

TRIODE-PENTODE

DESCRIPTION AND RATING

The 5DH8 is a miniature tube which contains a sharp-cutoff pentode and a high- μ triode in one envelope. The pentode section is intended for use as a video intermediate-frequency amplifier or as an audio intermediate-frequency amplifier. Provided the cathode is grounded, the triode section may be used as vertical oscillator, sync amplifier, sync separator, or sync clipper.

The 5DH8 features an internal connection between the pentode suppressor and the triode cathode, to enable the grounding of the suppressor when a cathode-bias resistor is employed for the pentode section. The tube also has a controlled heater warm-up characteristic which makes it especially suited for use in television receivers that employ 600-milliamperre, series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC 5.2 Volts

Heater Current $0.6 \pm 6\%$ Amperes

Heater Warm-up Time* 11 Seconds

Direct Interelectrode Capacitances†

Pentode Section

Grid-Number 1 to Plate, maximum $0.03 \mu\text{f}$

Input (Grid Number 1 to Cathode, Screen, and Heater) $6.5 \mu\text{f}$

Output (Plate to Cathode, Screen, Suppressor, Triode Cathode, Internal Shield, and Heater) $2.2 \mu\text{f}$

Plate to Cathode, Screen, and Heater $4.2 \mu\text{f}$

Triode Section

Grid to Plate $1.6 \mu\text{f}$

Input (Grid to Cathode, Pentode Suppressor, Internal Shield and Heater) $2.4 \mu\text{f}$

Output (Plate to Cathode, Pentode Suppressor, Internal Shield, and Heater) $1.4 \mu\text{f}$

Pentode Grid Number 1 to Triode Plate $0.008 \mu\text{f}$

Triode Grid to Pentode Plate $0.005 \mu\text{f}$

Pentode Plate to Triode Plate $0.04 \mu\text{f}$

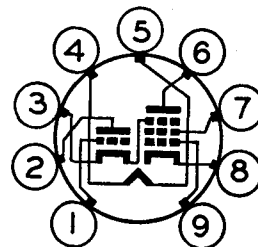
MECHANICAL

Mounting Position—Any

Envelope—T-6½, Glass

Base—E9-1, Small Button 9-Pin

BASING DIAGRAM



RETMA 9EG

TERMINAL CONNECTIONS

Pin 1—Triode Grid

Pin 2—Triode Plate

Pin 3—Triode Cathode, Pentode Grid Number 3 (Suppressor), and Internal Shield

Pin 4—Heater

Pin 5—Heater

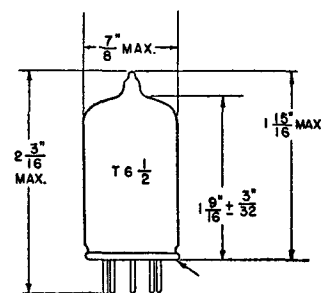
Pin 6—Pentode Plate

Pin 7—Pentode Grid Number 2 (Screen)

Pin 8—Pentode Cathode

Pin 9—Pentode Grid Number 1

PHYSICAL DIMENSIONS



RETMA 6-2

MAXIMUM RATINGS

CLASS A₁ AMPLIFIER SERVICE—DESIGN-MAXIMUM 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
Plate Dissipation	2.2	2.0 Watts
Screen Dissipation	0.55	. . . 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

VERTICAL OSCILLATOR SERVICE†, TRIODE SECTION—DESIGN-MAXIMUM VALUES

DC Plate Voltage	300	Volts
Peak Negative Grid Voltage	400	Volts
Plate Dissipation	1.0	Watts
DC Cathode Current	12	Milliamperes
Peak Cathode Current	35	Milliamperes
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	2.2	Megohms
With Cathode Bias	2.2	Megohms
With Grid-Leak Bias	2.2	Megohms

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

CHARACTERISTICS AND TYPICAL OPERATION

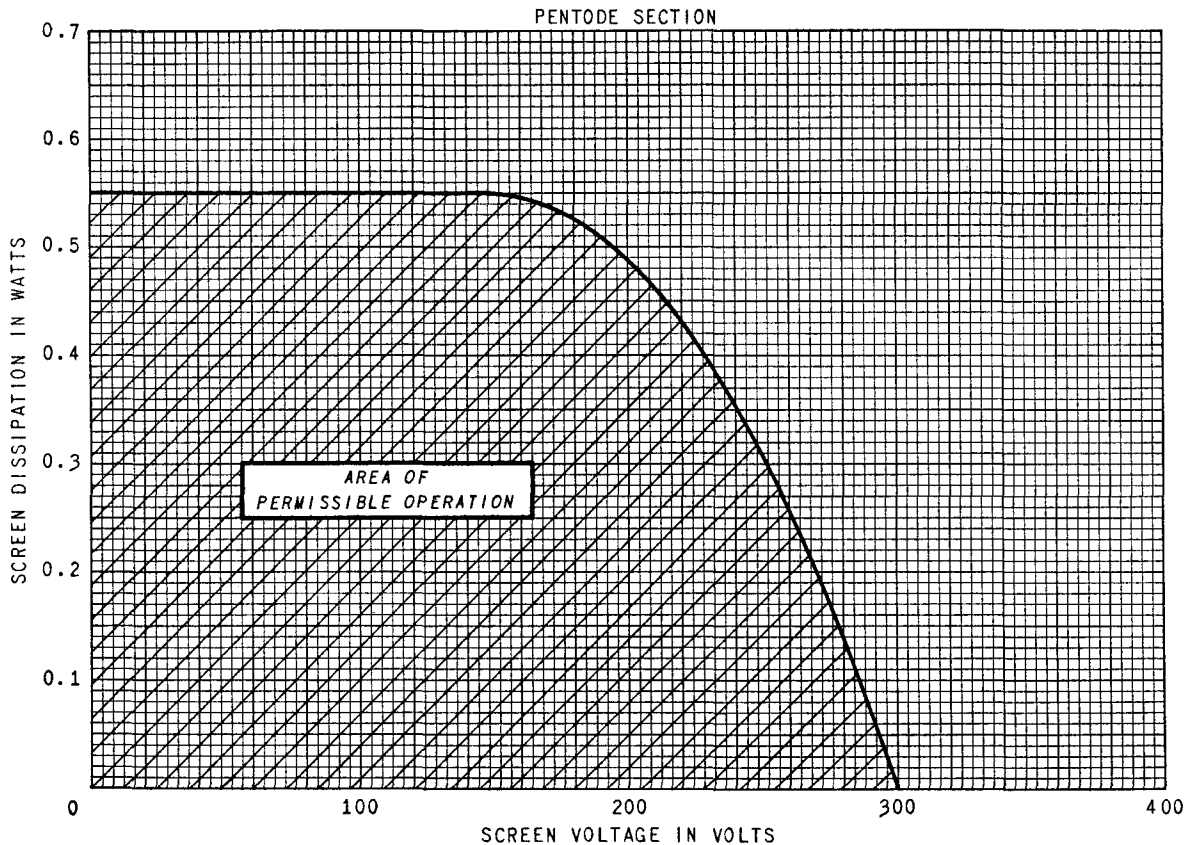
	Pentode Section	Triode Section
Plate Voltage	125	250 Volts
Screen Voltage	125	... Volts
Grid-Number 1 Voltage		... Volts
Cathode-Bias Resistor	56	390 Ohms
Amplification Factor		53
Plate Resistance, approximate	150000	12000 Ohms
Transconductance	8600	4400 Micromhos
Plate Current	13.5	7.3 Milliamperes
Screen Current	3.8	 Milliamperes
Grid-Number 1 Voltage, approximate		
I _b = 10 Microamperes		-10 Volts
I _b = 20 Microamperes	-6	 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.

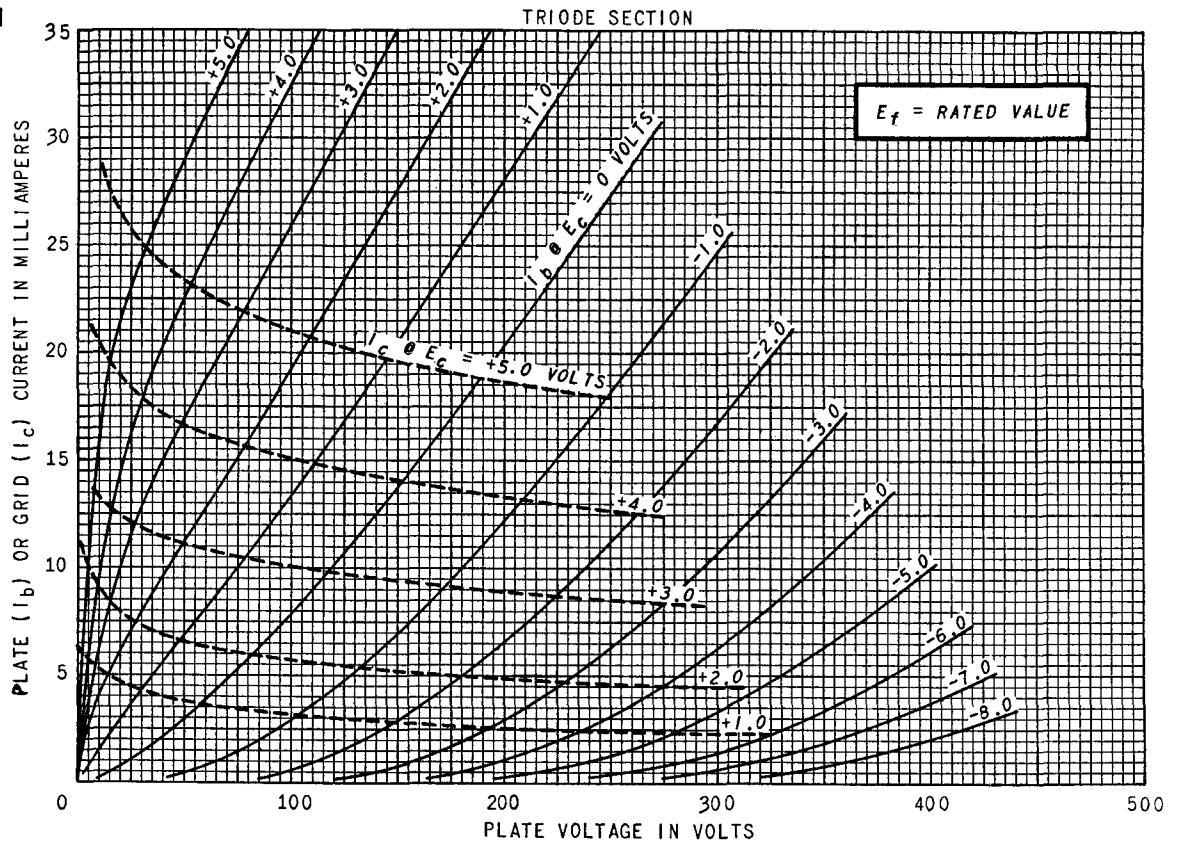
† Without external shield.

‡ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

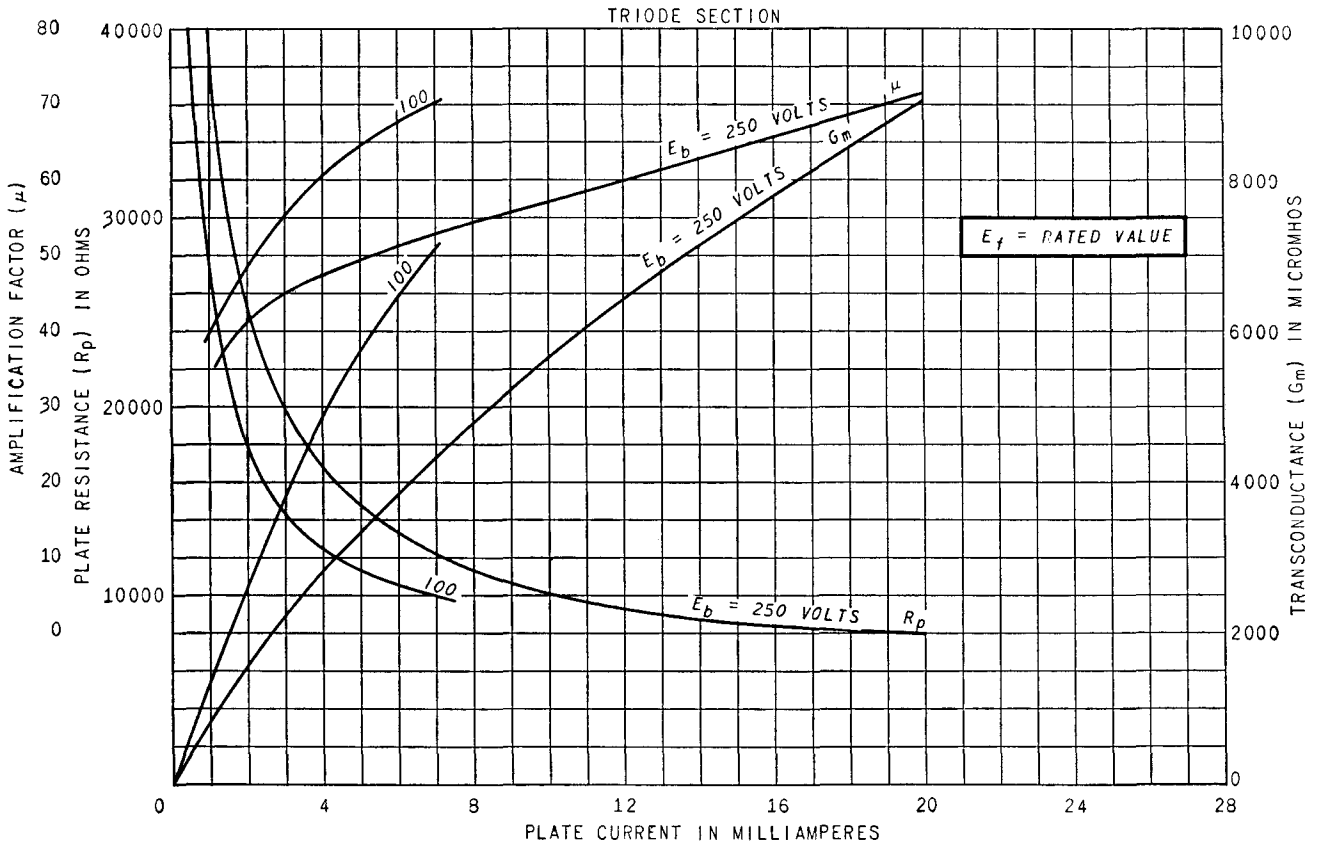
SCREEN RATING CHART



AVERAGE PLATE CHARACTERISTICS



AVERAGE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

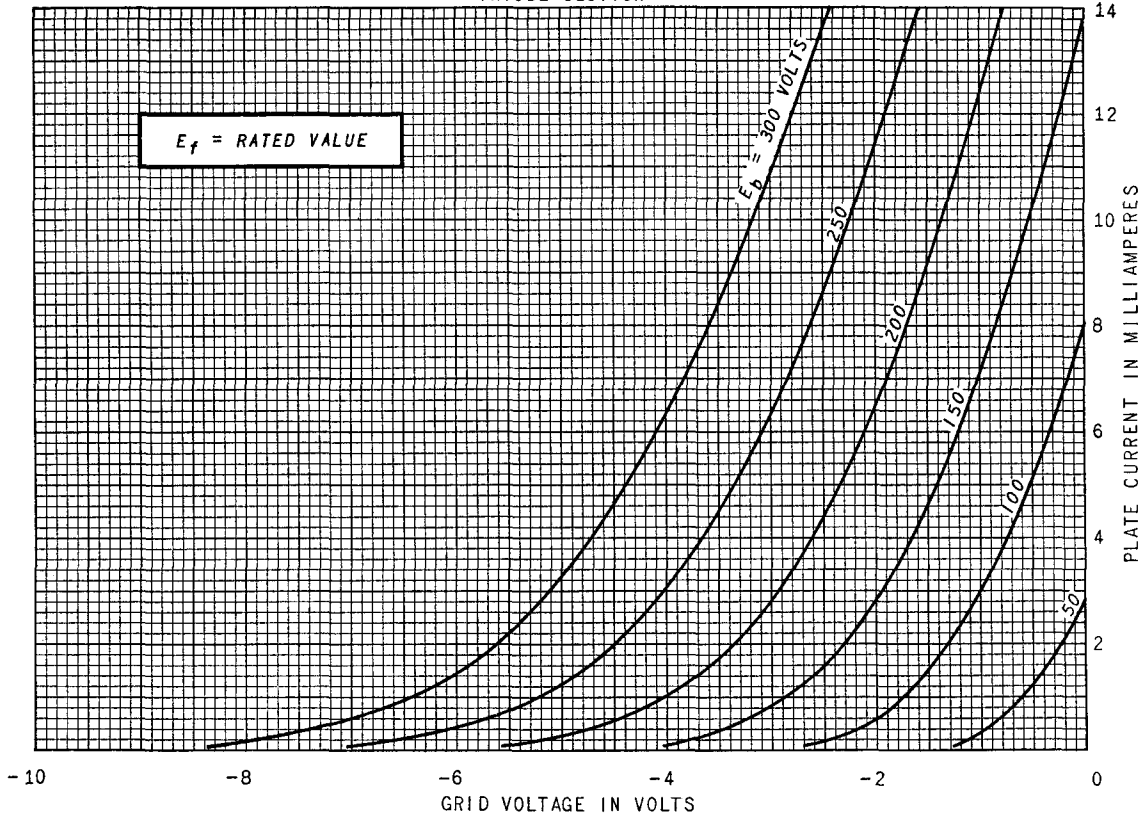
TRIODE SECTION

5DH8

ET-T1391

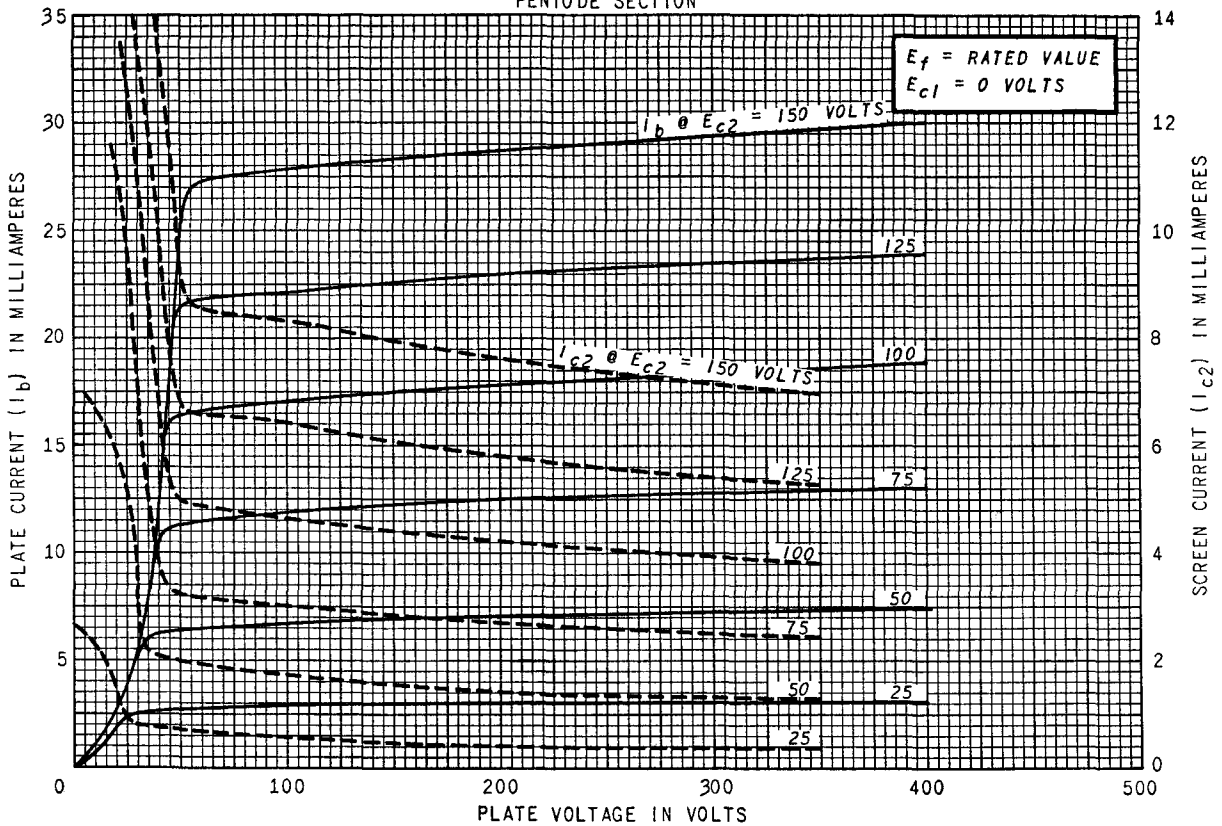
Page 5

10-56



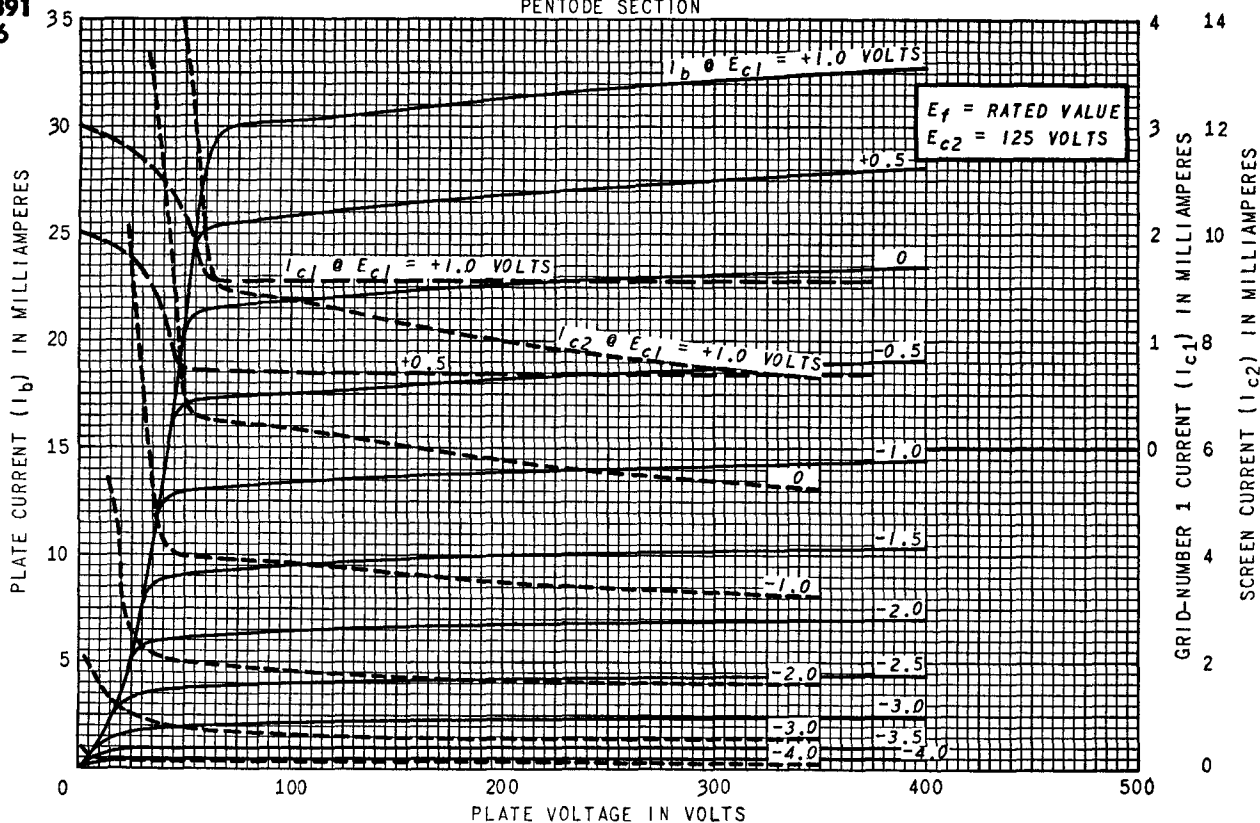
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



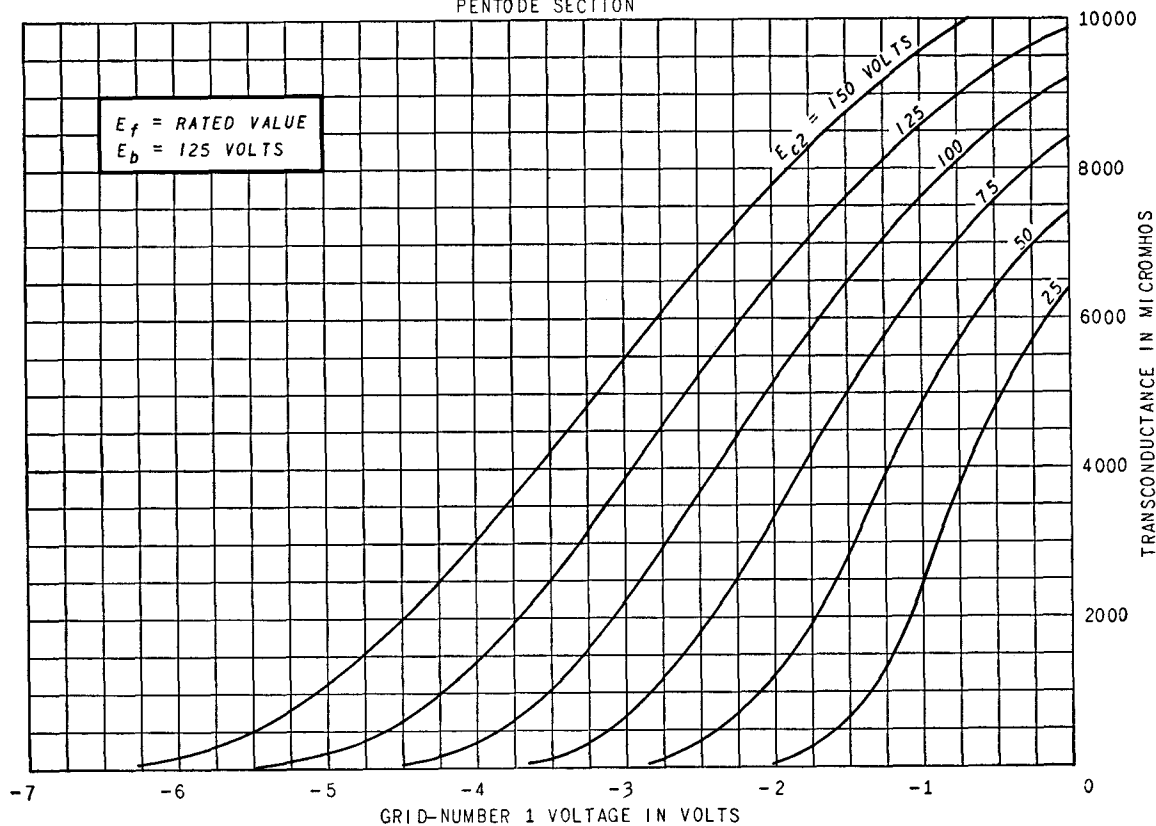
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



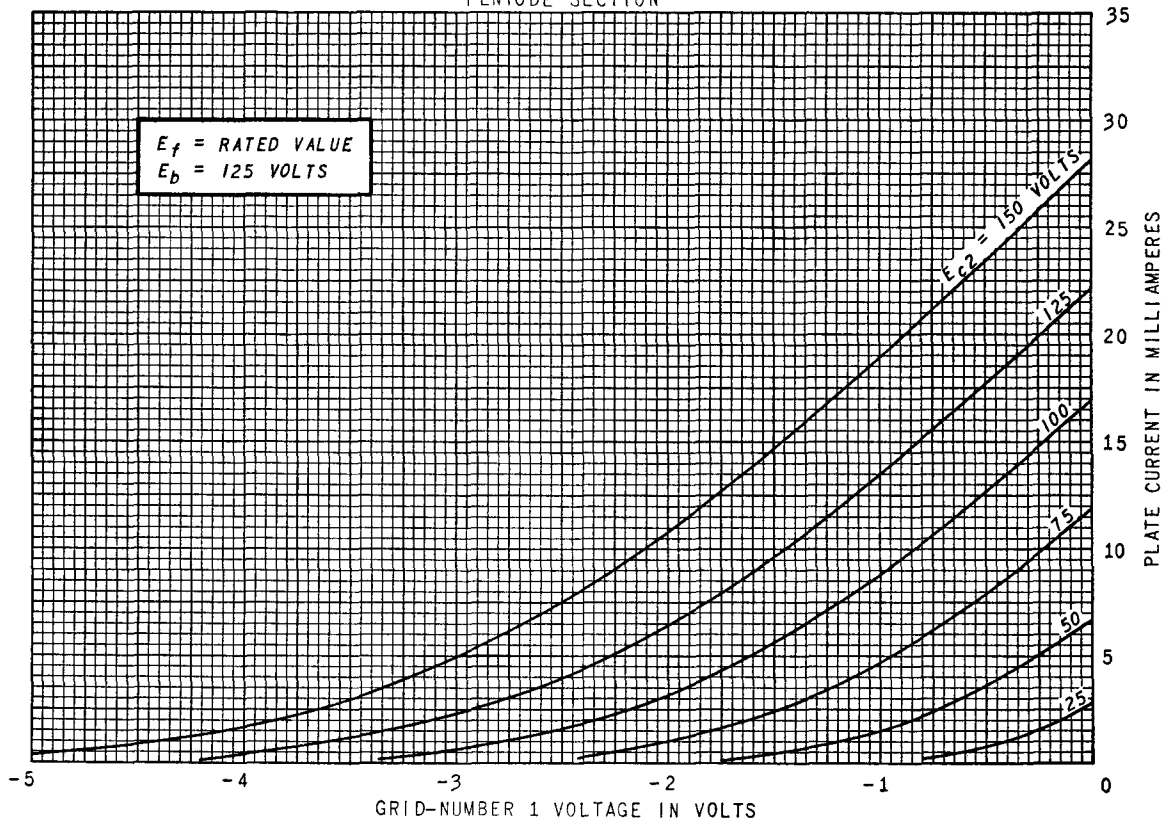
AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



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PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

