

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-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 |

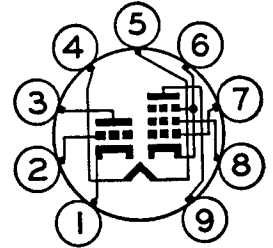
MECHANICAL

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

MAXIMUM RATINGS

| 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

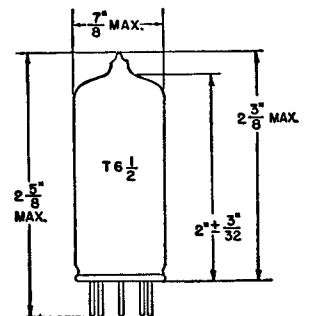


EIA 9DX

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 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 | ... | 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 | | | |

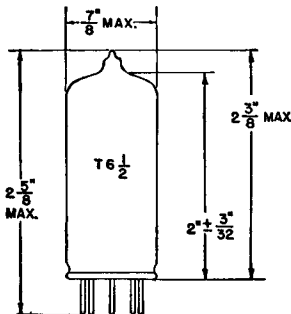
| | Pentode Section | Triode Section | |
|---|-----------------|----------------|---------|
| Heater Positive with Respect to Cathode | | | |
| DC Component | 100 | 100 | Volts |
| Total DC and Peak | 200 | 200 | Volts |
| Heater Negative with Respect to Cathode | | | |
| Total DC and Peak | 200 | 200 | 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

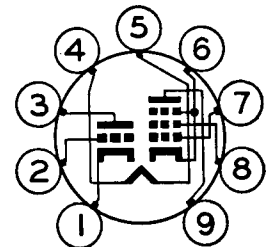


EIA 6-3

TERMINAL CONNECTIONS

- 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

BASING DIAGRAM



EIA 9DX

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

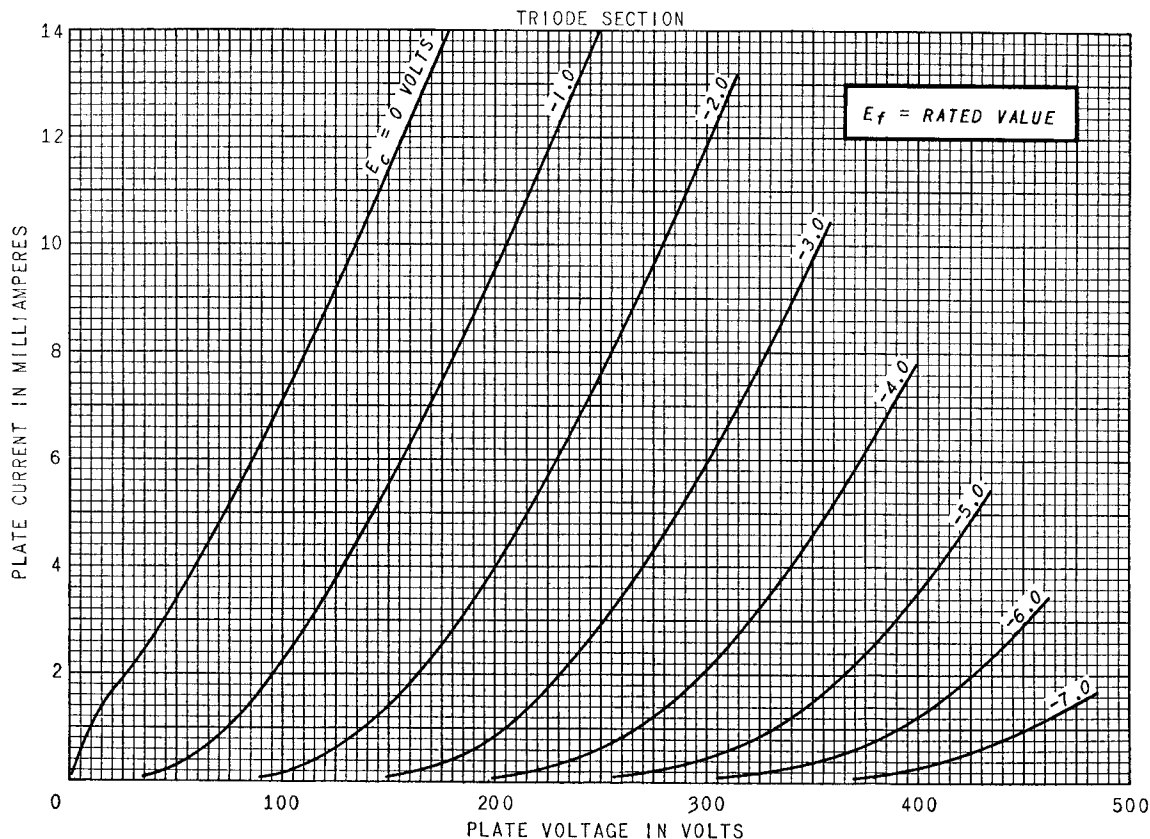
| | | Pentode Section | | Triode Section | |
|--|--------------|------------------------|--|-----------------------|--------------|
| Plate Voltage | 65 | 200 | | 200 | Volts |
| Screen Voltage | 150 | 150 |  | .... | Volts |
| Grid-Number 1 Voltage | 0\ddagger | .... |  | -2.0 | Volts |
| Cathode-Bias 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 _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..... | 15 | 4.0 Milliamperes |
| Screen Current..... | 3.5 | Milliamperes |
| Grid-Number 1 Voltage, approximate I _b = 20 Microamperes..... | -8 | -5 Volts |

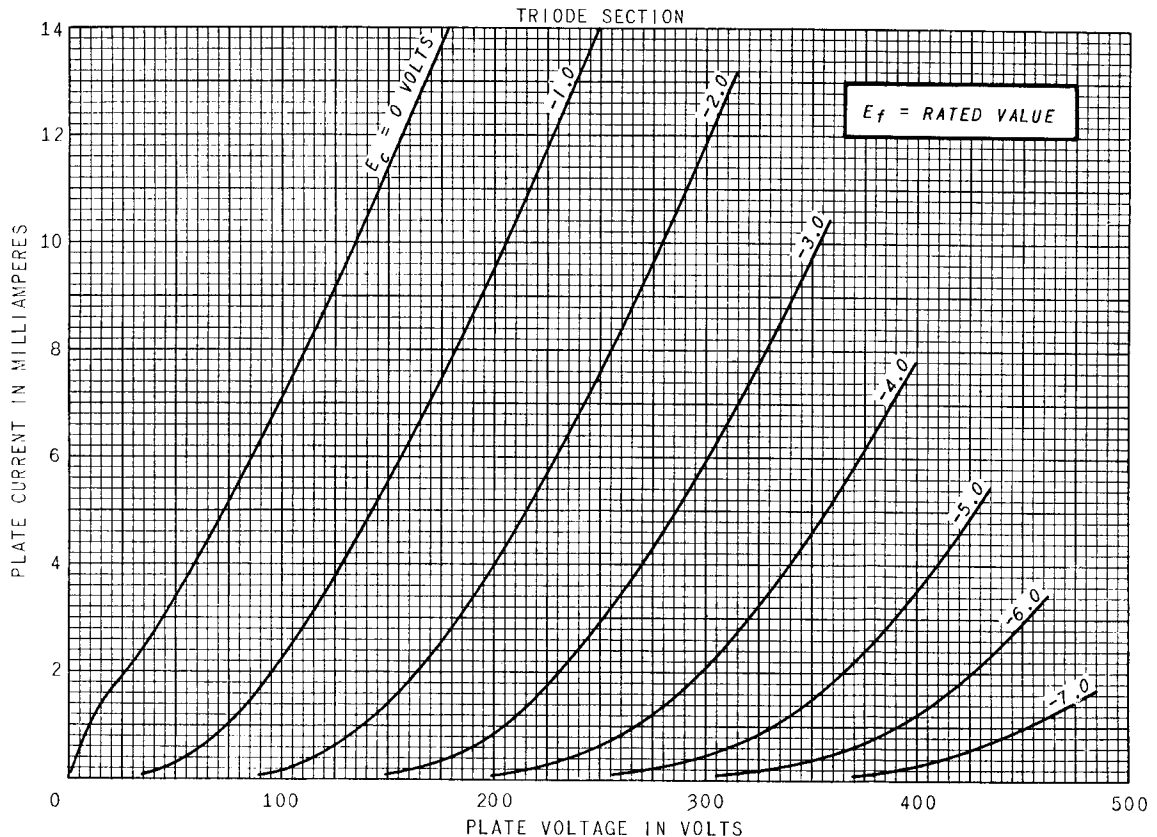
FOOTNOTES

- * 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.

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

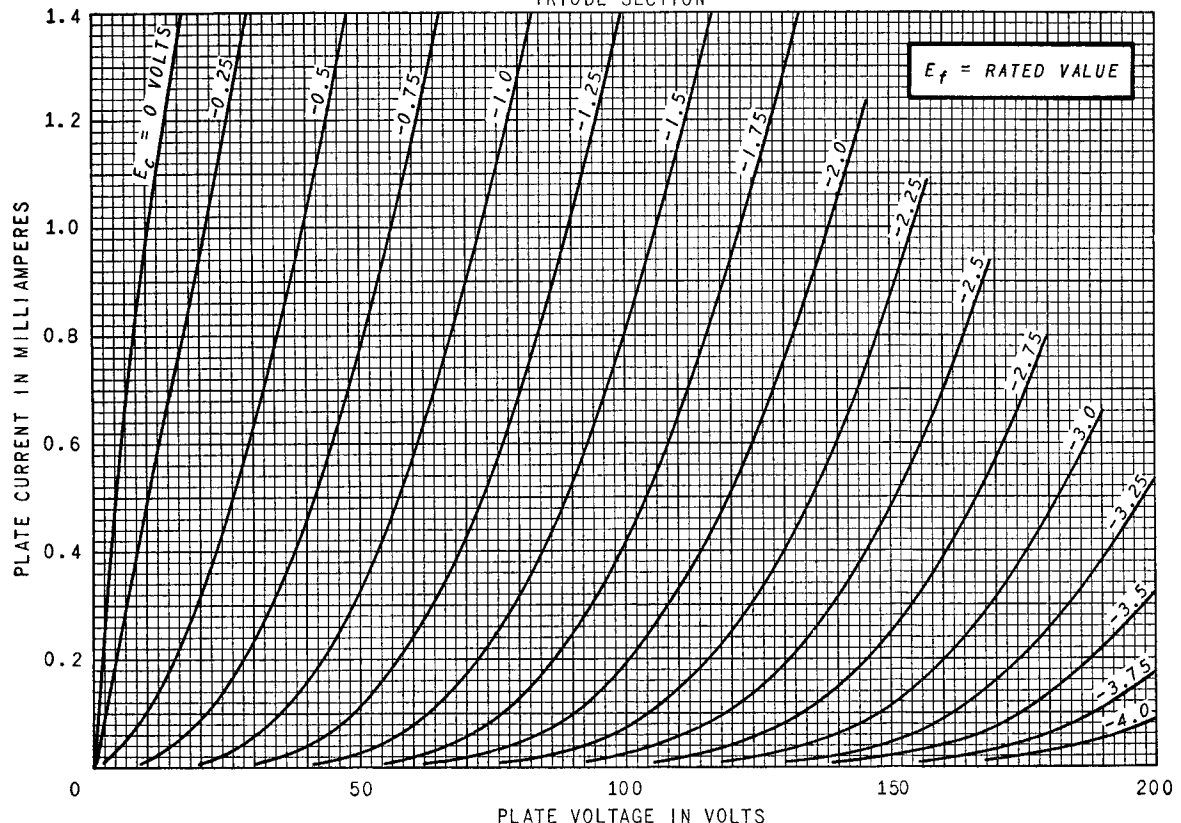
elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

AVERAGE PLATE CHARACTERISTICS



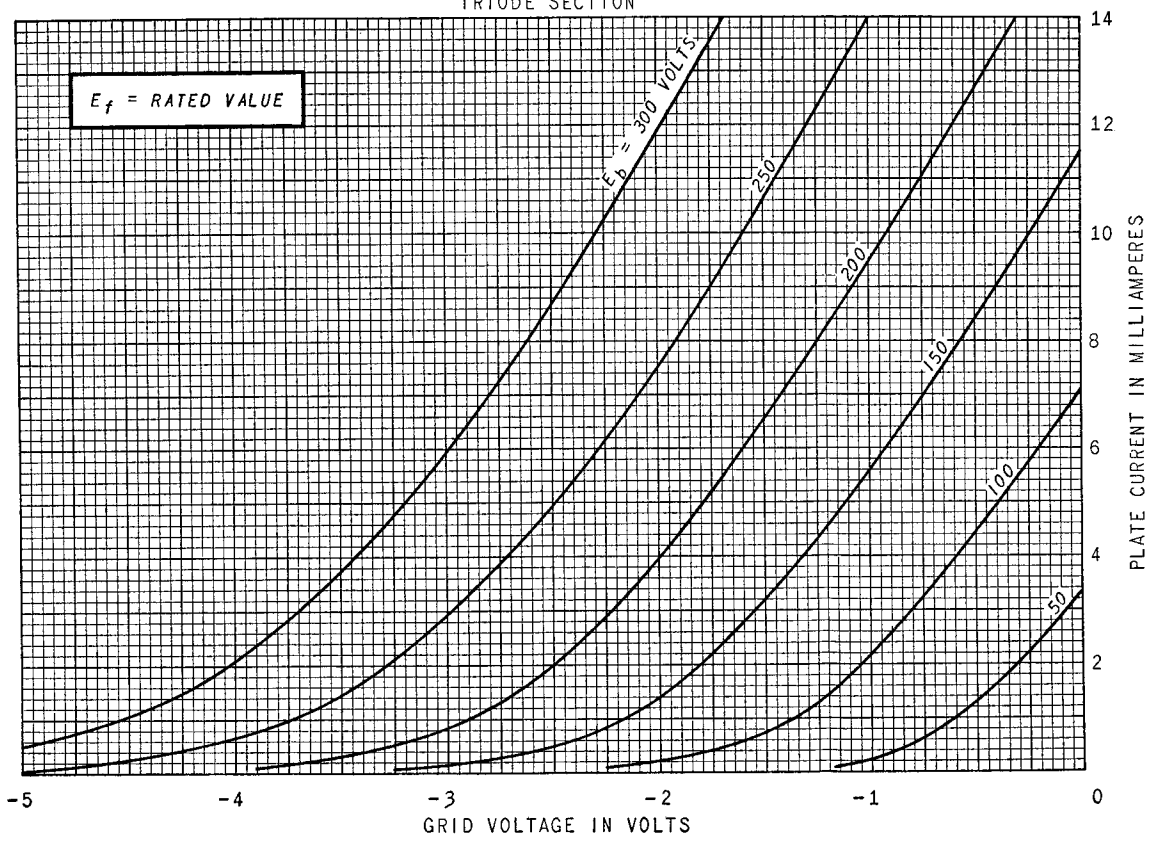
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

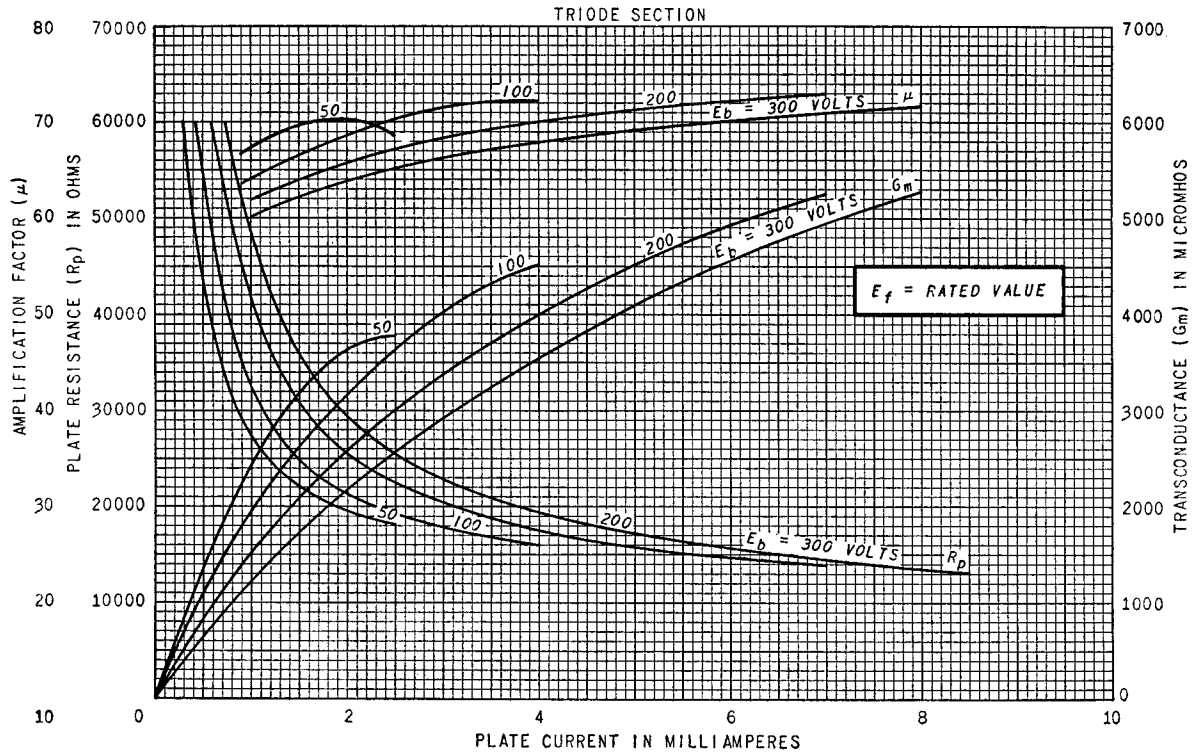


AVERAGE TRANSFER CHARACTERISTICS

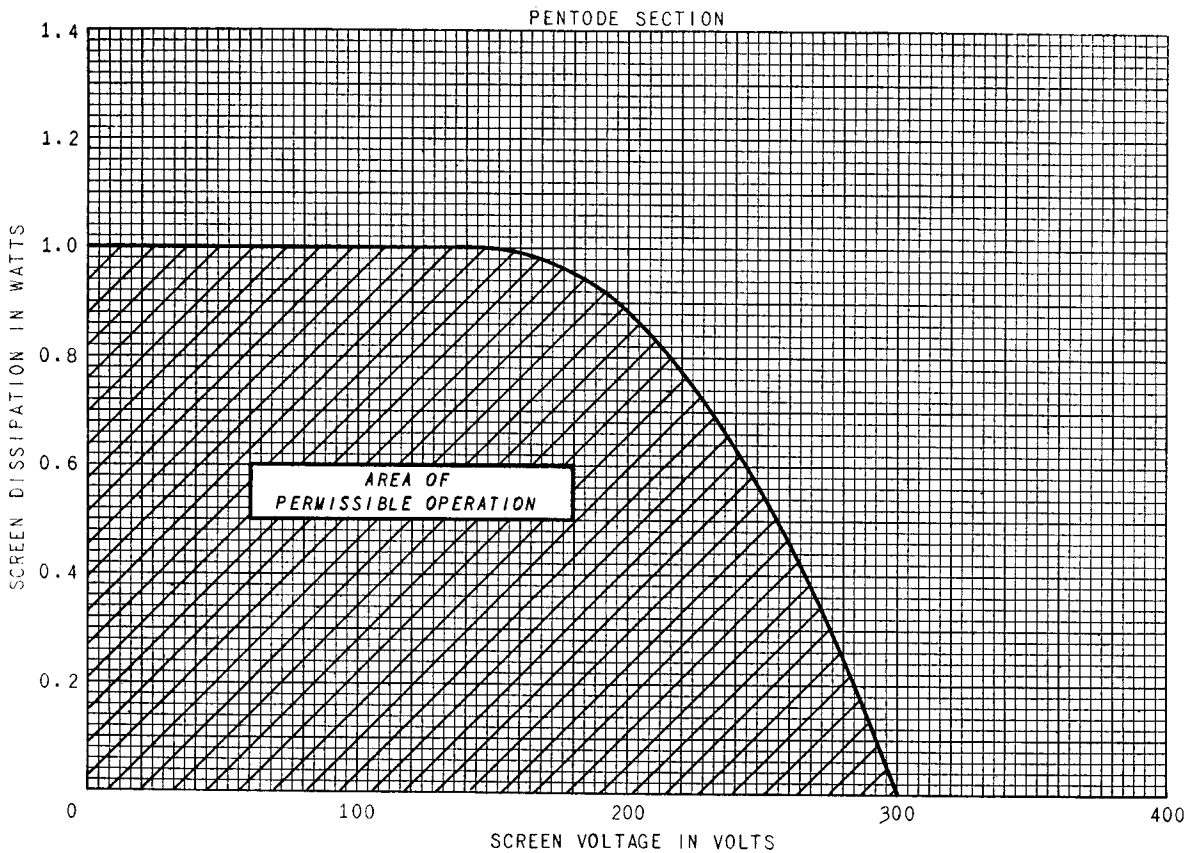
TRIODE SECTION



AVERAGE CHARACTERISTICS

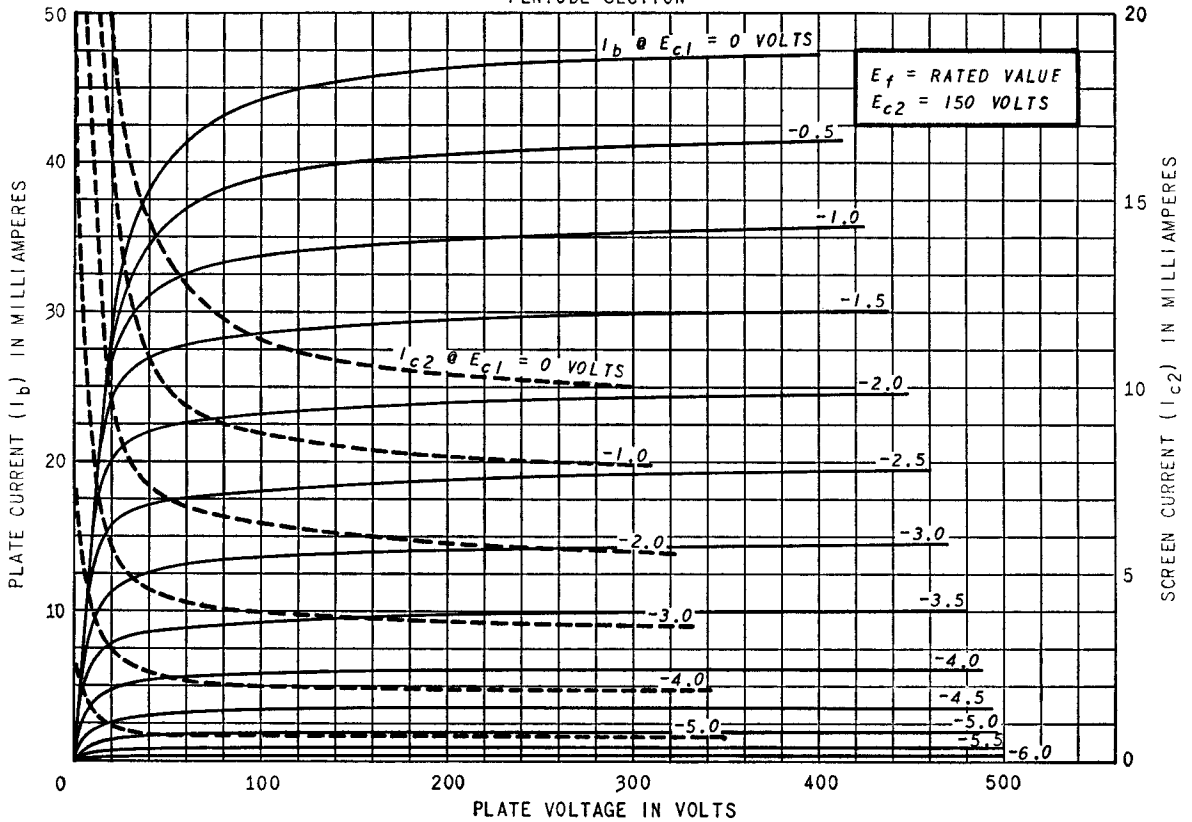


SCREEN RATING CHART



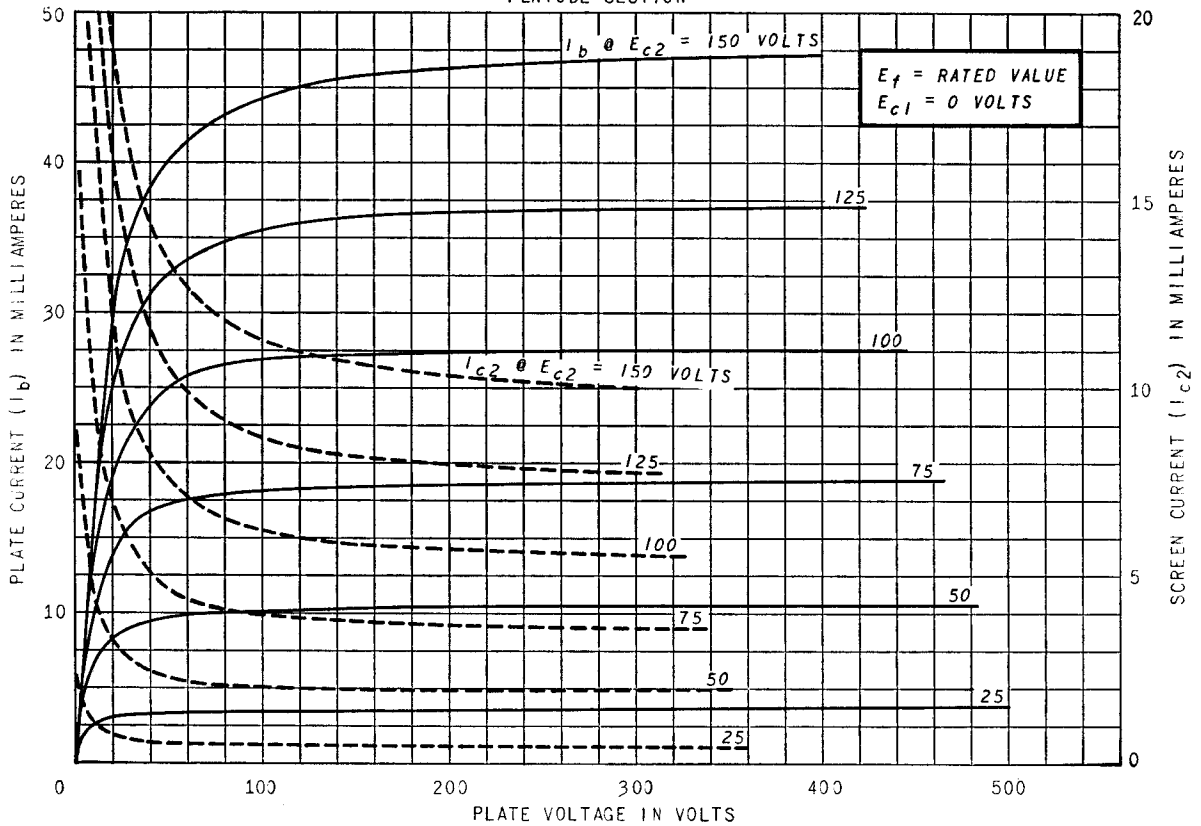
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



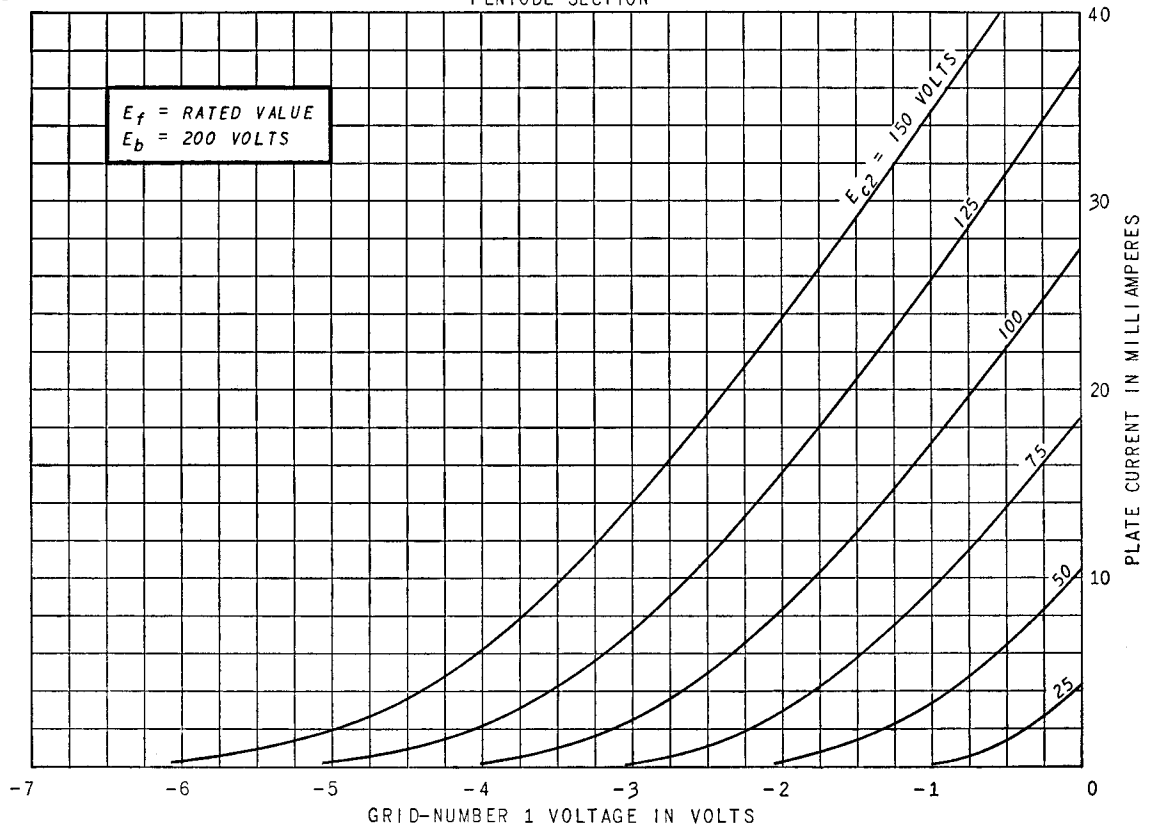
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



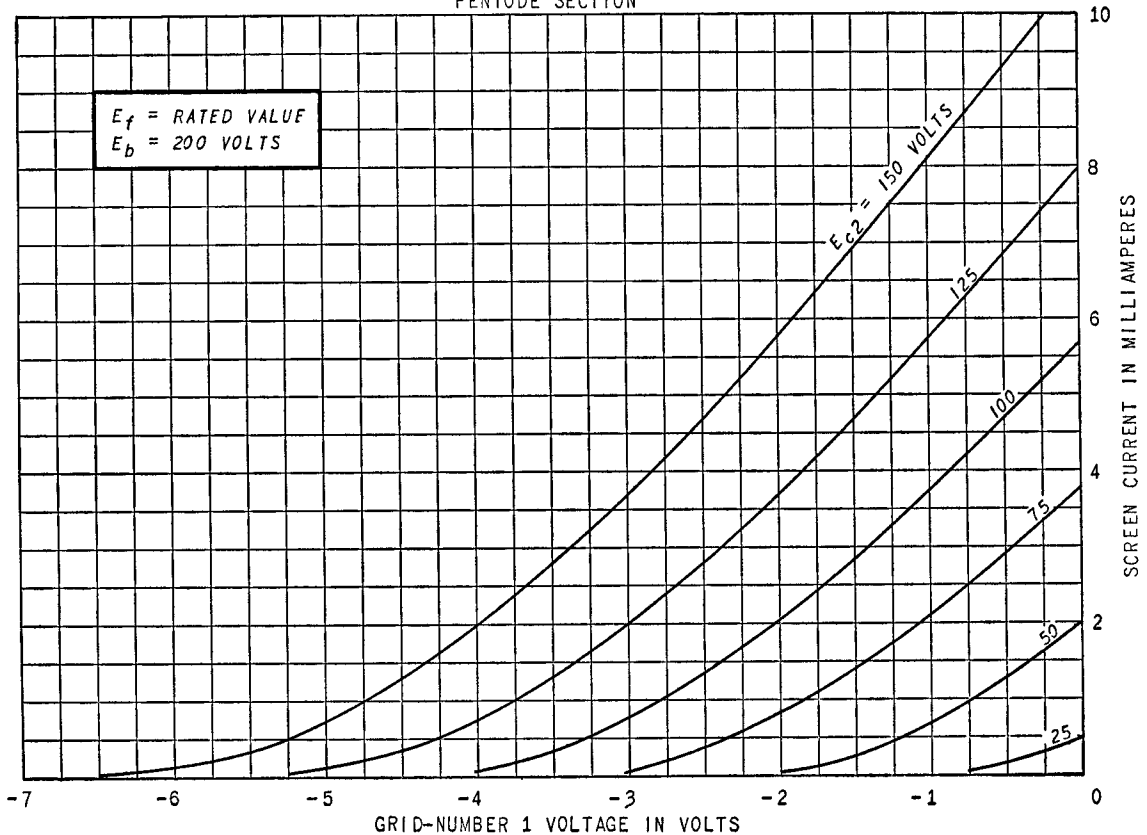
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



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PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

