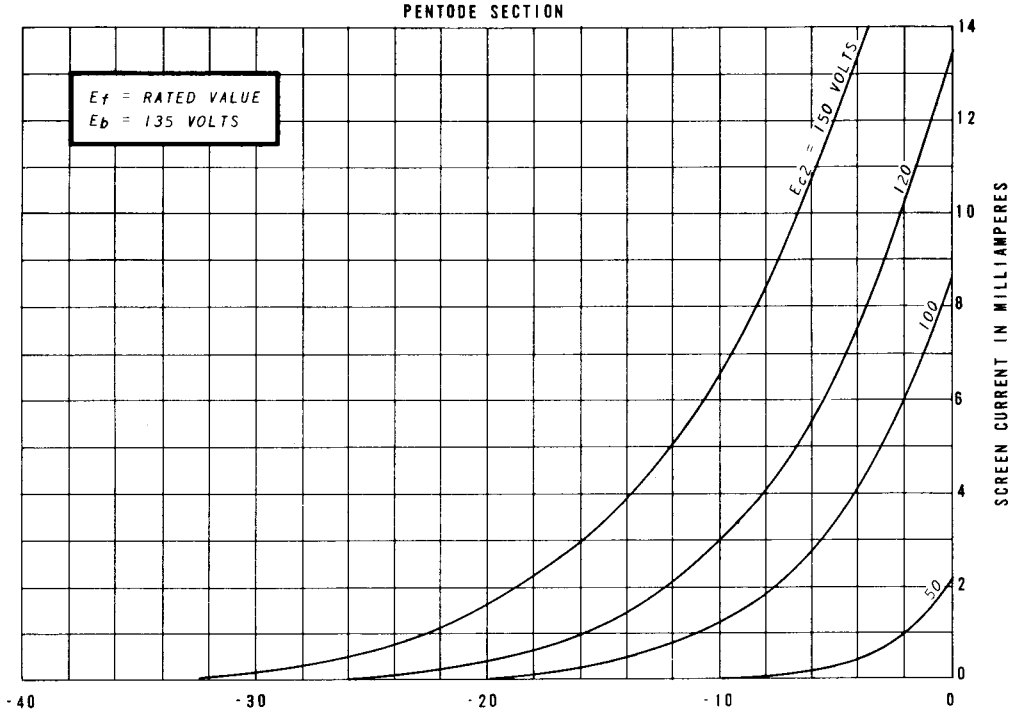


AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



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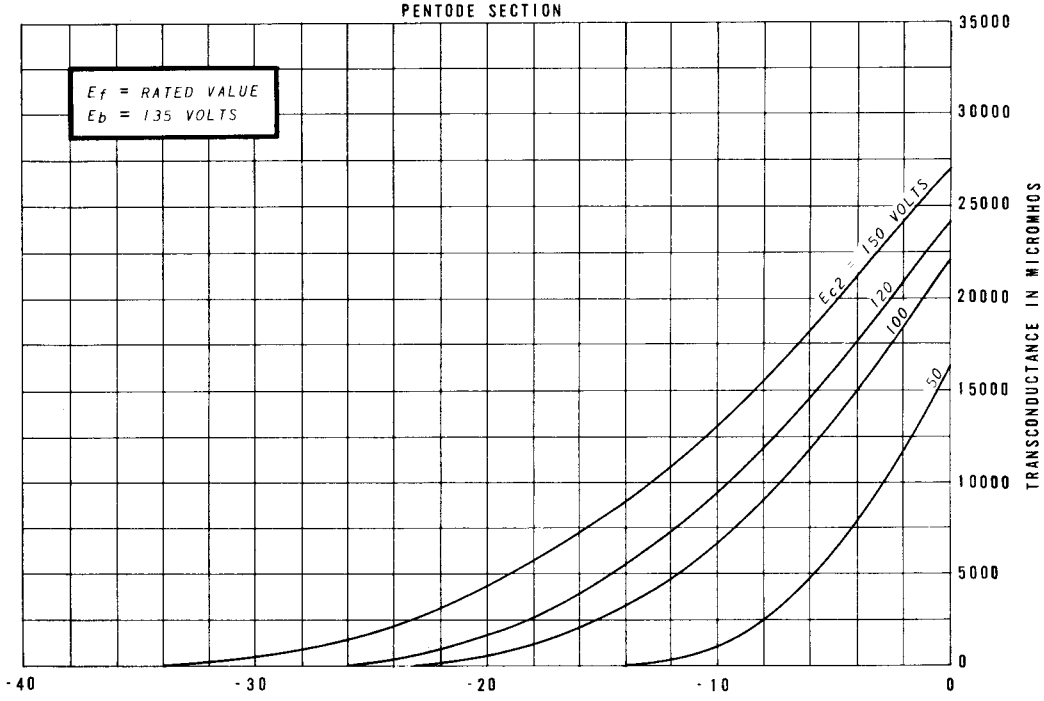
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



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TUBE PRODUCTS DEPARTMENT
Owensboro, Kentucky 42301

GENERAL ELECTRIC