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

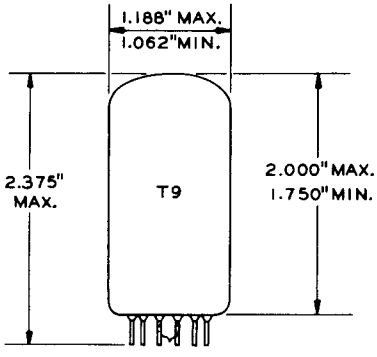
Pentode Plate to Triode Plate (Section 2):		
(Pp to T2p), maximum	0.04	pf
Triode Plate (Section 1) to Triode Plate		
(Section 2): (T1p to T2p), maximum	0.10	pf

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

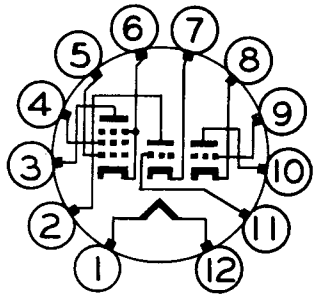


EIA 9-58

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

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

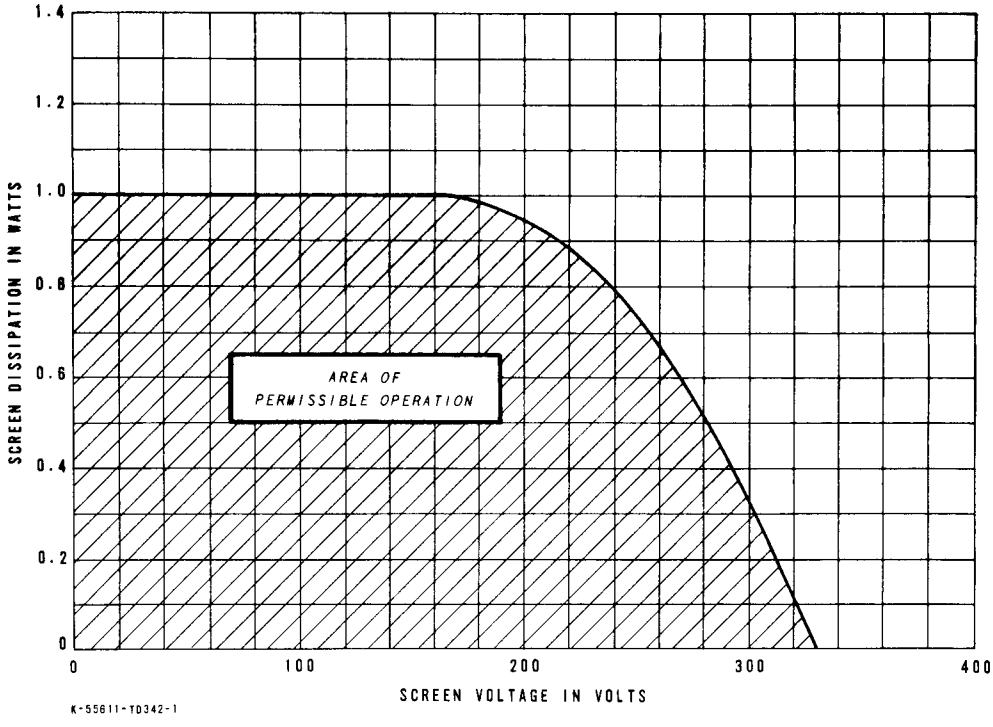
★ Heater voltage for a bogey tube at If = 0.6 amperes.

■ 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.

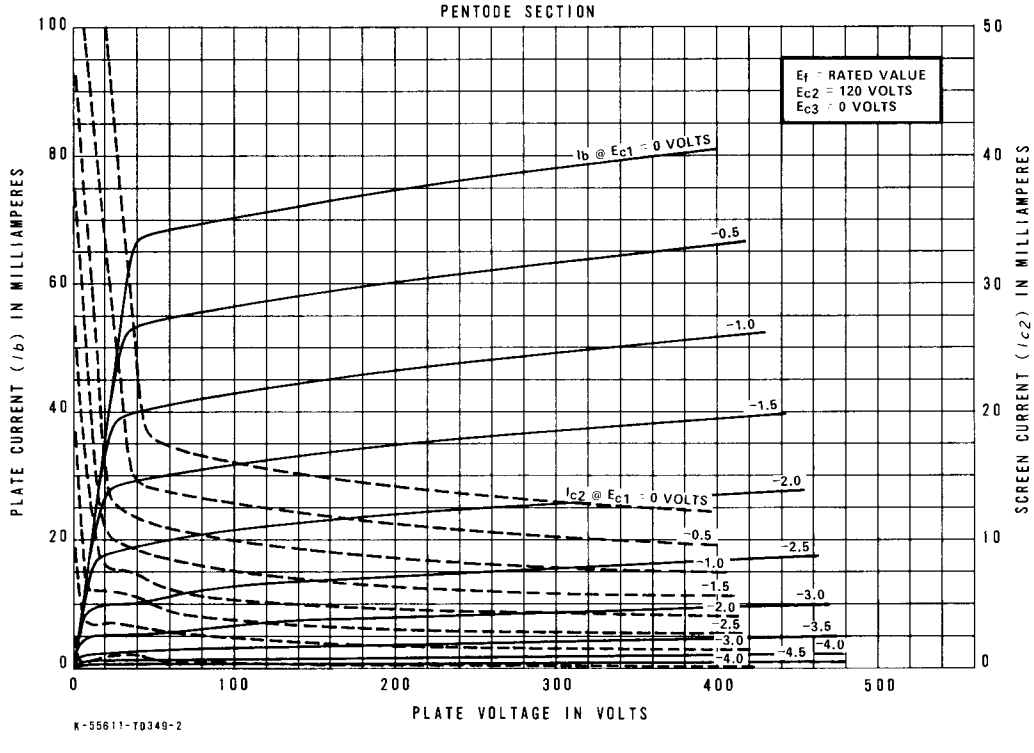
SCREEN RATING CHART



K-55611-T0342-1

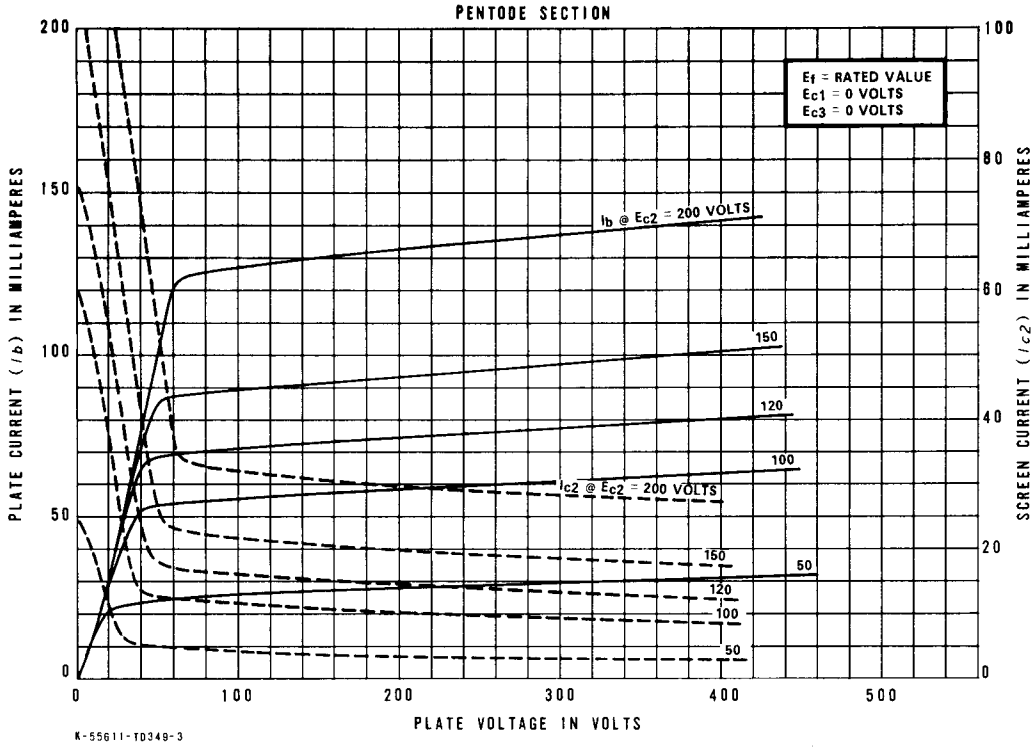
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



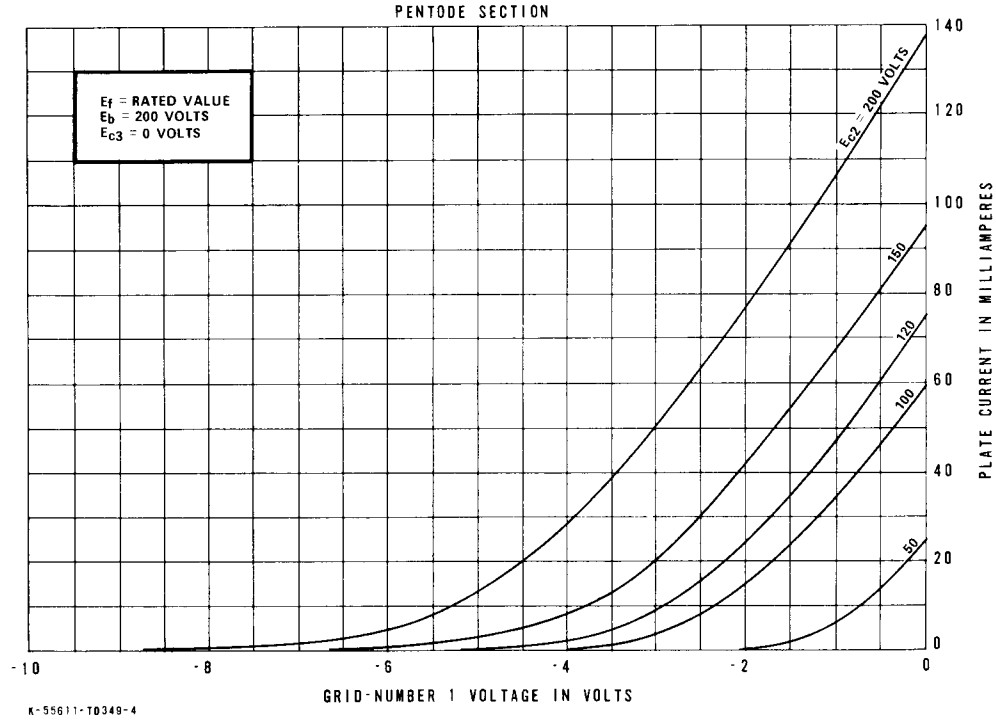
K-55611-T0349-2

AVERAGE PLATE CHARACTERISTICS



K-55611-T0348-3

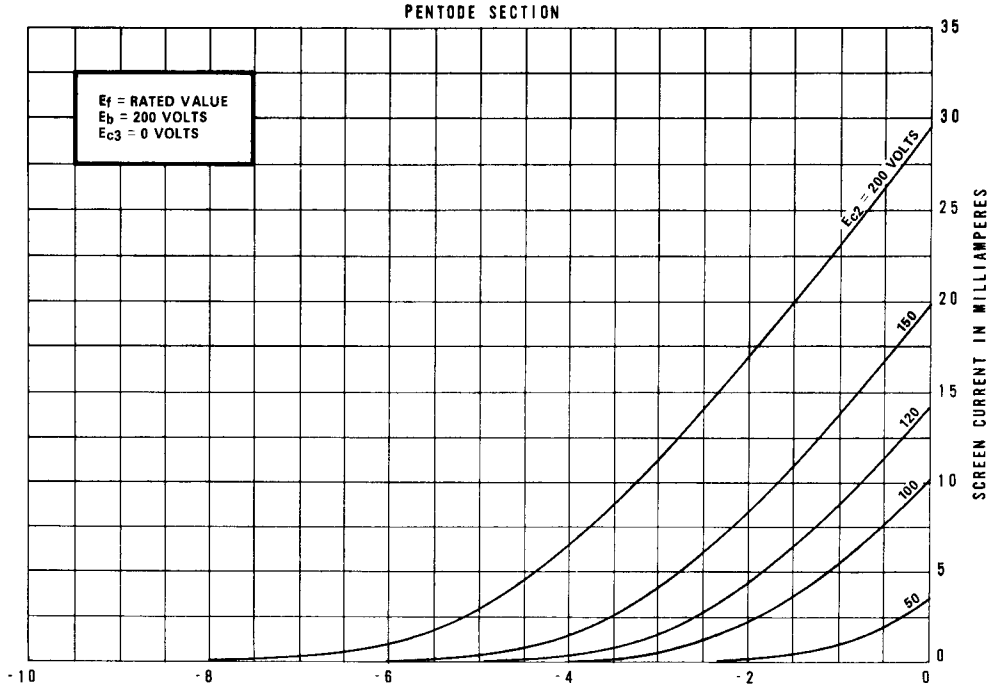
AVERAGE TRANSFER CHARACTERISTICS



K-55611-T0349-4

AVERAGE TRANSFER CHARACTERISTICS

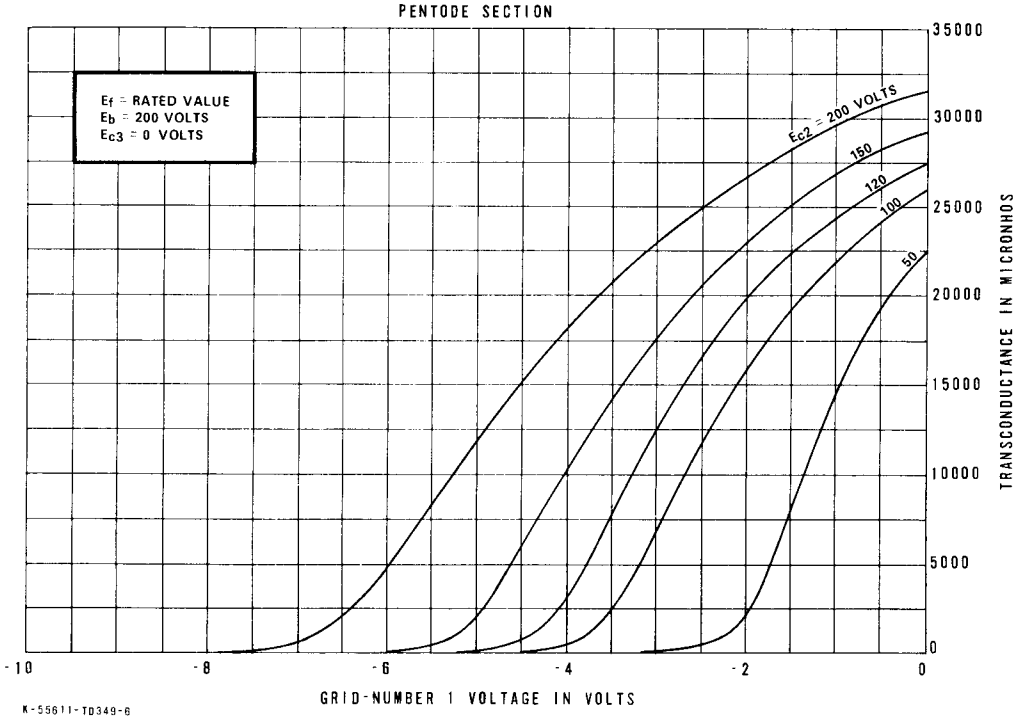
PENTODE SECTION



K-55611-TD349-5

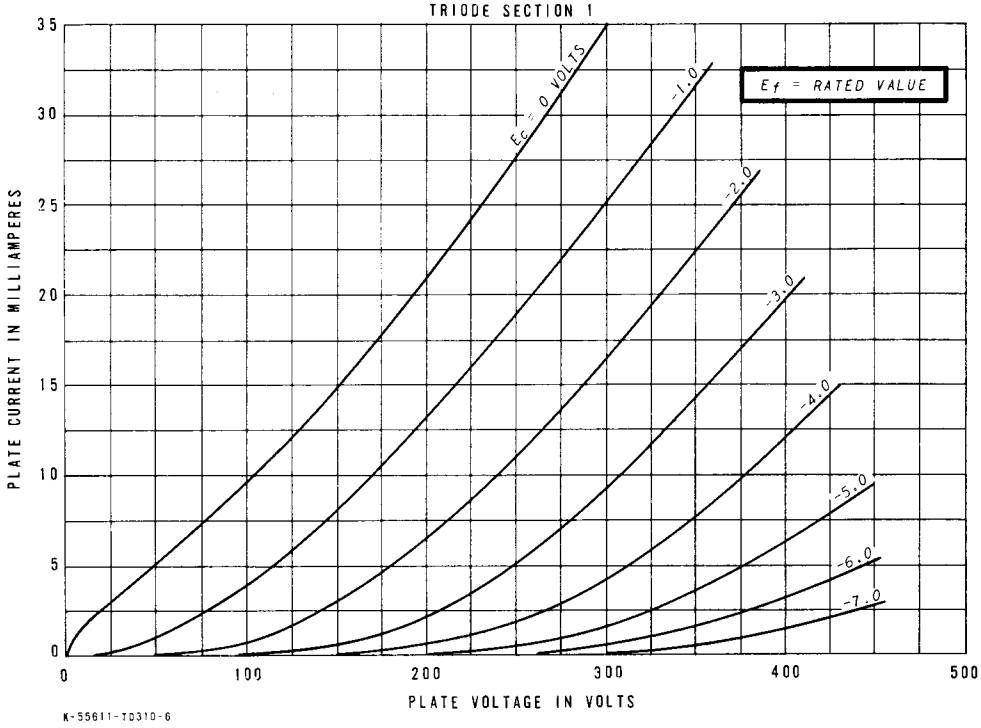
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

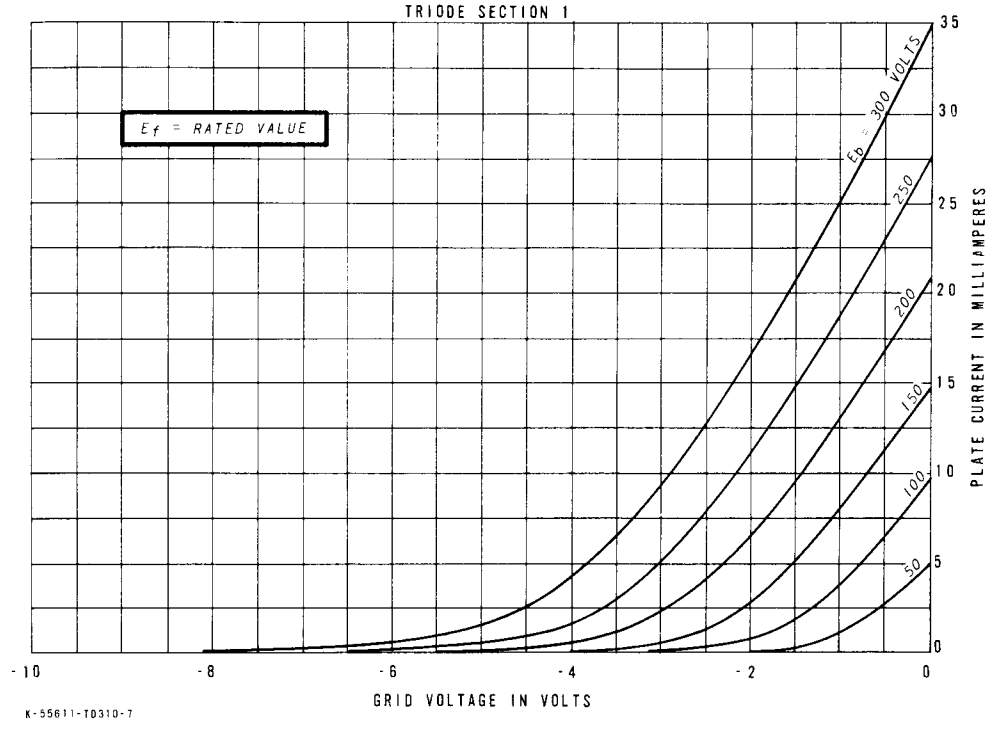


K-55611-TD349-6

AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



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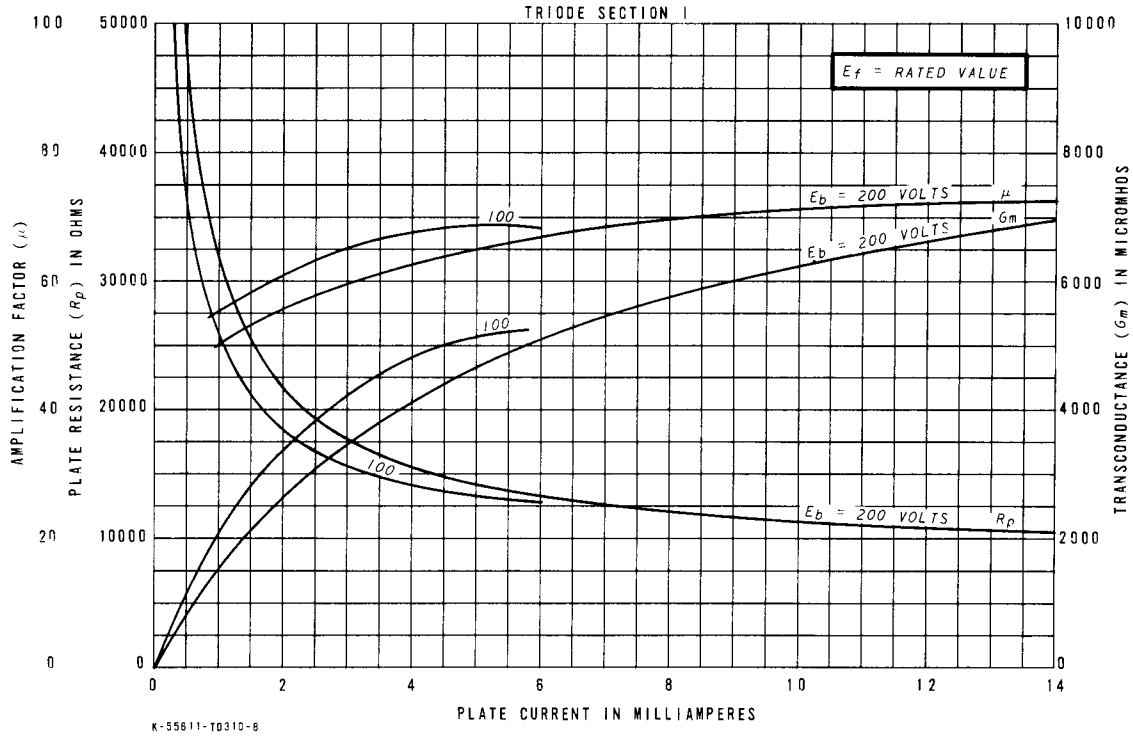
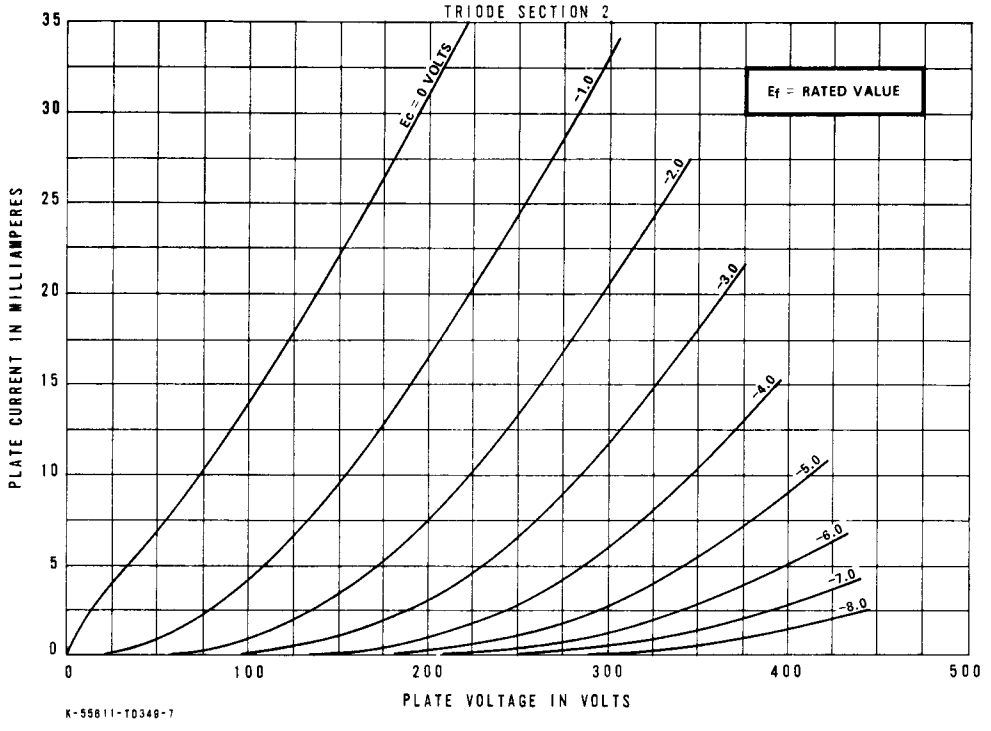


AVERAGE PLATE CHARACTERISTICS



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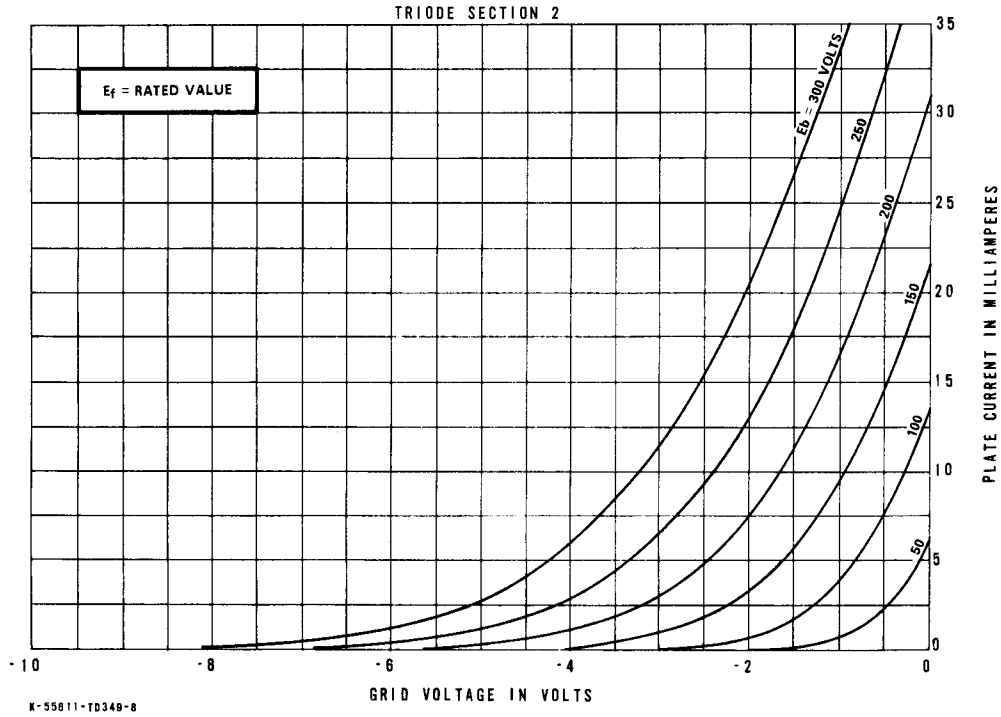
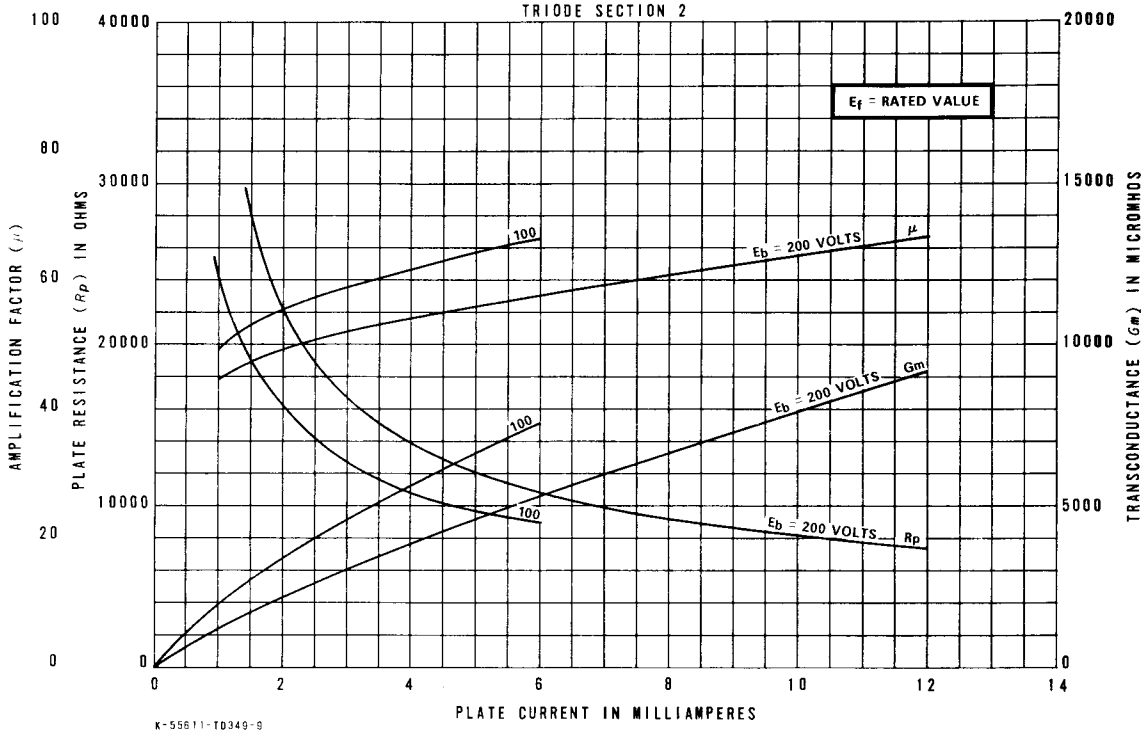


AVERAGE CHARACTERISTICS



TUBE PRODUCTS DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky 42301