

11CF11

Compactron Dissimilar-Double-Triode Pentode

• COLOR TV TYPE

• MULTI-FUNCTION

• FRAME-GRID VIDEO AMPLIFIER

• HIGH TRANSCONDUCTANCE TRIODES

• 21200 MICROMHOS

The 11CF11 is a multi-function compactron containing a high-gain, frame-grid video amplifier pentode which is particularly well suited for color television use. It also contains two high-mu, high-transconductance triodes designed for cathode follower and video amplifier applications.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	10.7	Volts
Heater Current	0.6 ± 0.04	Amperes
Heater Warm-up Time, Average	11	Seconds

Direct Interelectrode Capacitances▲

Triode (Section 1)

Grid to Plate: (T1g to T1p)	2.7	pf
Input: T1g to (T1k + T2k + Pg3 + h + i.s.)	4.7	pf
Output: T1p to (T1k + T2k + Pg3 + h + i.s.)	4.0	pf

Triode (Section 2)

Grid to Plate: T2g to T2p)	2.1	pf
Input: T2g to (T2k + T1k + Pg3 + h + i.s.)	2.8	pf
Output: T2p to (T2k + T1k + Pg3 + h + i.s.)	2.0	pf

Pentode Section

Grid-Number 1 to Plate: (Pg1 to Pp)	0.13	pf
Input: Pg1 to (Pk + T2k + Pg2 + Pg3 + h + i.s.)	12.3	pf
Output: Pp to (Pk + T2k + Pg2 + Pg3 + h + i.s.)	4.6	pf

Coupling

Pentode Plate to Triode Plate (Section 2):

(Pp to T2p), maximum	0.04	pf
----------------------	------	----

Triode Plate (Section 1) to Triode Plate

(Section 2): (T1p to T2p), maximum	0.10	pf
------------------------------------	------	----

MECHANICAL

Operating Position - Any

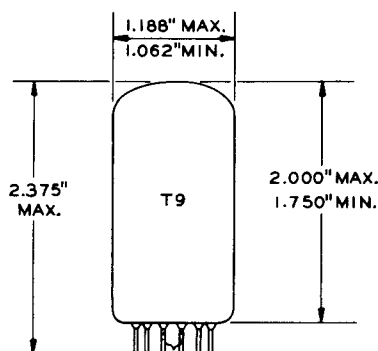
Envelope - T-9, Glass

Base - E12-70, Button 12-Pin

Outline Drawing - EIA 9-58

Maximum Diameter	1.188	Inches
Minimum Diameter	1.062	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches
Minimum Seated Height	1.750	Inches

PHYSICAL DIMENSIONS

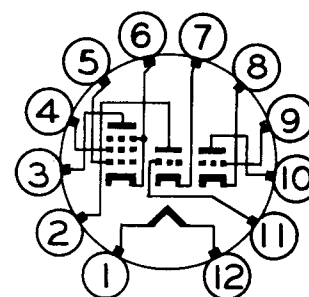


EIA 9-58

TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Triode Plate (Section 2)
- Pin 3 - Pentode Plate
- Pin 4 - Pentode Grid Number 2 (Screen)
- Pin 5 - Pentode Grid Number 1
- Pin 6 - Pentode Cathode and Beam Plate
- Pin 7 - Triode Cathode (Section 2)
- Pin 8 - Triode Cathode (Section 1)
- Pin 9 - Triode Grid (Section 1)
- Pin 10 - Triode Plate (Section 1)
- Pin 11 - Triode Grid (Section 2)
- Pin 12 - Heater

BASING DIAGRAM



EIA 12HW

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.

MAXIMUM RATINGS**DESIGN-MAXIMUM VALUES****Pentode Section**

Plate Voltage.....	330	Volts
Screen Supply Voltage.....	330	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage.....	0	Volts
Plate Dissipation.....	5.0	Watts
Screen Dissipation.....	1.0	Watts
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.....	50000	Ohms
With Cathode Bias.....	100000	Ohms

Triode (Section 1)

Plate Voltage.....	330	Volts
Positive DC Grid Voltage.....	0	Volts
Plate Dissipation.....	2.0	Watts
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-Circuit Resistance		
With Fixed Bias.....	0.5	Megohms
With Cathode Bias.....	1.0	Megohms

Triode (Section 2)

Plate Voltage.....	330	Volts
Positive DC Grid Voltage.....	0	Volts
Plate Dissipation.....	1.5	Watts
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-Circuit Resistance		
With Fixed Bias.....	0.5	Megohms
With Cathode Bias.....	1.0	Megohms

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

Pentode Section

Plate Voltage.....	40	200	Volts
Screen Voltage.....	120	120	Volts
Grid-Number 1 Voltage.....	0	---	Volts
Cathode-Bias Resistor.....	---	65	Ohms
Plate Resistance, approximate.....	---	490000	Ohms
Transconductance.....	---	21200	Micromhos
Plate Current.....	.68	27.5	Milliamperes
Screen Current.....	17.6	4.9	Milliamperes
Grid-Number 1 Voltage, approximate			
Ib = 100 Microamperes.....	---	-5.0	Volts

Triode (Section 1)

Plate Voltage.....	200	Volts
Cathode-Bias Resistor.....	270	Ohms
Amplification Factor.....	.69	
Plate Resistance, approximate.....	12400	Ohms
Transconductance.....	5500	Micromhos
Plate Current.....	7.1	Milliamperes
Grid Voltage, approximate		
Ib = 100 Microamperes.....	-5.5	Volts

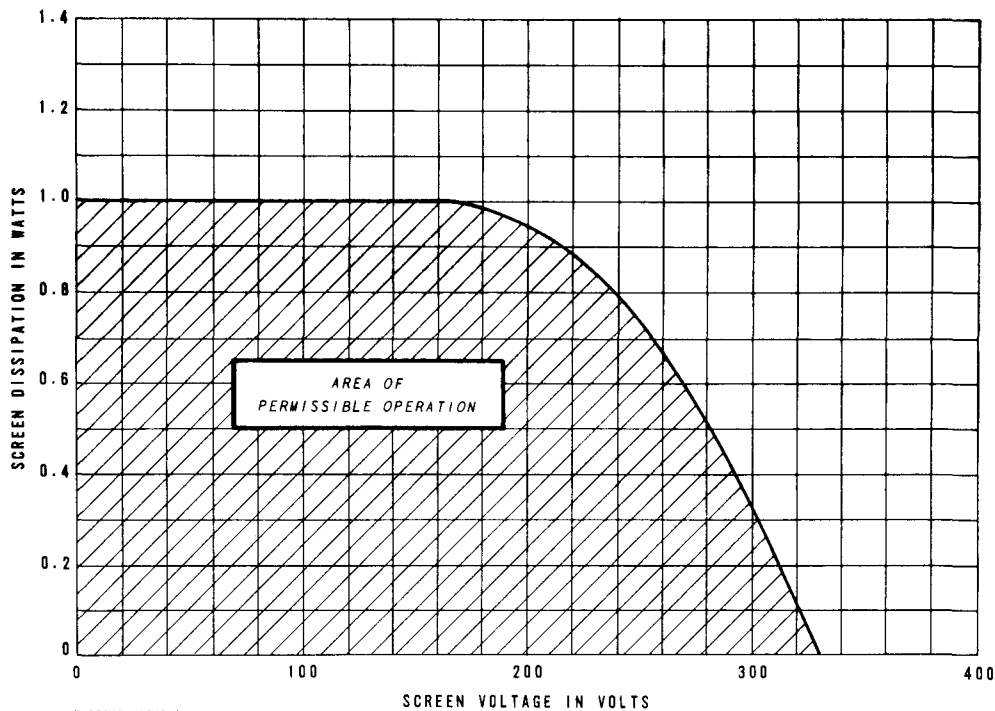
Triode (Section 2)

Plate Voltage.....	200	Volts
Cathode-Bias Resistor.....	270	Ohms
Amplification Factor.....	.59	
Plate Resistance, approximate.....	9200	Ohms
Transconductance.....	6300	Micromhos
Plate Current.....	7.6	Milliamperes
Grid Voltage, approximate		
Ib = 100 Microamperes.....	-6.3	Volts

NOTES

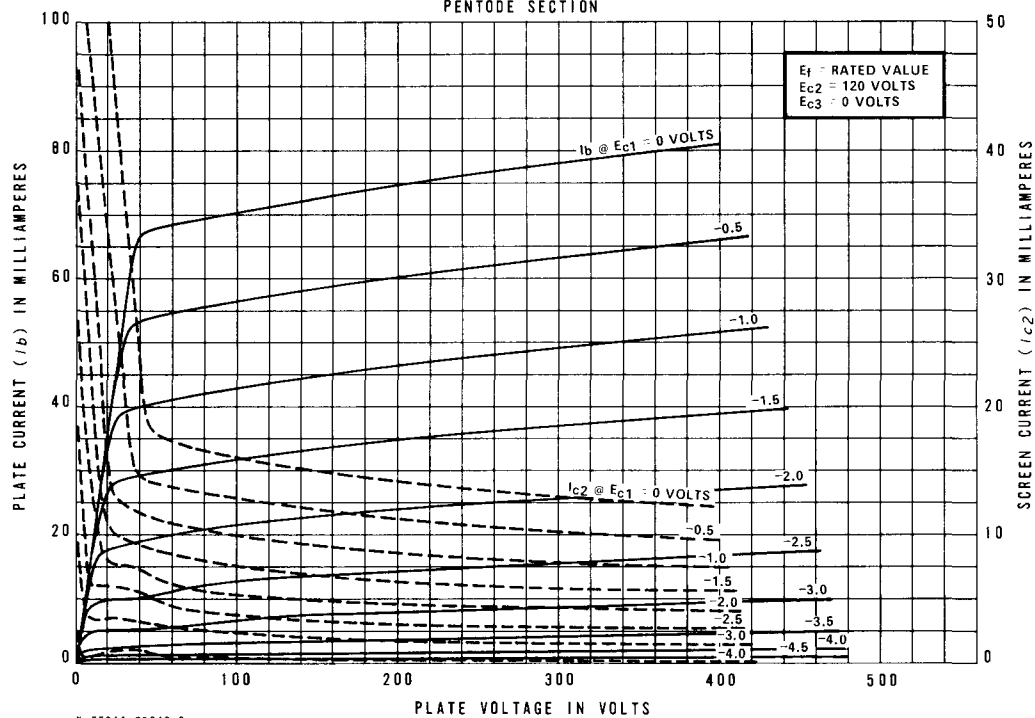
- ★ Heater voltage for a bogey tube at If = 0.6 amperes.
- The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.
- ◆ The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.
- ▲ Without external shield.

SCREEN RATING CHART

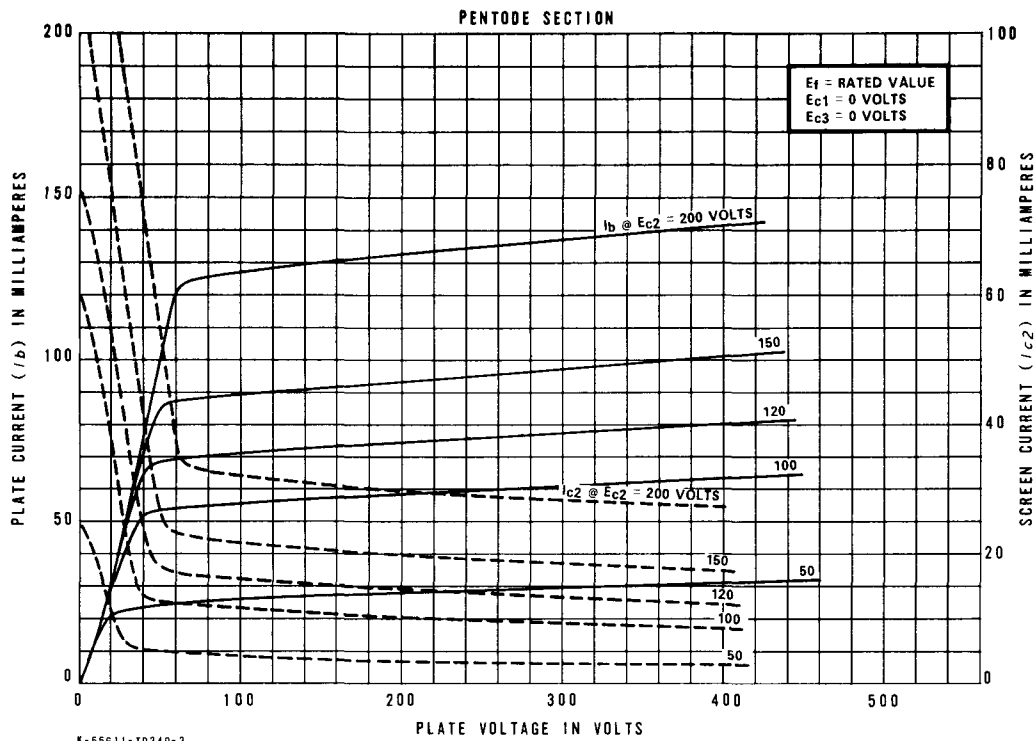


AVERAGE PLATE CHARACTERISTICS

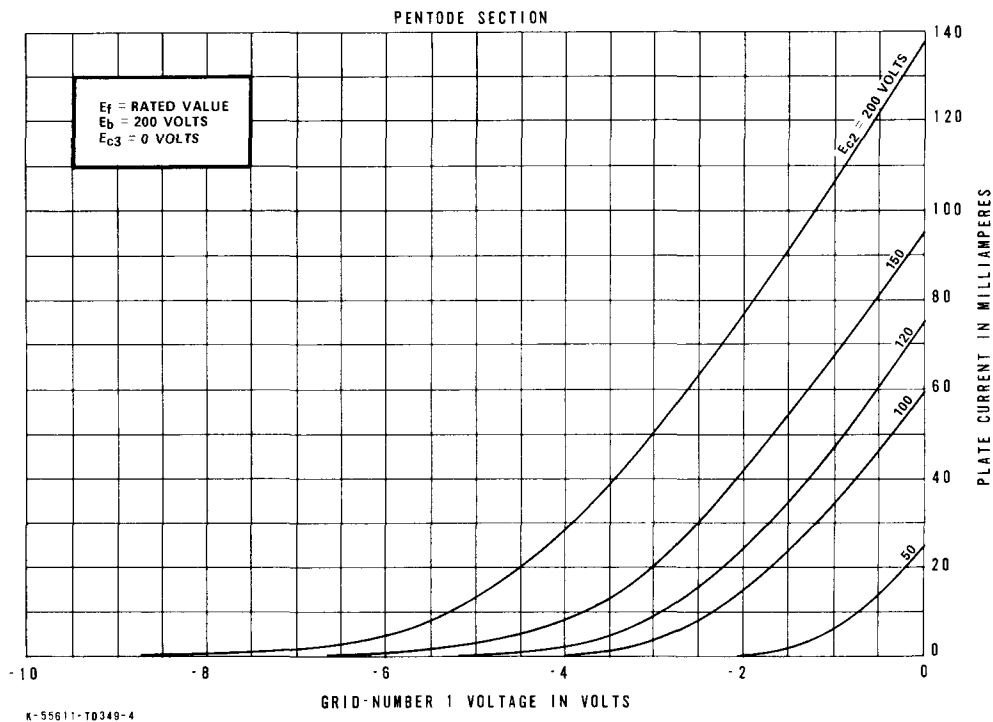
PENTODE SECTION



AVERAGE PLATE CHARACTERISTICS

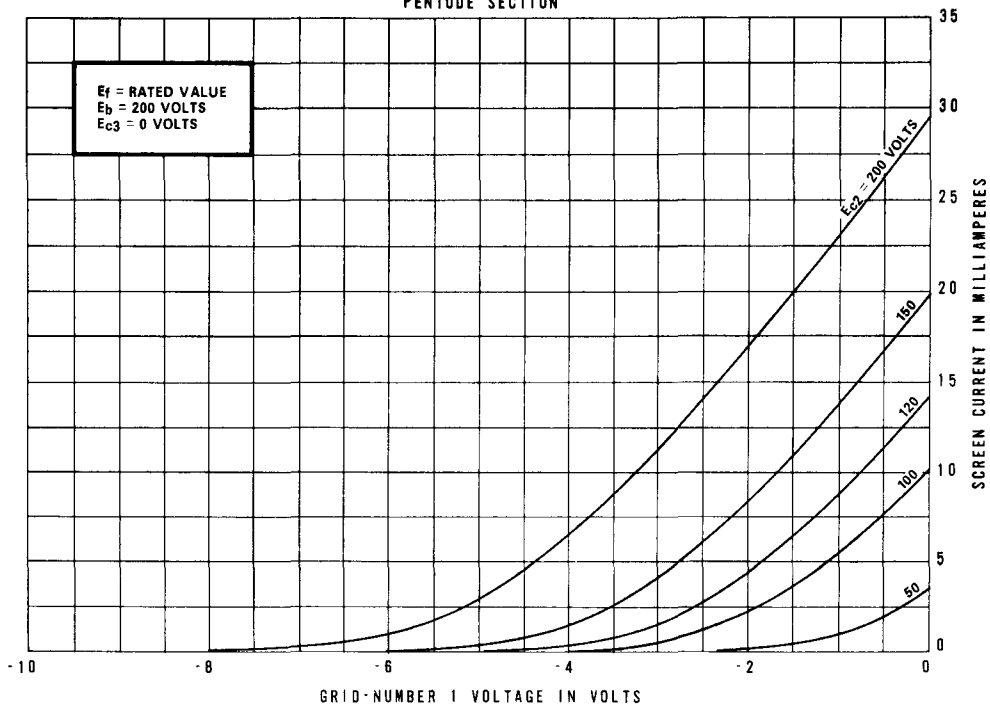


AVERAGE TRANSFER CHARACTERISTICS



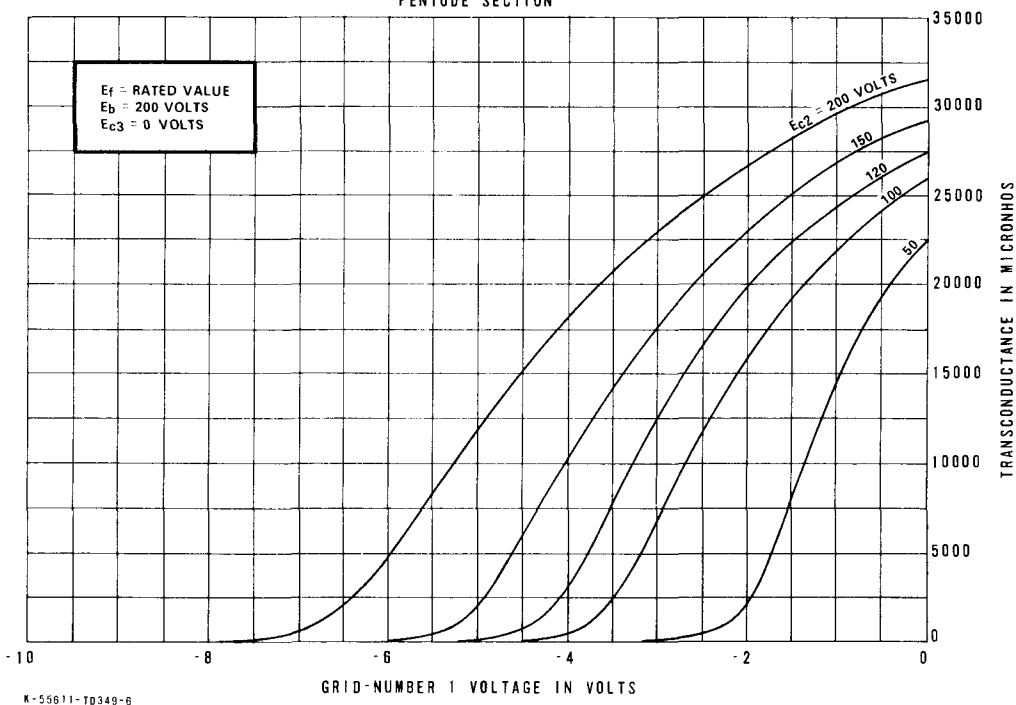
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

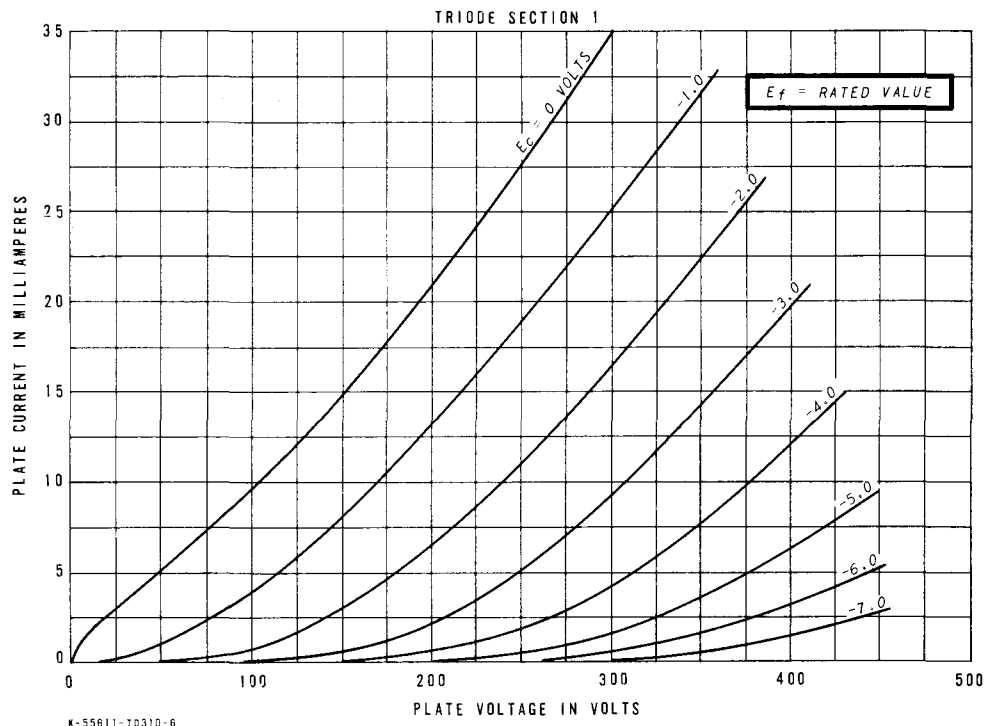


AVERAGE TRANSFER CHARACTERISTICS

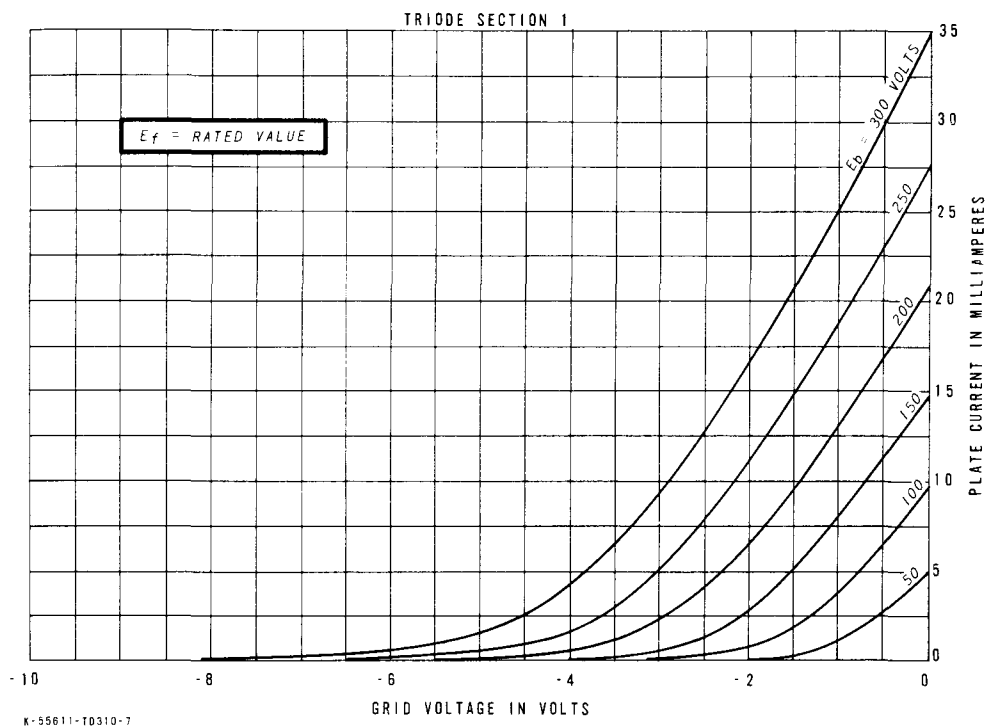
PENTODE SECTION



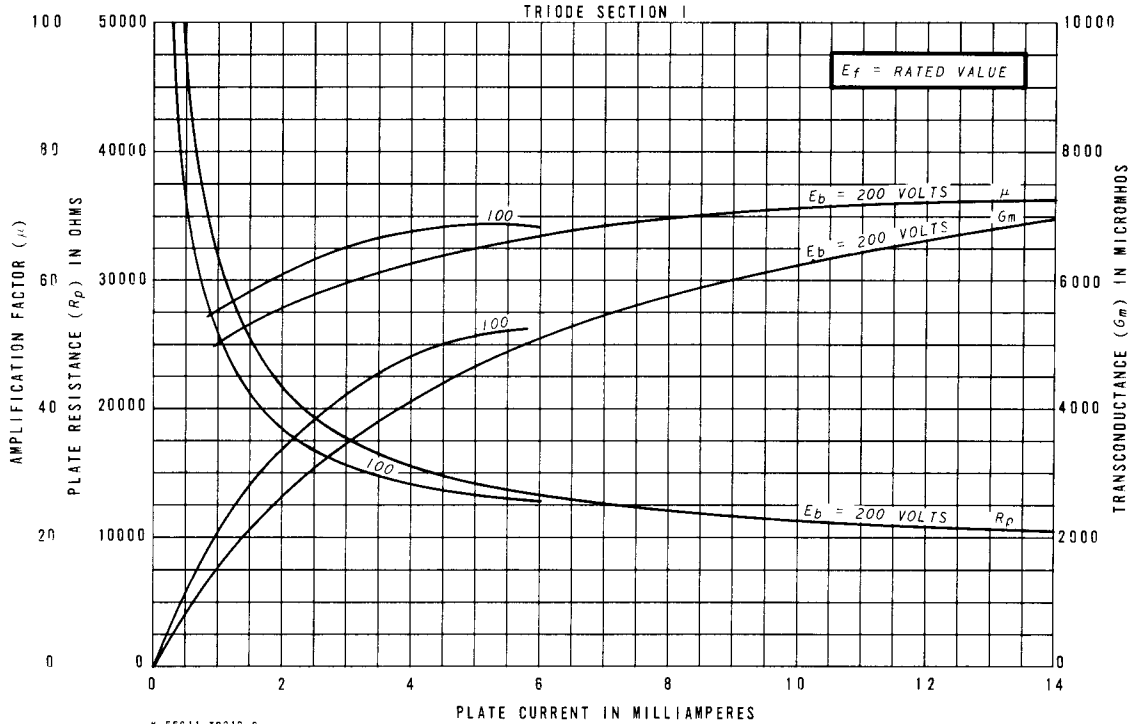
AVERAGE PLATE CHARACTERISTICS



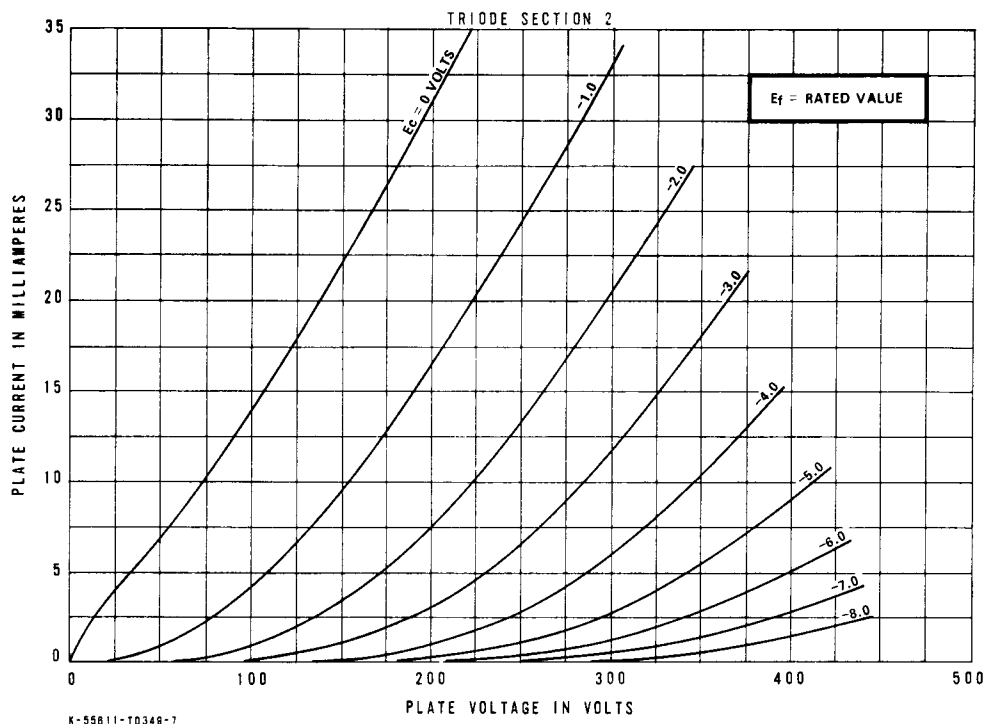
AVERAGE TRANSFER CHARACTERISTICS



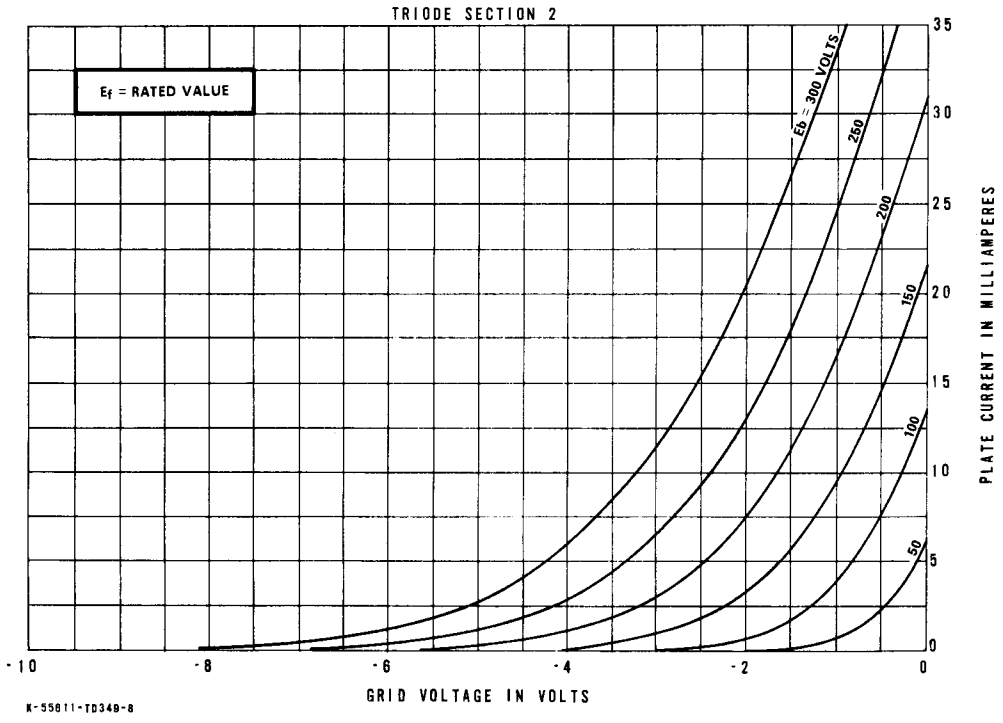
AVERAGE CHARACTERISTICS



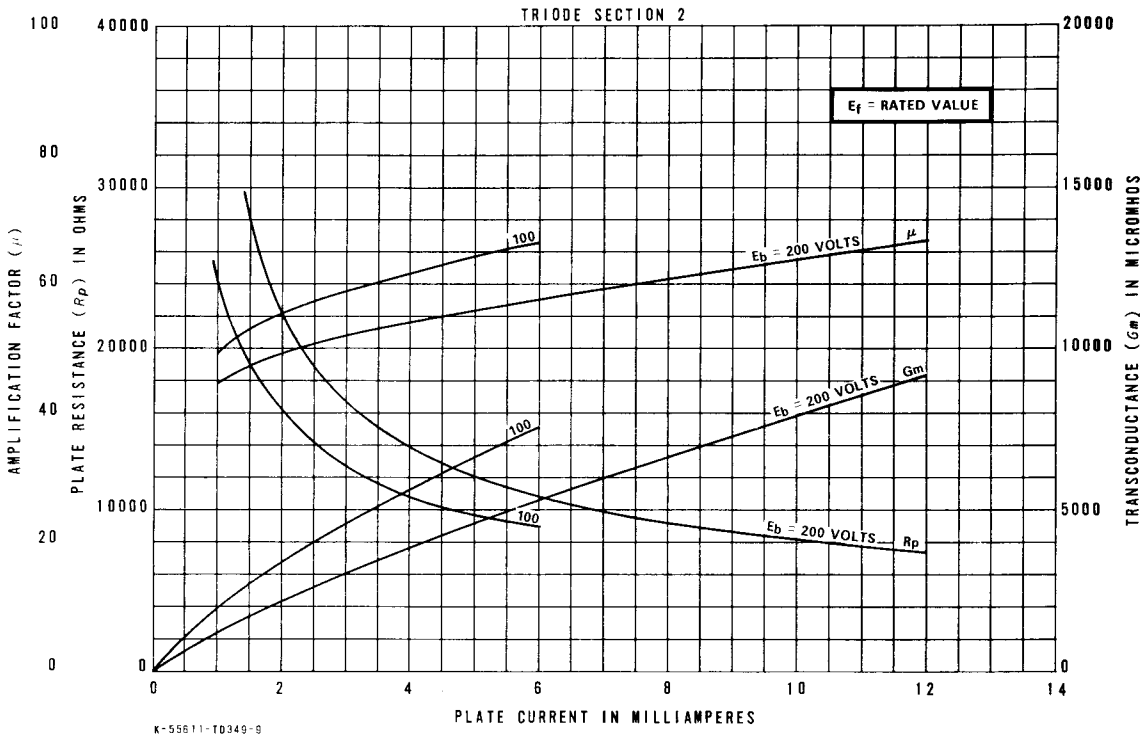
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



TUBE PRODUCTS DEPARTMENT
GENERAL  ELECTRIC
Owensboro, Kentucky 42301