

## TRIODE-PENTODE

### DESCRIPTION AND RATING

The 6AW8-A is a miniature tube containing a high-mu triode and a sharp-cutoff pentode. The triode section is intended for service as a sync separator and the pentode section as a video amplifier. As a result of its controlled heater-warm-up characteristic, the 6AW8-A is especially suited for use in television receivers which employ 600-milliamper, series-connected heaters. The 6AW8-A differs from the 6AW8 by incorporating a controlled plate-knee characteristic.

Except for heater ratings, the 8AW8-A is identical to the 6AW8-A. It is specially designed for use in television receivers which employ 450-milliamper, series-connected heaters.

### GENERAL

#### ELECTRICAL

	6AW8-A	8AW8-A	
Cathode—Coated Unipotential			
Heater Voltage	6.3	8.4	Volts
Heater Current	0.6	0.45	Amperes
Heater Warm-up Time*	11	11	Seconds
	<b>With Shield†</b>	<b>Without Shield</b>	
Direct Interelectrode Capacitances			
Pentode Section			
Grid-Number 1 to Plate	0.03	0.04	$\mu\text{mf}$
Input	10	10	$\mu\text{mf}$
Output	4.5	3.6	$\mu\text{mf}$
Triode Section			
Grid to Plate	2.2	2.2	$\mu\text{mf}$
Input	3.4	3.2	$\mu\text{mf}$
Output	1.7	0.32	$\mu\text{mf}$
Pentode Grid-Number 1 to Triode Plate	0.003	0.006	$\mu\text{mf}$
Triode Grid to Pentode Plate	0.006	0.016	$\mu\text{mf}$
Pentode Plate to Triode Plate	0.023	0.150	$\mu\text{mf}$

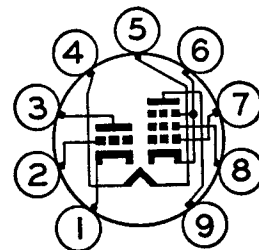
#### MECHANICAL

Mounting Position—Any  
Envelope—T-6½, Glass  
Base—E9-1, Small Button 9-Pin

### MAXIMUM RATINGS

DESIGN-CENTER VALUES	Pentode Section	Triode Section	
Plate Voltage	300	300	Volts
Screen-Supply Voltage	300		Volts
Screen Voltage—See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Negative DC Grid-Number 1 Voltage	50		Volts
Plate Dissipation	3.25	1.0	Watts
Screen Dissipation	1.0		Watts
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	0.25	0.5	Megohms
With Cathode Bias	1.0	1.0	Megohms

### BASING DIAGRAM

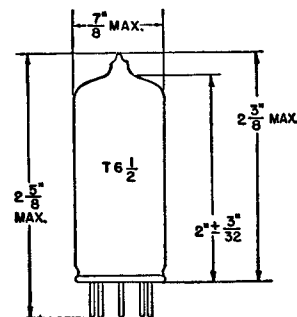


EIA 9DX

### TERMINAL CONNECTIONS

- Pin 1—Triode Cathode
- Pin 2—Triode Grid
- Pin 3—Triode Plate
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Pentode Cathode, Grid Number 3, and Internal Shield
- Pin 7—Pentode Grid Number 1
- Pin 8—Pentode Grid Number 2 (Screen)
- Pin 9—Pentode Plate

### PHYSICAL DIMENSIONS



EIA 6-3



## TRIODE-PENTODE DESCRIPTION AND RATING

The 6AW8-A is a miniature tube containing a high-mu triode and a sharp-cutoff pentode. The triode section is intended for service as a sync separator and the pentode section as a video amplifier. As a result of its controlled heater-warm-up characteristic, the 6AW8-A is especially suited for use in television receivers which employ 600-milliampere, series-connected heaters. The 6AW8-A differs from the 6AW8 by incorporating a controlled plate-knee characteristic.

### GENERAL

ELECTRICAL		
Cathode—Coated Unipotential Heater Characteristics and Ratings	Series Heater Operation	Parallel Heater Operation
Heater Voltage, AC or DC	6.3*	6.3 ± 0.6 † Volts
Heater Current	0.6 ± 0.04 †	0.6 § Amperes
Heater Warm-up Time ††	11	Seconds
Direct Interelectrode Capacitances		
Pentode Section		
Grid-Number 1 to Plate: (Pg1 to Pp), maximum	0.04	0.05 pf
Input: Pg 1 to (h + Pk + Pg2 + Pg3 + i.s.)	10	10 pf
Output: Pp to (h + Pk + Pg2 + Pg3 + i.s.)	4.5	3.6 pf

ELECTRICAL (Cont'd)		
Triode Section		
Grid to Plate: (Tg to Tp)	2.2	2.2 pf
Input: Tg to (h + Tk)	3.4	3.2 pf
Output: Tp to (h + Tk)	3.0	1.8 pf
Pentode Grid-Number 1 to Triode		
Plate: (Pg1 to Tp), maximum	0.005	0.008 pf
Pentode Plate to Triode Plate:		
(Pp to Tp), maximum	0.025	0.150 pf

### MECHANICAL

Mounting Position—Any  
Envelope—T-6½, Glass  
Base—E9-1, Small Button 9-Pin

### MAXIMUM RATINGS

#### DESIGN-MAXIMUM VALUES

	Pentode Section	Triode Section	
Plate Voltage	330	330	Volts
Screen-Supply Voltage	330	...	Volts
Screen Voltage—See Screen Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Plate Dissipation	3.75	1.1	Watts
Screen Dissipation	1.1	...	Watts
Heater-Cathode Voltage			

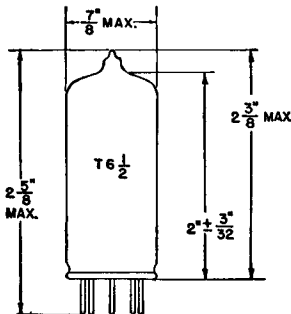
	Pentode Section	Triode Section	
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.25	0.5	Megohms
With Cathode Bias	1.0	1.0	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.

#### PHYSICAL DIMENSIONS

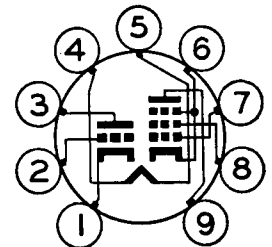


EIA 6-3

#### TERMINAL CONNECTIONS

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- Pin 9—Pentode Plate

#### BASING DIAGRAM



EIA 9DX

**CHARACTERISTICS AND TYPICAL OPERATION**

**CLASS A<sub>1</sub> AMPLIFIER**

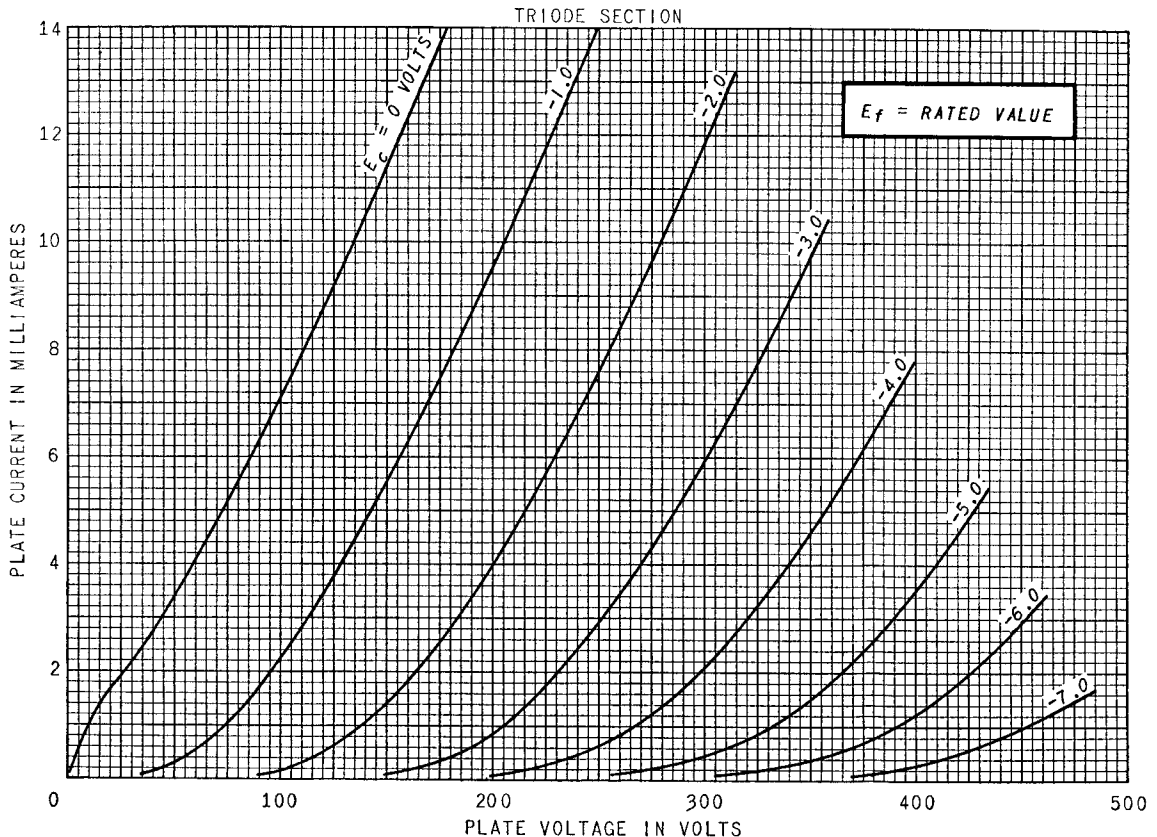
		<b>Pentode Section</b>		<b>Triode Section</b>	
Plate Voltage . . . . .	65	200		200	Volts
Screen Voltage . . . . .	150	150		...	Volts
Grid-Number 1 Voltage . . . . .	0 $\ddagger$	...		-2.0	Volts
Cathode-Bias Resistor . . . . .	...	180		...	Ohms
Amplification Factor . . . . .	...	...		70	
Plate Resistance, approximate . . . . .	...	400000		17500	Ohms
Transconductance . . . . .	...	9000		4000	Micromhos
Plate Current . . . . .	42	13		4.0	Milliamperes
Screen Current . . . . .	12.5	3.5		...	Milliamperes
Grid-Number 1 Voltage, approximate I <sub>b</sub> = 10 Microamperes . . . . .	...	-10		-5	Volts

\* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† With external shield (EIA 315) connected to cathode of section under test.

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

**AVERAGE PLATE CHARACTERISTICS**



**CHARACTERISTICS AND TYPICAL OPERATION**

**CLASS A<sub>1</sub> AMPLIFIER**

	<b>Pentode Section</b>	<b>Triode Section</b>
Plate Voltage .....	150	200 Volts
Screen Voltage .....	150	.... Volts
Grid-Number 1 Voltage .....	.....	-2.0 Volts
Cathode-Bias Resistor .....	150	.... Ohms
Amplification Factor .....	.....	70
Plate Resistance, approximate .....	200000	.... Ohms
Transconductance .....	9500	4000 Micromhos
Plate Current .....	15	4.0 Milliamperes
Screen Current .....	3.5	.... Milliamperes
Grid-Number 1 Voltage, approximate I <sub>b</sub> = 20 Microamperes .....	-8	-5 Volts

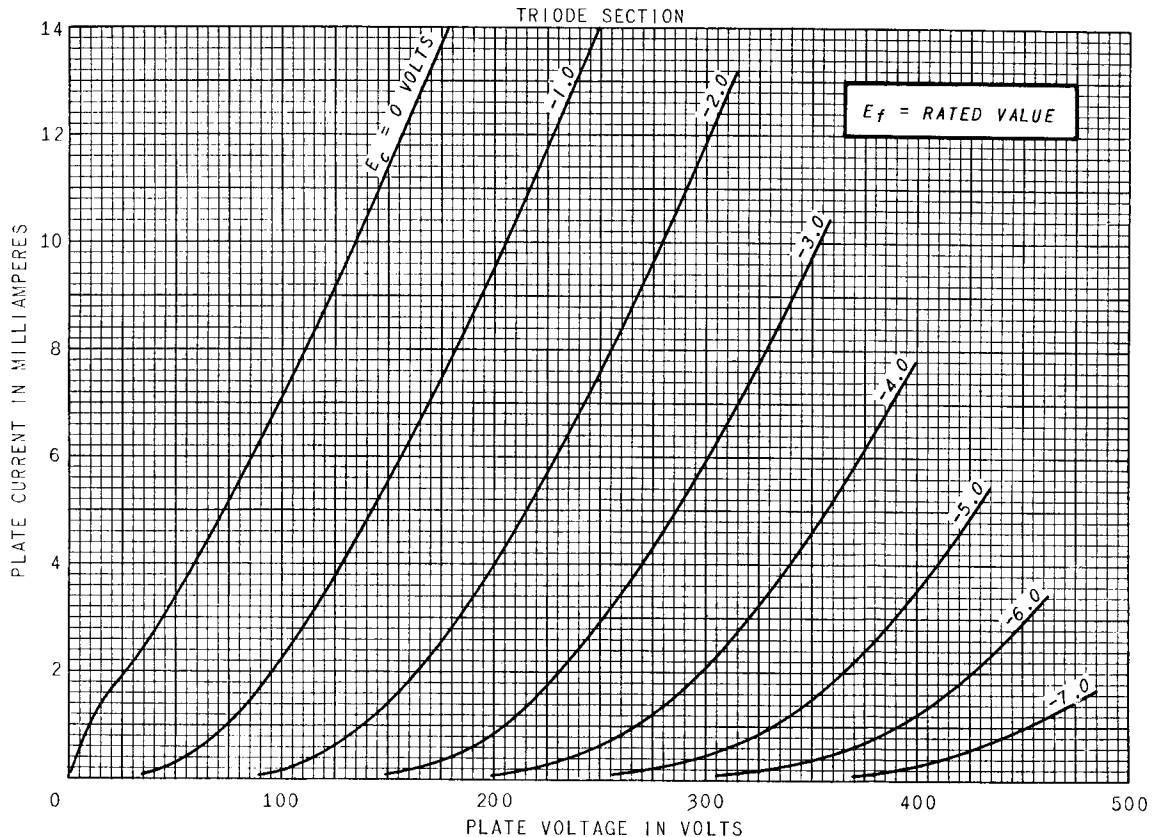
**FOOTNOTES**

- \* Heater voltage for a bogey tube at I<sub>f</sub> = 0.6 amperes.
- † For series heater operation, 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 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<sub>f</sub> = 6.3 volts.
- ¶ The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.
- # With external shield (EIA 315) connected to cathode of section under test.
- △ 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

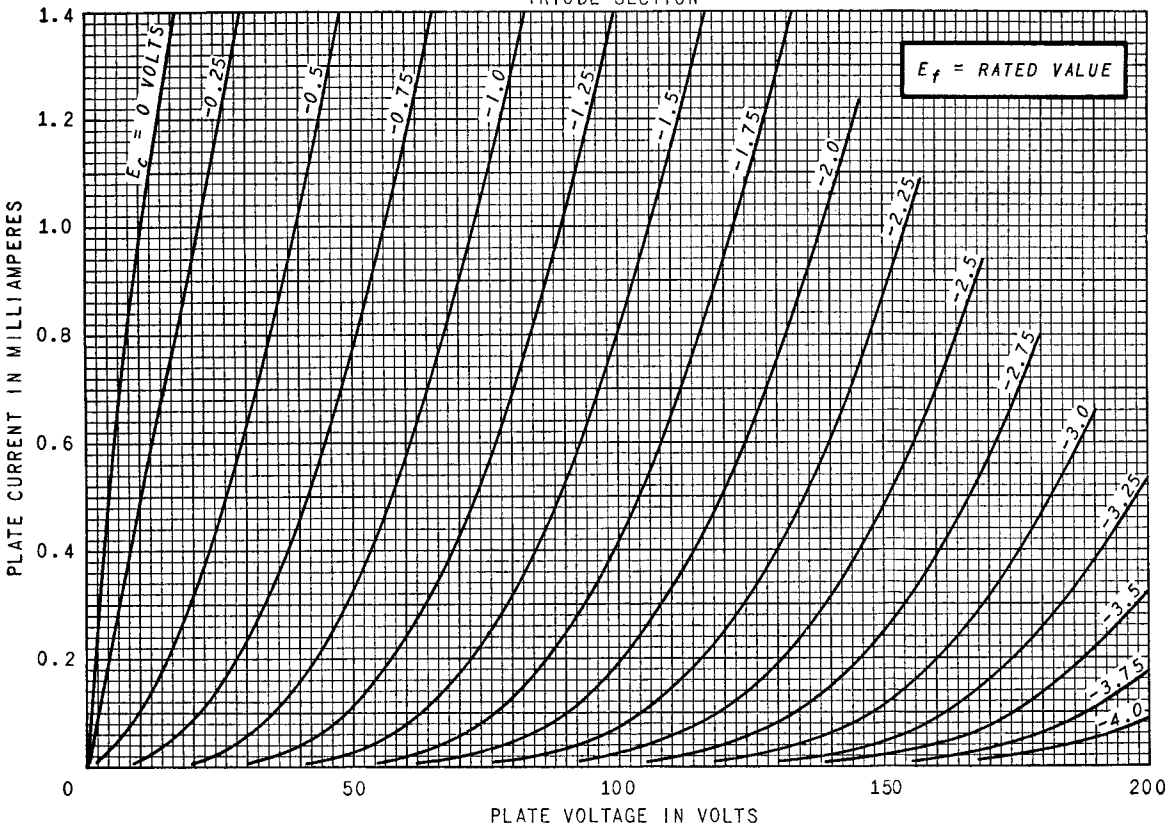
elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

**AVERAGE PLATE CHARACTERISTICS**



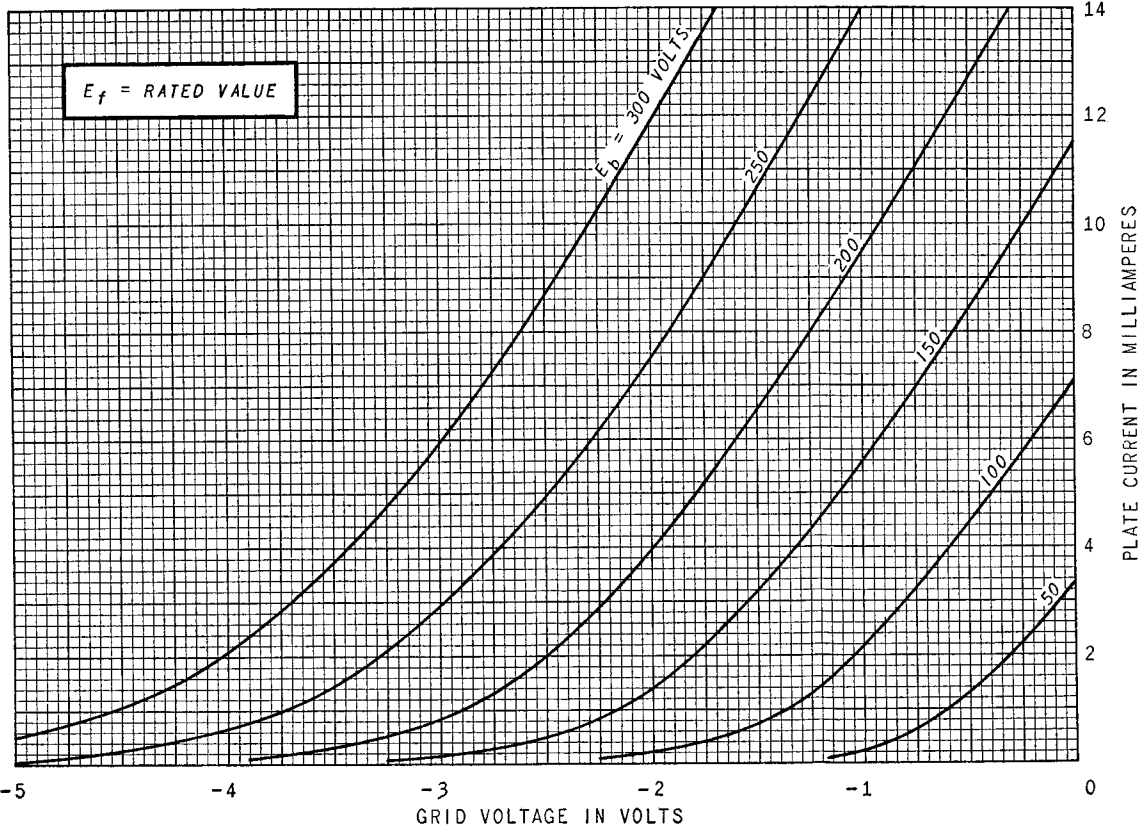
**AVERAGE PLATE CHARACTERISTICS**

TRIODE SECTION

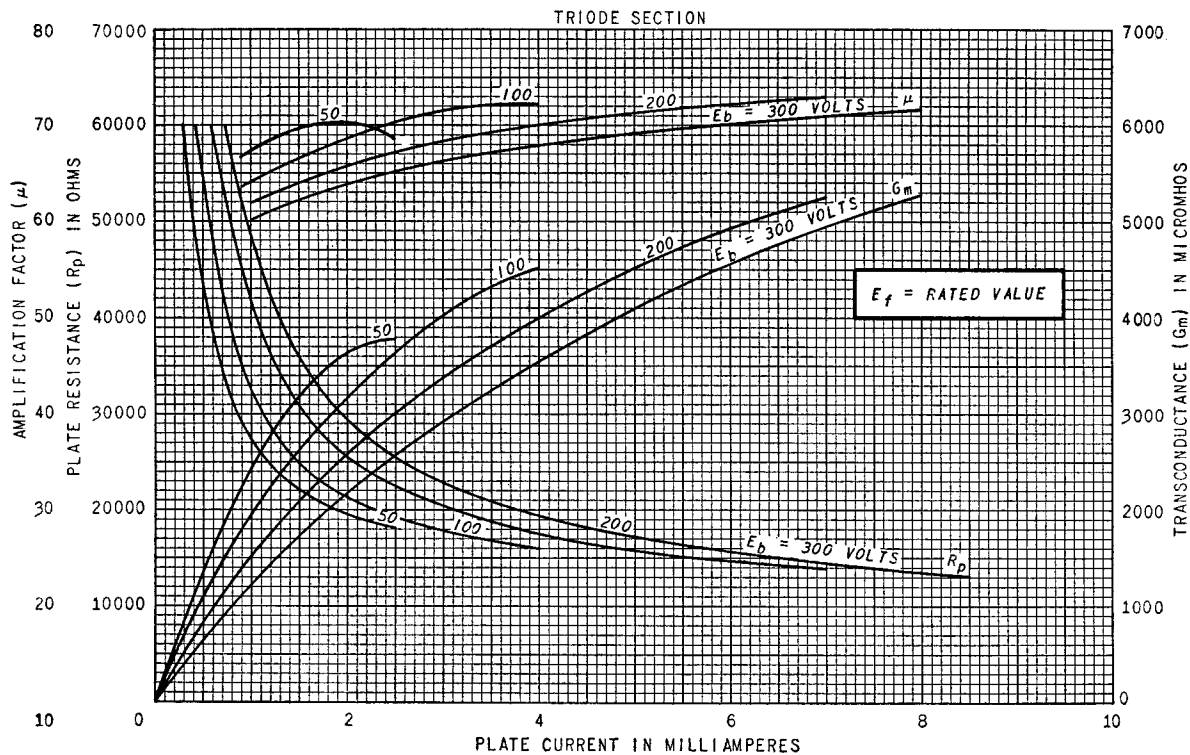


**AVERAGE TRANSFER CHARACTERISTICS**

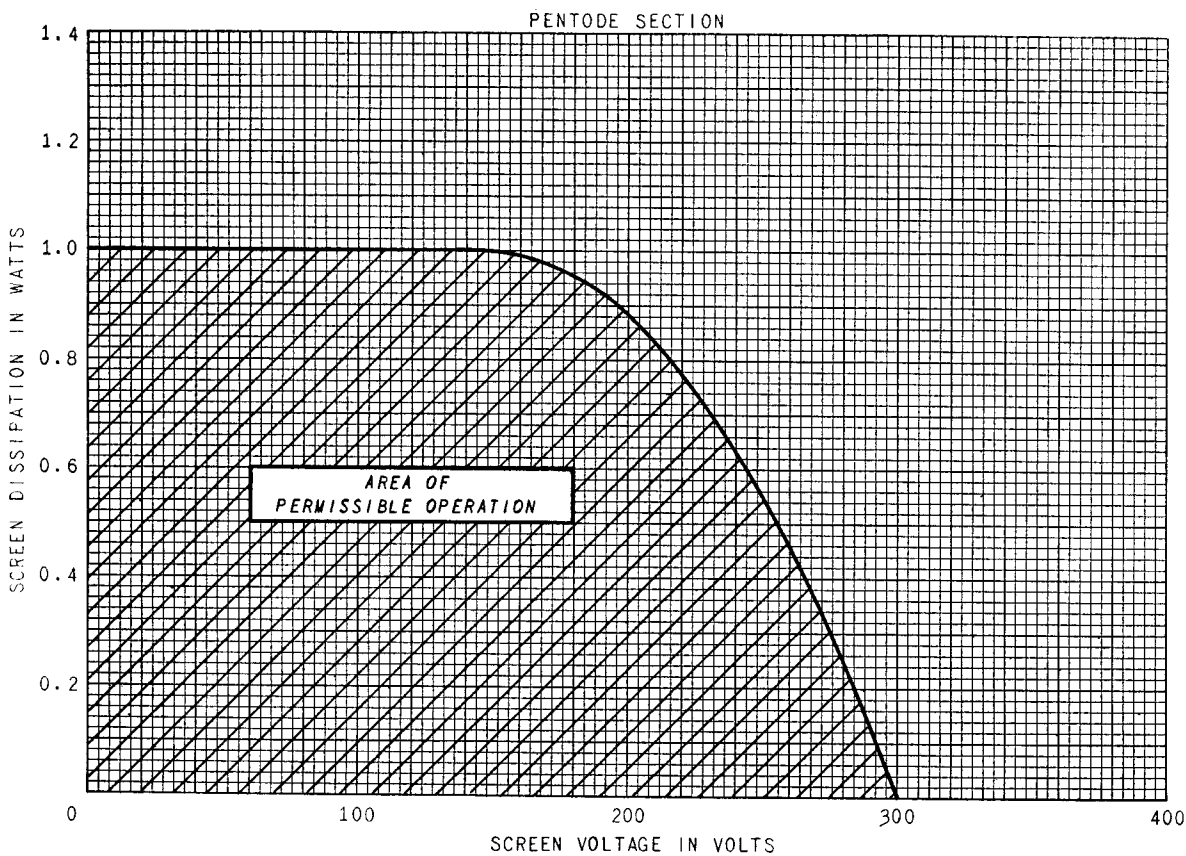
TRIODE SECTION



### AVERAGE CHARACTERISTICS

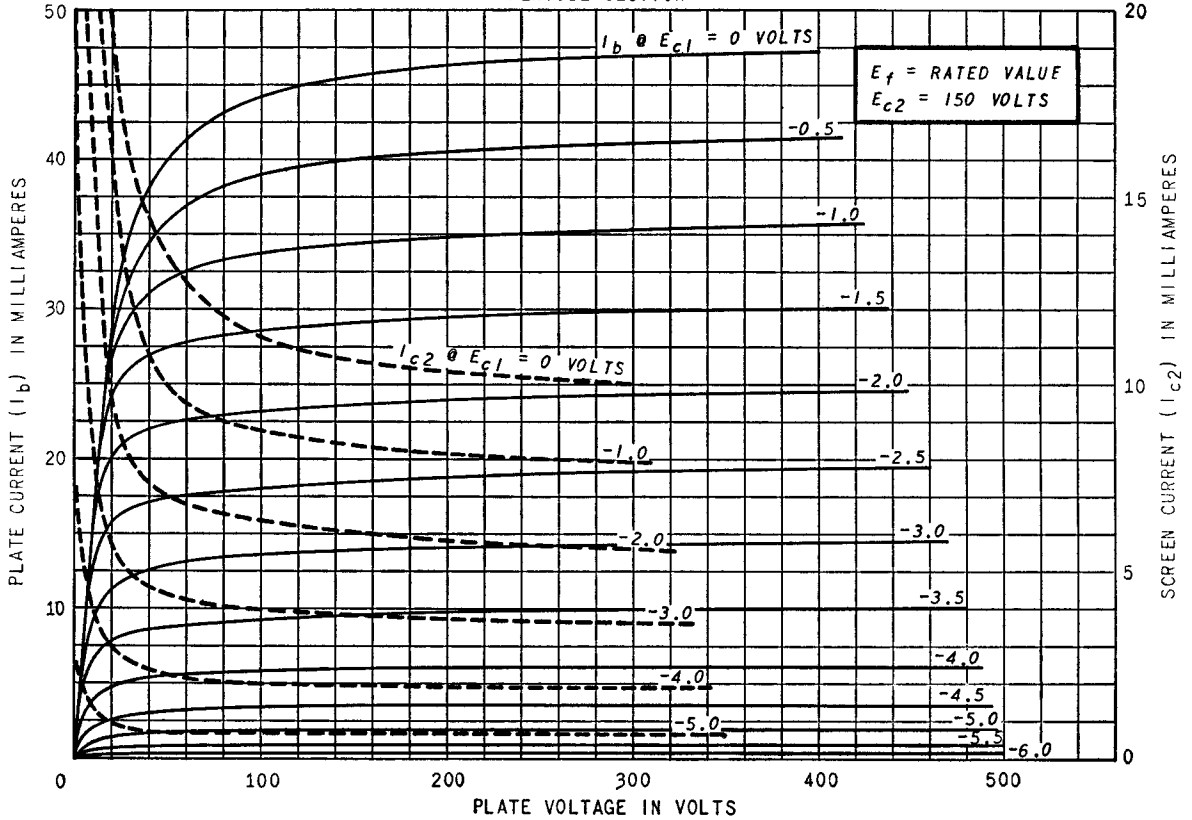


### SCREEN RATING CHART



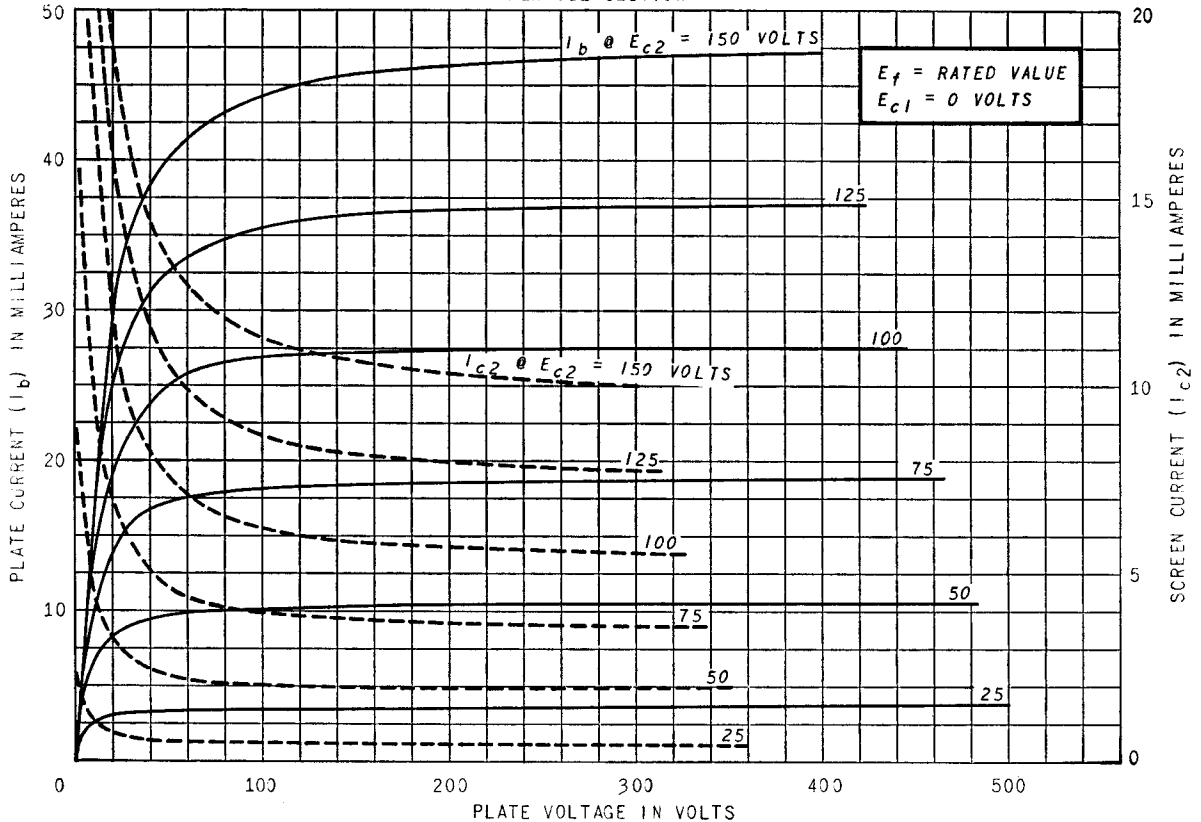
**AVERAGE PLATE CHARACTERISTICS**

PENTODE SECTION



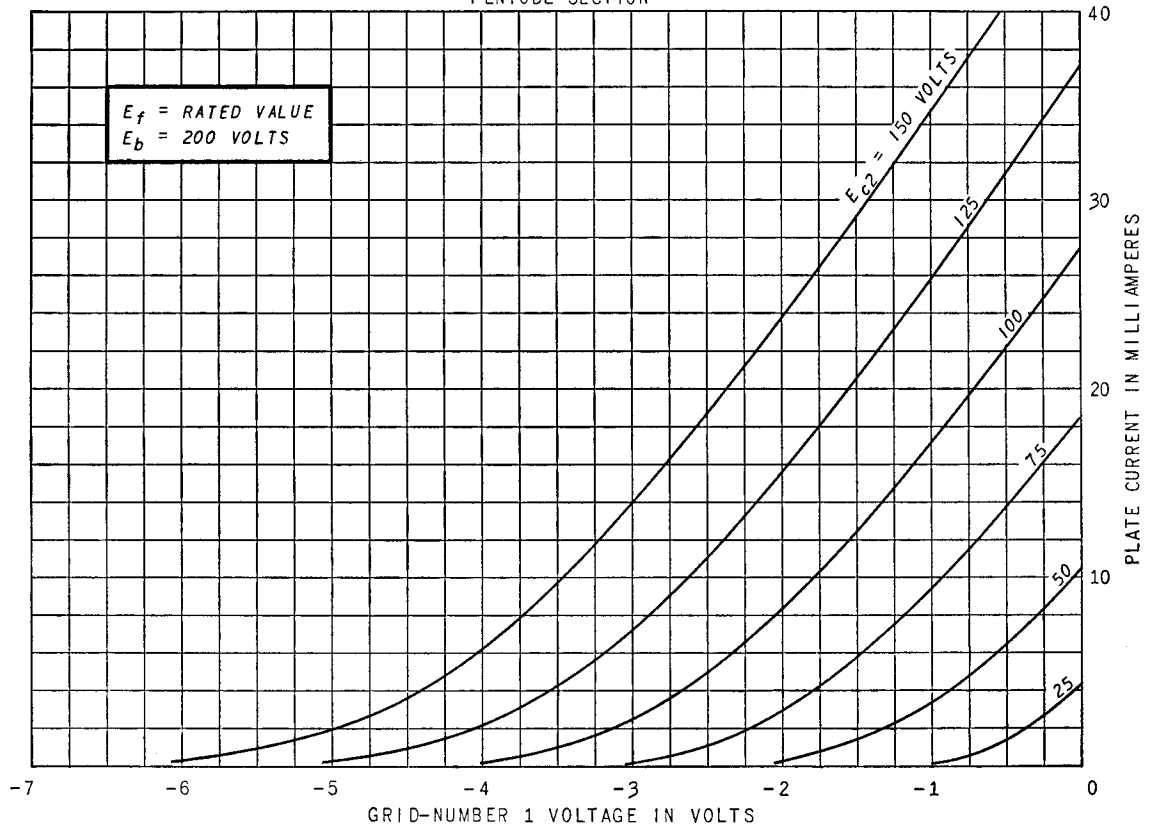
**AVERAGE PLATE CHARACTERISTICS**

PENTODE SECTION



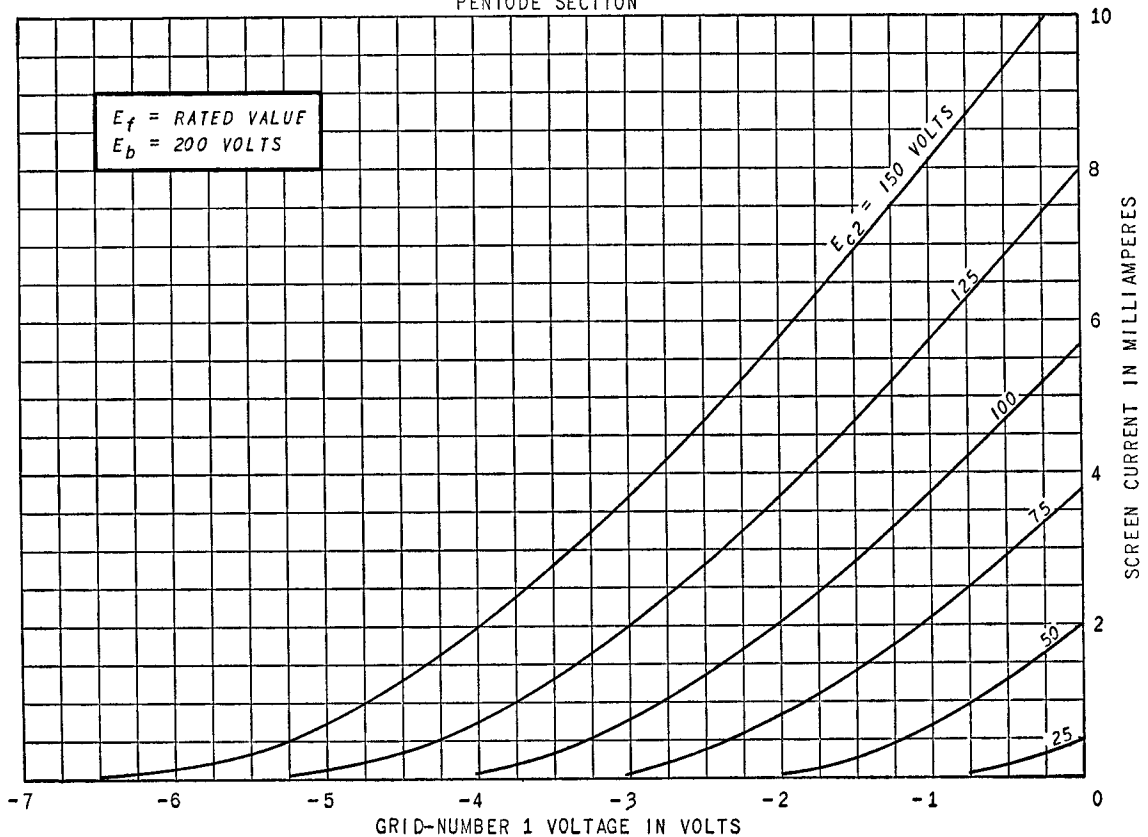
### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION





### AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

