

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-milliamperes, 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-milliamperes, series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage	6.3	8.4	Volts
Heater Current	0.6	0.45	Amperes
Heater Warm-up Time*	11	11	Seconds

Direct Interelectrode Capacitances

	With Shield†	Without Shield	
Pentode Section			
Grid-Number 1 to Plate	0.03	0.04	μmf
Input	10	10	μmf
Output	4.5	3.6	μmf
Triode Section			
Grid to Plate	2.2	2.2	μmf
Input	3.4	3.2	μmf
Output	1.7	0.32	μmf
Pentode Grid-Number 1 to Triode Plate	0.003	0.006	μmf
Triode Grid to Pentode Plate	0.006	0.016	μmf
Pentode Plate to Triode Plate	0.023	0.150	μmf

MECHANICAL

Mounting Position—Any

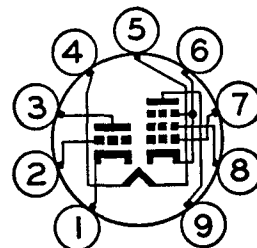
Envelope—T-6½, Glass

Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

	Pentode Section	Triode Section	
DESIGN-CENTER VALUES			
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

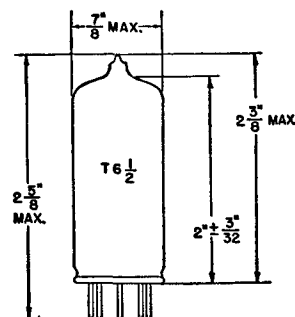


EIA 9DX

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

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GENERAL

ELECTRICAL

Cathode—Coated Unipotential	Series	Parallel
Heater Characteristics and	Heater	Heater
Ratings	Operation	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	With Shield#	Without Shield
Pentode Section		
Grid-Number 1 to Plate: (Pg1 to Tp), 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	...
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	...
Heater-Cathode Voltage		

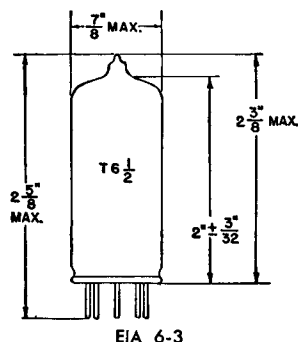
	Pentode Section	Triode Section
Heater Positive with Respect to Cathode		
DC Component	100	100 Volts
Total DC and Peak	200	200 Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	200 Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.25	0.5 Megohms
With Cathode Bias	1.0	1.0 Megohms

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.

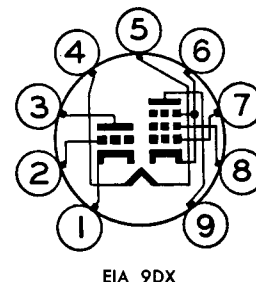
PHYSICAL DIMENSIONS



TERMINAL CONNECTIONS

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- Pin 9—Pentode Plate

BASING DIAGRAM



CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

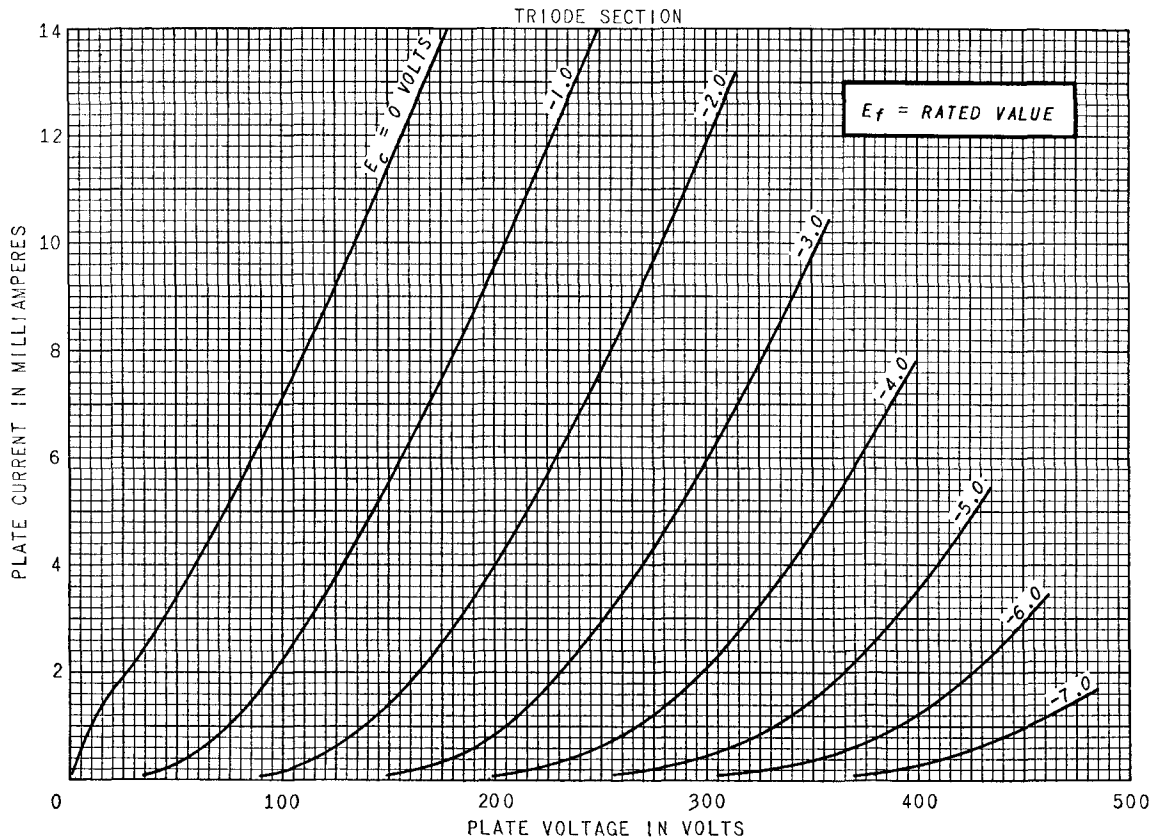
	Pentode Section		Triode Section	
Plate Voltage	65	200	200	Volts
Screen Voltage	150	150	. . .	Volts
Grid-Number 1 Voltage	0†	. . .	-2.0	Volts
Cathode-Bias Resistor	. . .	180	. . .	Ohms
Amplification Factor	. . .	. . .	70	
Plate Resistance, approximate	. . .	400000	17500	Ohms
Transconductance	. . .	9000	4000	Micromhos
Plate Current	42	13	4.0	Milliamperes
Screen Current	12.5	3.5	. . .	Milliamperes
Grid-Number 1 Voltage, approximate I _b = 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 A₁ AMPLIFIER

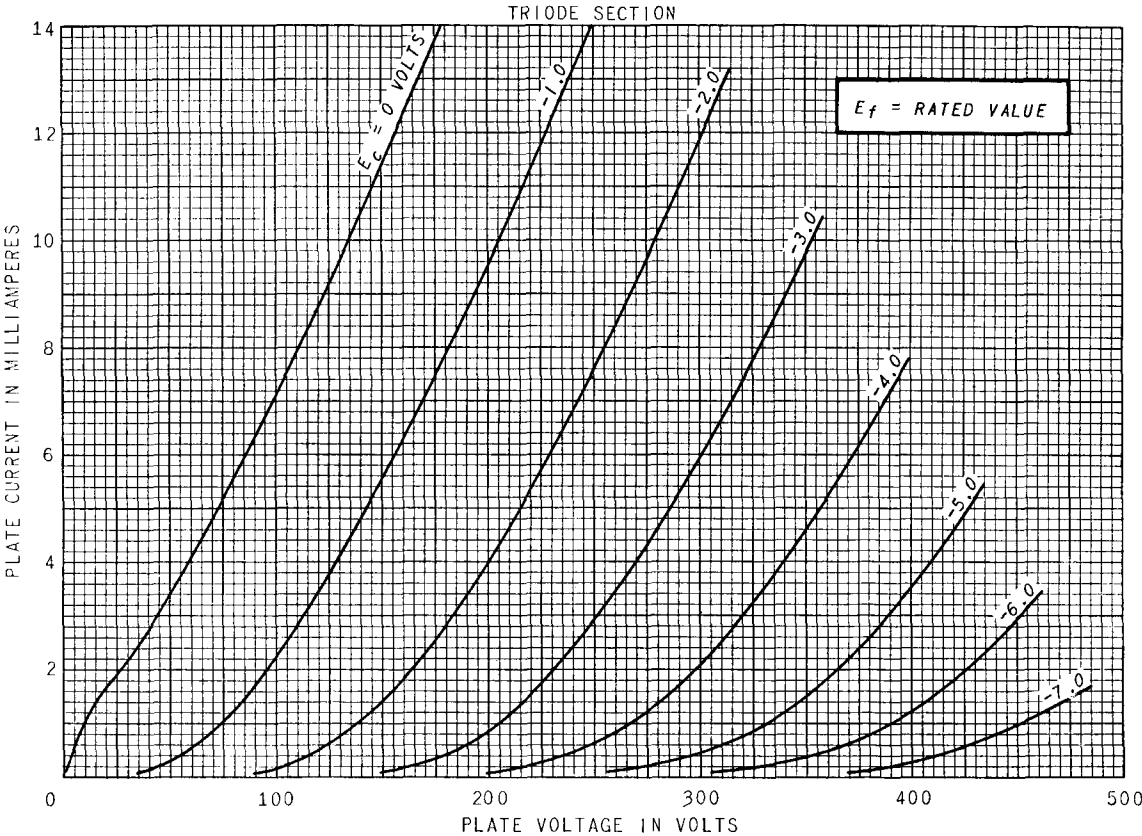
	Pentode Section	Triode Section
Plate Voltage.....	150	200 Volts
Screen Voltage.....	150	 Volts
Grid-Number 1 Voltage.....	0 Δ	-2.0 Volts
Cathode-Bias Resistor.....	150	 Ohms
Amplification Factor.....		70
Plate Resistance, approximate.....	200000	 Ohms
Transconductance.....	9500	4000 Micromhos
Plate Current.....	46	4.0 Milliampères
Screen Current.....	15	 Milliampères
Grid-Number 1 Voltage, approximate		
I _b = 20 Microampères.....	-8	-5 Volts

FOOTNOTES

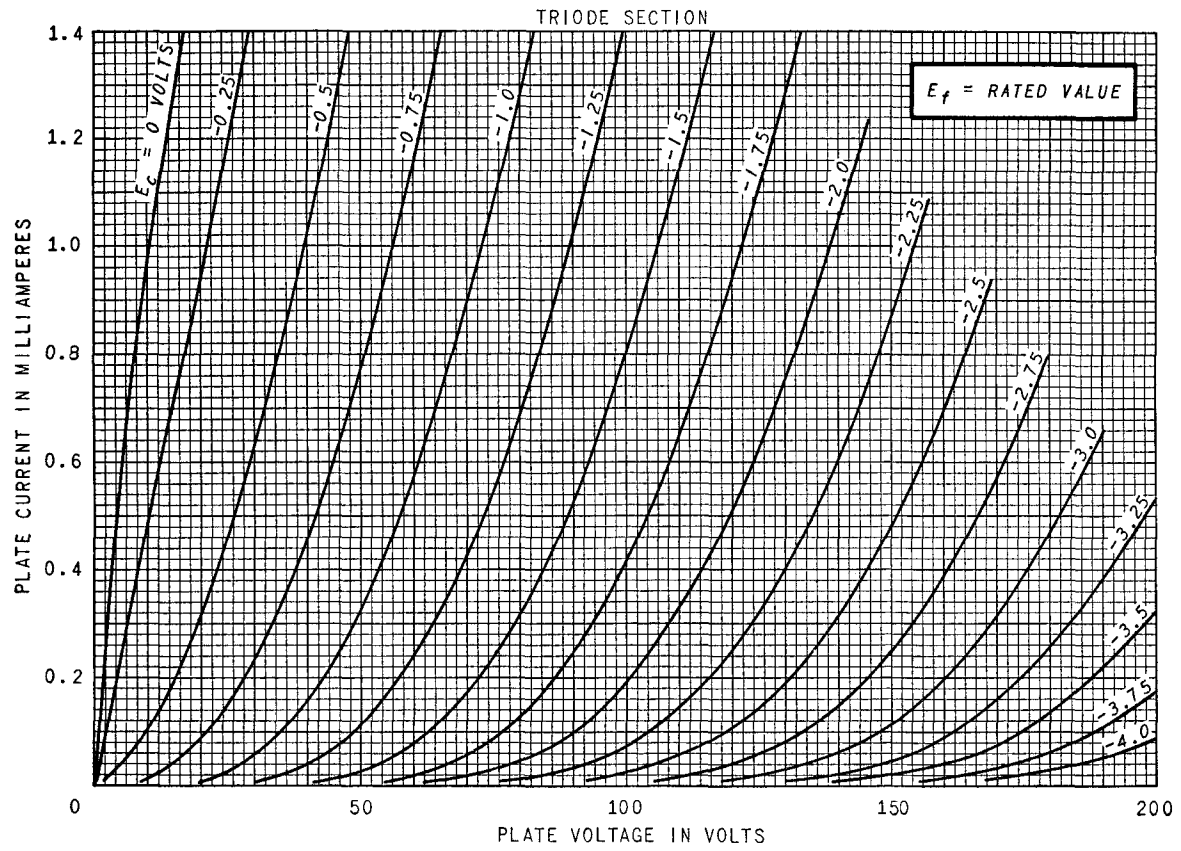
- * Heater voltage for a bogey tube at I_f = 0.6 amperes.
- † For series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.
- ‡ 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_f = 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.
- Δ Applied for short interval (two seconds maximum) so as not to damage tube.

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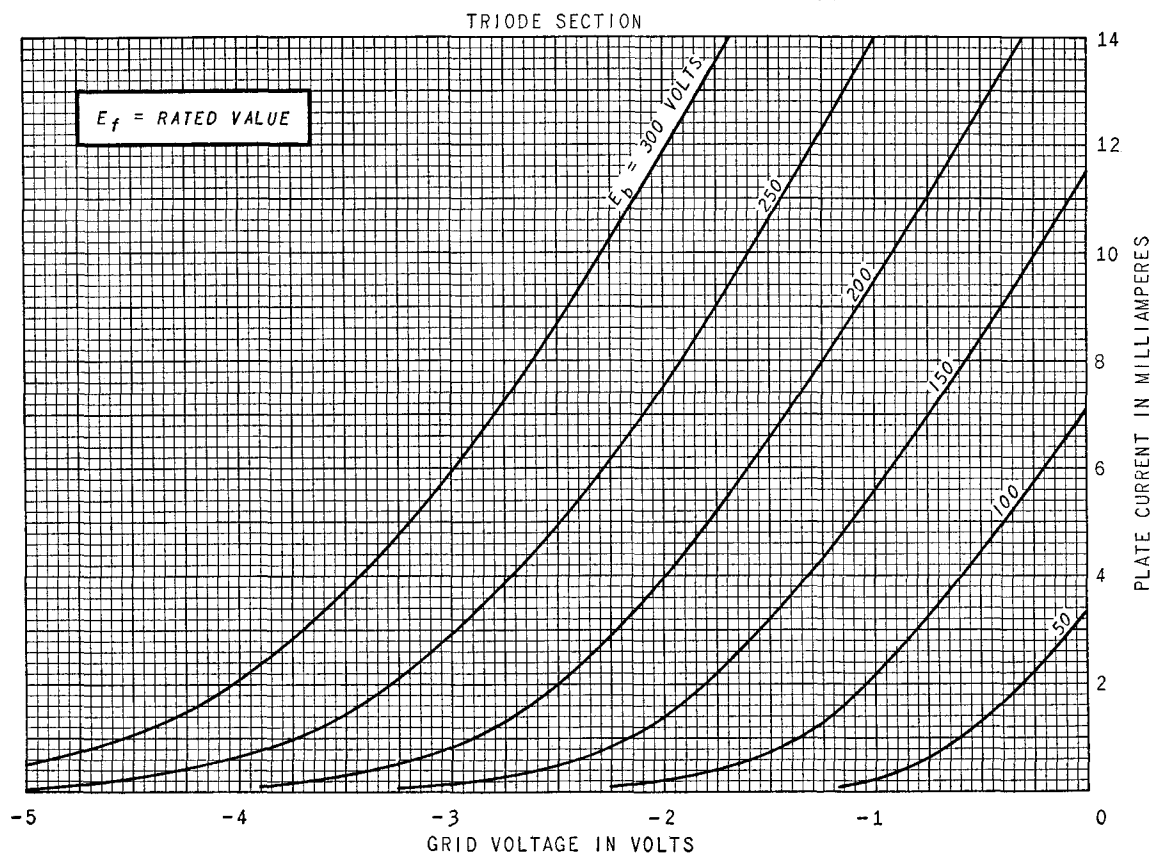
AVERAGE PLATE CHARACTERISTICS



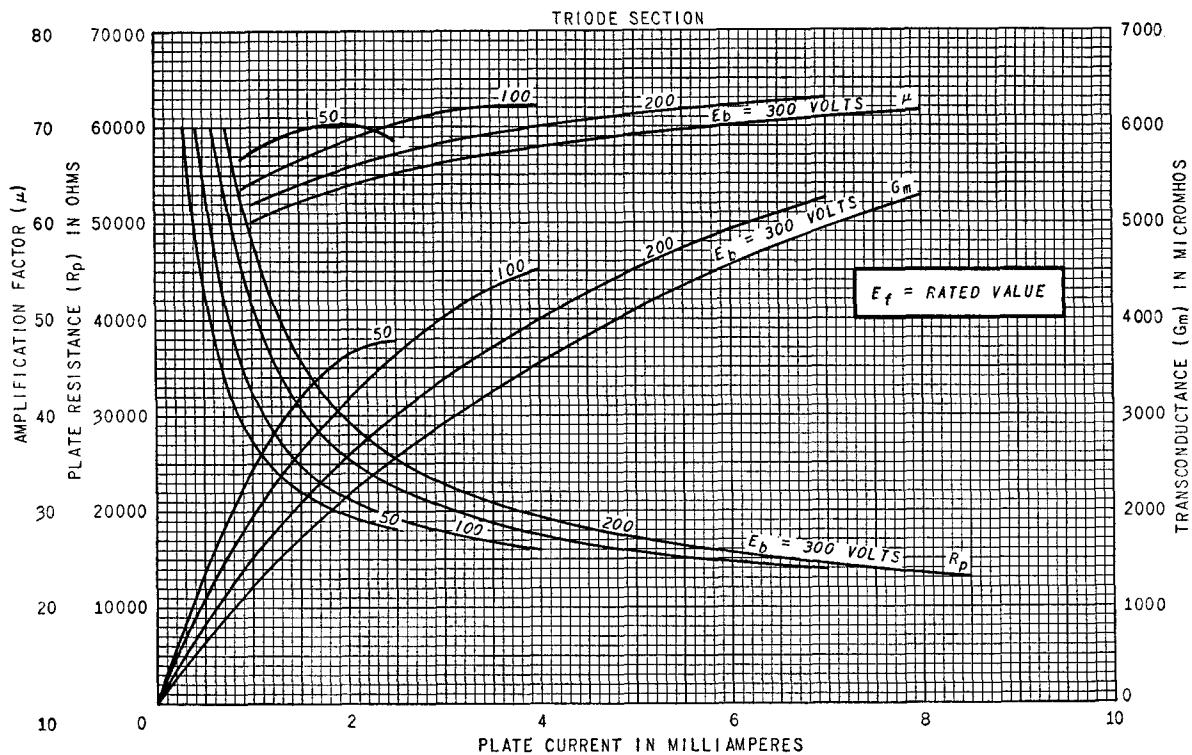
AVERAGE PLATE CHARACTERISTICS



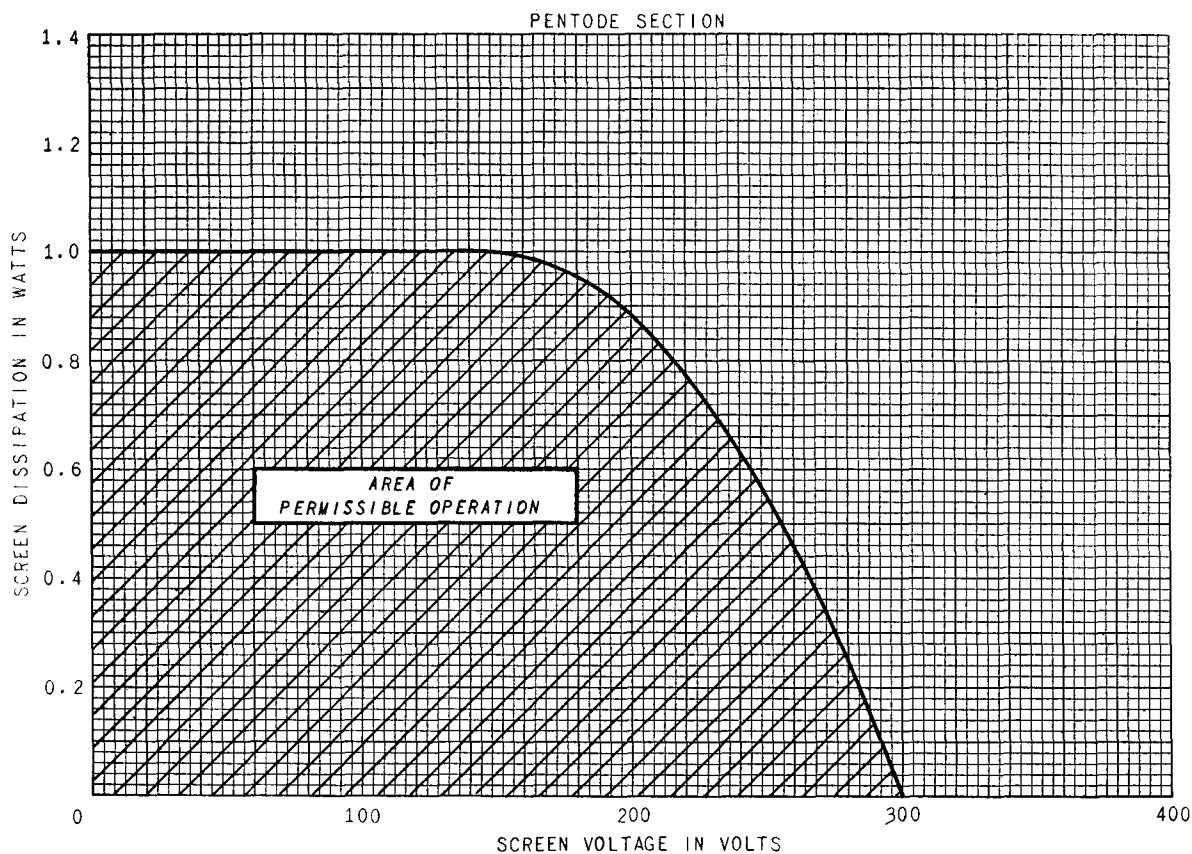
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS

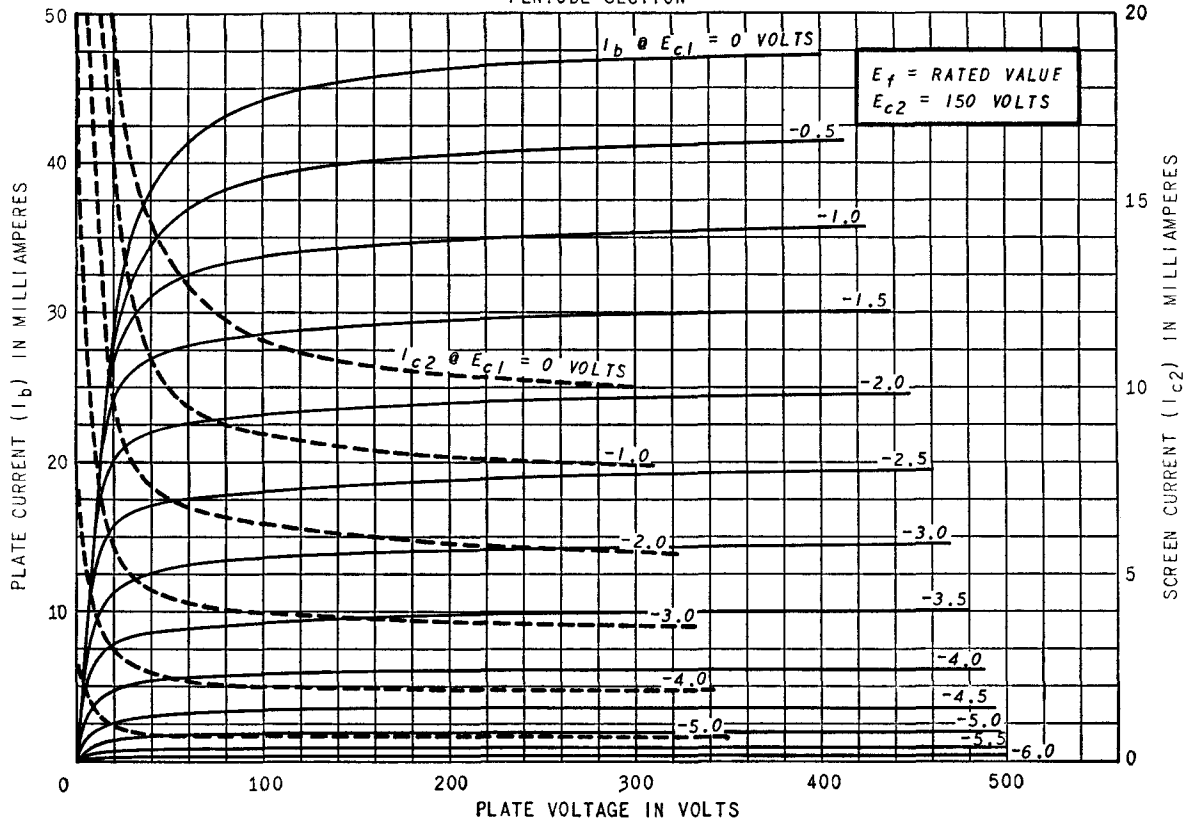


SCREEN RATING CHART



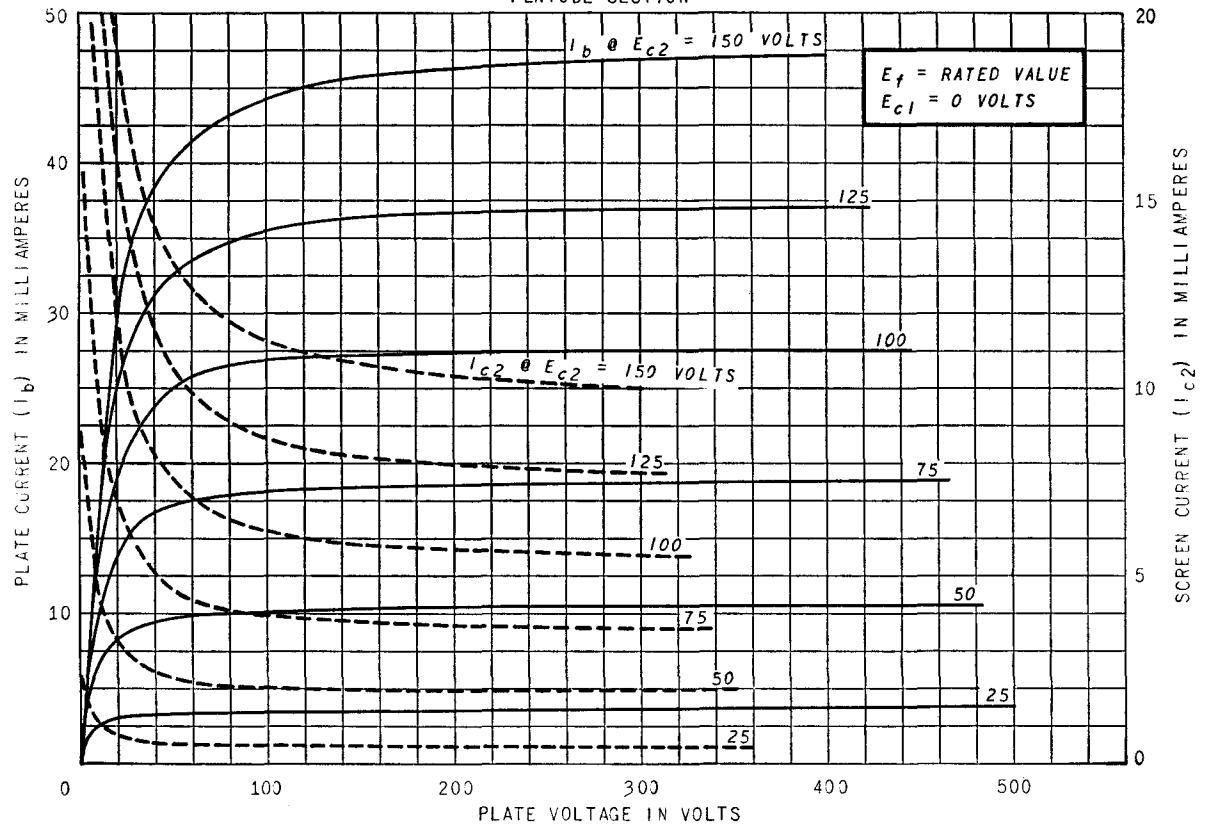
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



6AW8-A

8AW8-A

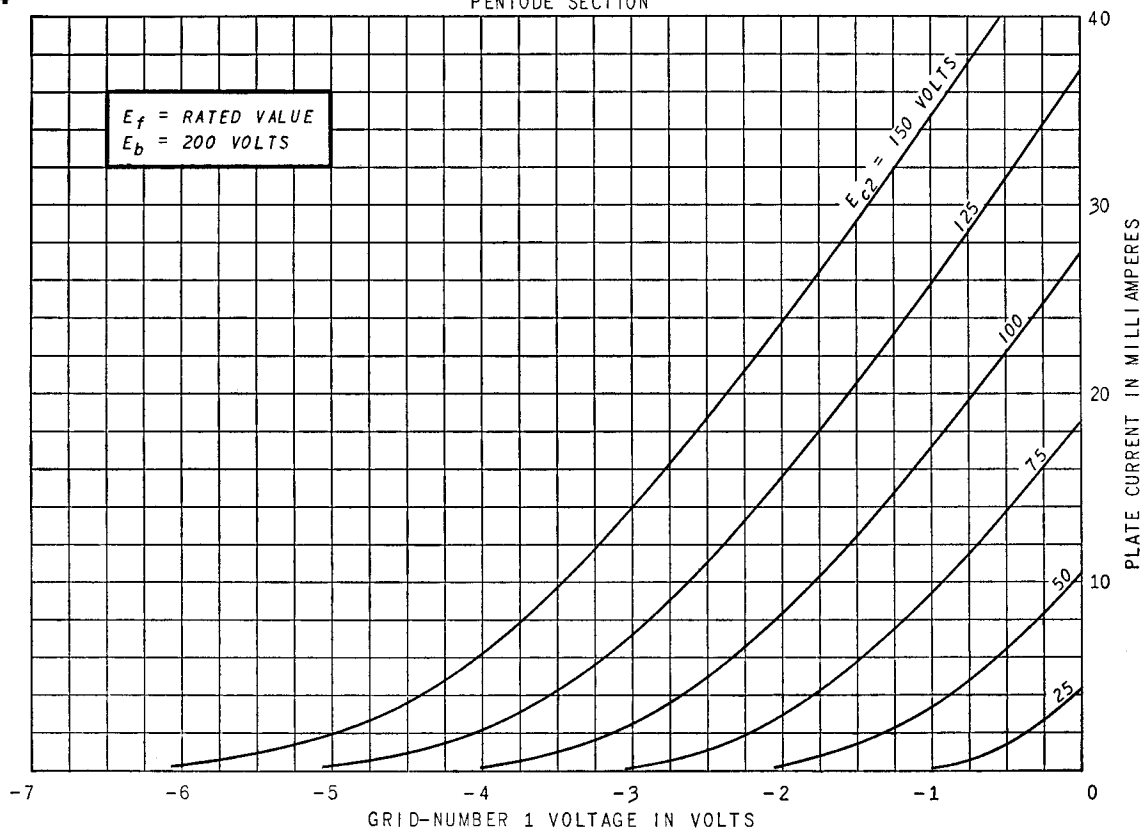
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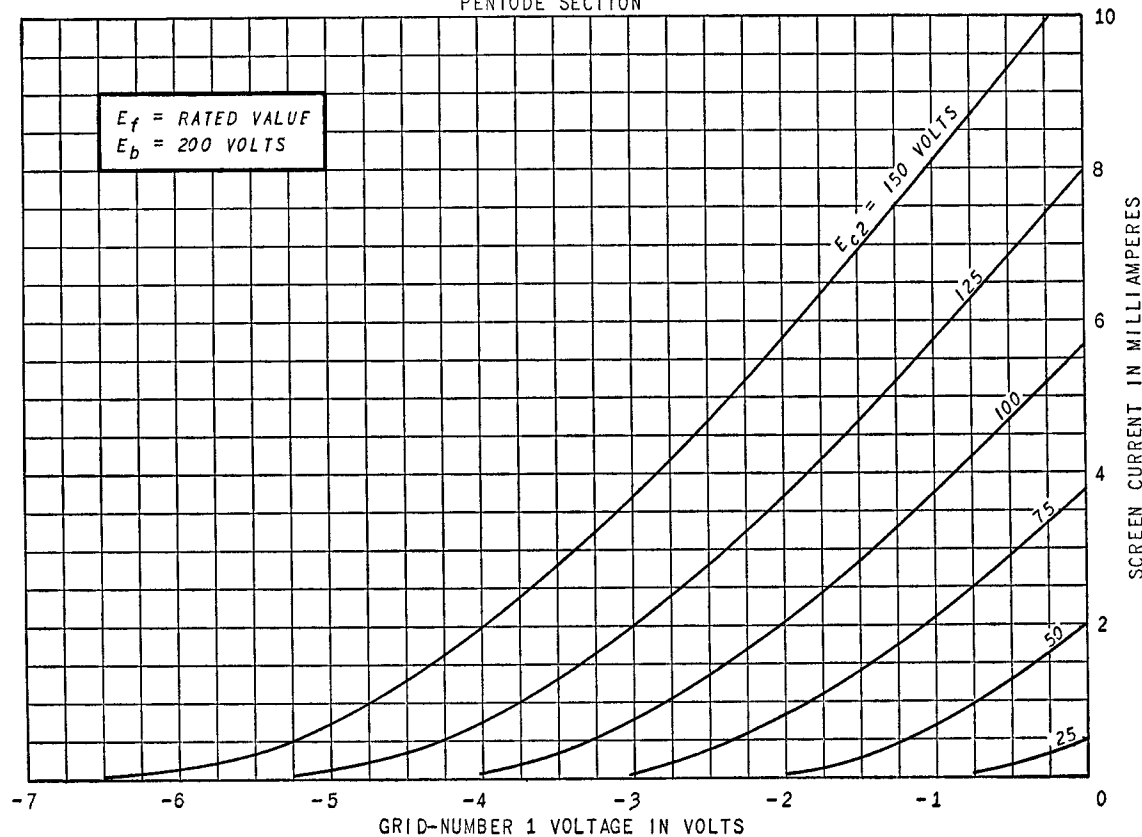
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



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PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

