

# 6BH8

## TRIODE-PENTODE

### DESCRIPTION AND RATING

The 6BH8 is a general-purpose miniature tube which contains a sharp-cutoff pentode and a medium-mu triode in one envelope. Except for the electrical characteristics of the triode section, the 6BH8 is identical to the 6AU8. The triode section of the 6BH8 incorporates a lower amplification factor than the 6AU8 triode section and consequently may be used in applications where the lower amplification factor is desired.

Like the 6AU8, the tube is suitable for a wide variety of general-purpose applications in both monochrome and color television receivers. The high figure of merit of the pentode section makes it particularly suited for service as a video amplifier, video intermediate-frequency amplifier, and sound intermediate-frequency amplifier. The triode section is intended for use as a sync amplifier, separator, or clipper or as a sweep oscillator. The triode section may also be connected as a diode for video-detector applications, which adds to the over-all versatility of the tube.

In addition, the 6BH8, as a result of its controlled heater warm-up characteristic, is especially suited for use in television receivers which employ series-connected heaters. When the tube is used in conjunction with other 600-milliamperre types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC.....6.3 Volts

Heater Current.....0.6 Amperes

Heater Warm-up Time\*.....11 Seconds

Direct Interelectrode Capacitances†

#### Pentode Section

Grid-Number 1 to Plate.....0.046  $\mu\text{f}$

Input.....7  $\mu\text{f}$

Output.....2.4  $\mu\text{f}$

#### Triode Section

Grid to Plate.....2.4  $\mu\text{f}$

Input.....2.6  $\mu\text{f}$

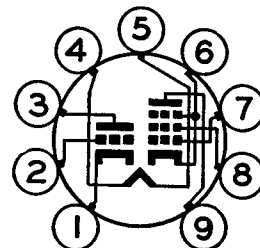
Output.....0.38  $\mu\text{f}$

Pentode Grid-Number 1 to Triode Plate.....0.004  $\mu\text{f}$

Triode Grid to Pentode Plate.....0.016  $\mu\text{f}$

Pentode Plate to Triode Plate.....0.095  $\mu\text{f}$

### BASING DIAGRAM

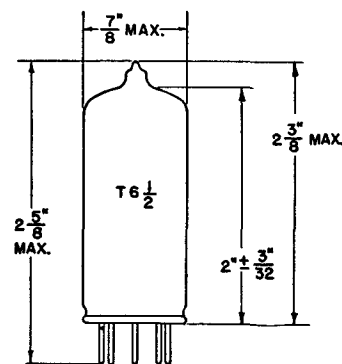


RETMA 9DX

### 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-No. 3 and Internal Shield
- Pin 7—Pentode Grid-No. 1
- Pin 8—Pentode Grid-No. 2 (Screen)
- Pin 9—Pentode Plate

### PHYSICAL DIMENSIONS



RETMA 6-3

## MECHANICAL

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

## MAXIMUM RATINGS

### DESIGN-CENTER VALUES

|                                             | Pentode<br>Section | Triode<br>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 . . . . .                 | 3.0                | 2.5 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       |

## CHARACTERISTICS AND TYPICAL OPERATION

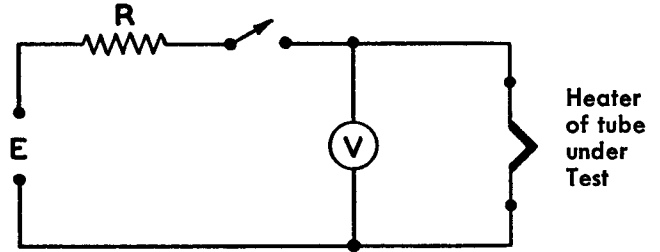
### CLASS A<sub>1</sub> AMPLIFIER

|                                             | Pentode<br>Section | Triode<br>Section |
|---------------------------------------------|--------------------|-------------------|
| Plate Voltage . . . . .                     | 200                | 150 Volts         |
| Screen Voltage . . . . .                    | 125                | ... Volts         |
| Grid-Number 1 Voltage . . . . .             | ...                | −5 Volts          |
| Cathode-Bias Resistor . . . . .             | 82                 | ... Ohms          |
| Amplification Factor . . . . .              | ...                | 17                |
| Plate Resistance, approximate . . . . .     | 150000             | 5150 Ohms         |
| Transconductance . . . . .                  | 7000               | 3300 Micromhos    |
| Plate Current . . . . .                     | 15                 | 9.5 Milliamperes  |
| Screen Current . . . . .                    | 3.4                | ... Milliamperes  |
| Grid-Number 1 Voltage, approximate          |                    |                   |
| I <sub>b</sub> = 100 Microamperes . . . . . | −8                 | −14 Volts         |

Note: The triode section of the 6BH8 may be diode-connected and employed as a high-perveance diode in video-detector applications. The diode operation can be obtained either with the triode grid connected to the triode plate and the combination operated as the plate of the diode, or with the triode plate grounded and the triode grid operated as the plate of the diode.

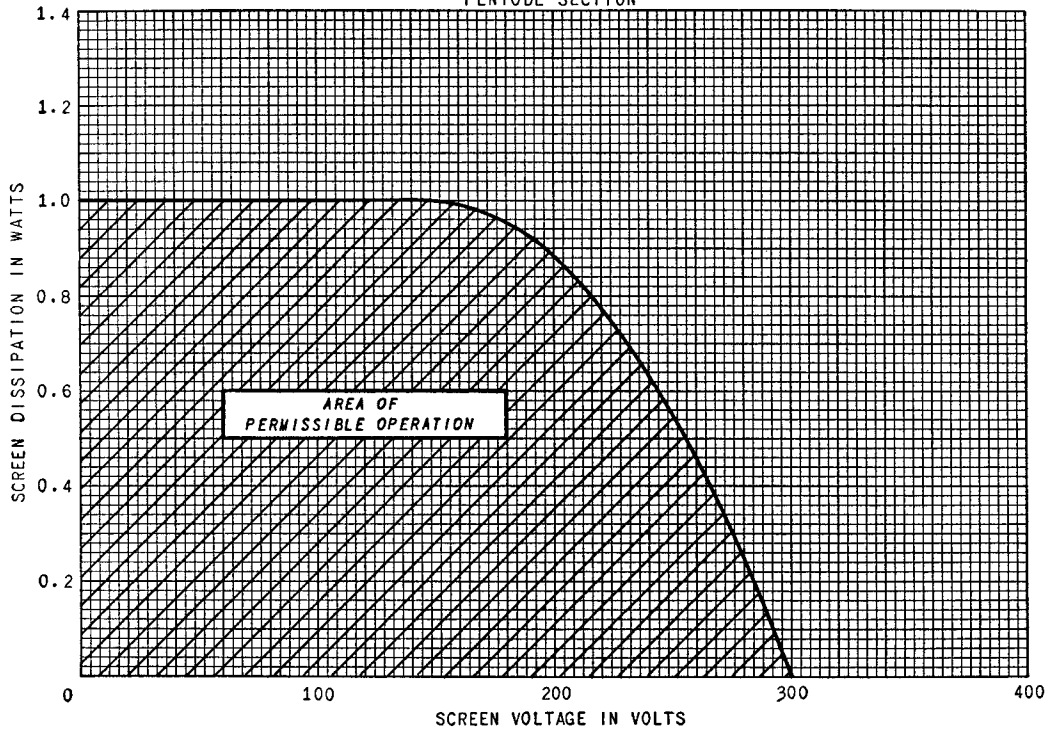
\* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage ( $V_1$ ). For this type,  $E=25$  volts (RMS or DC),  $V_1=5.0$  volts (RMS or DC), and  $R=31.5$  ohms.

† Without external shield.



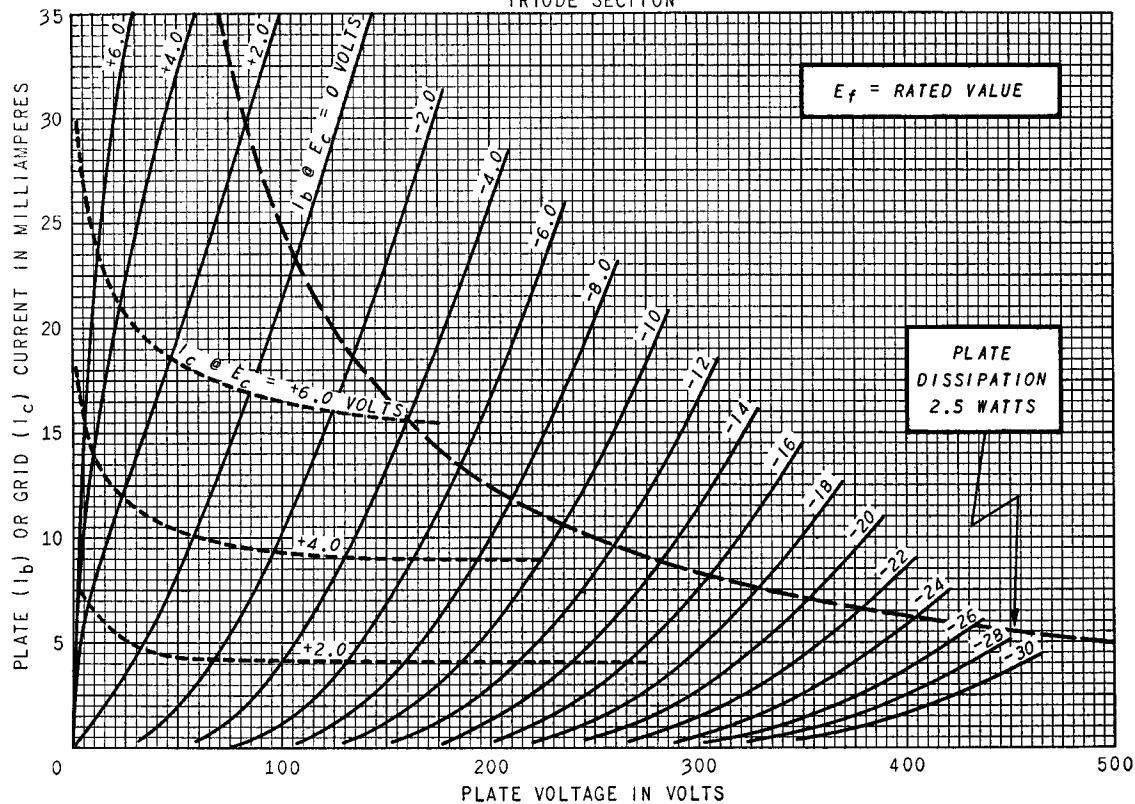
### SCREEN RATING CHART

PENTODE SECTION



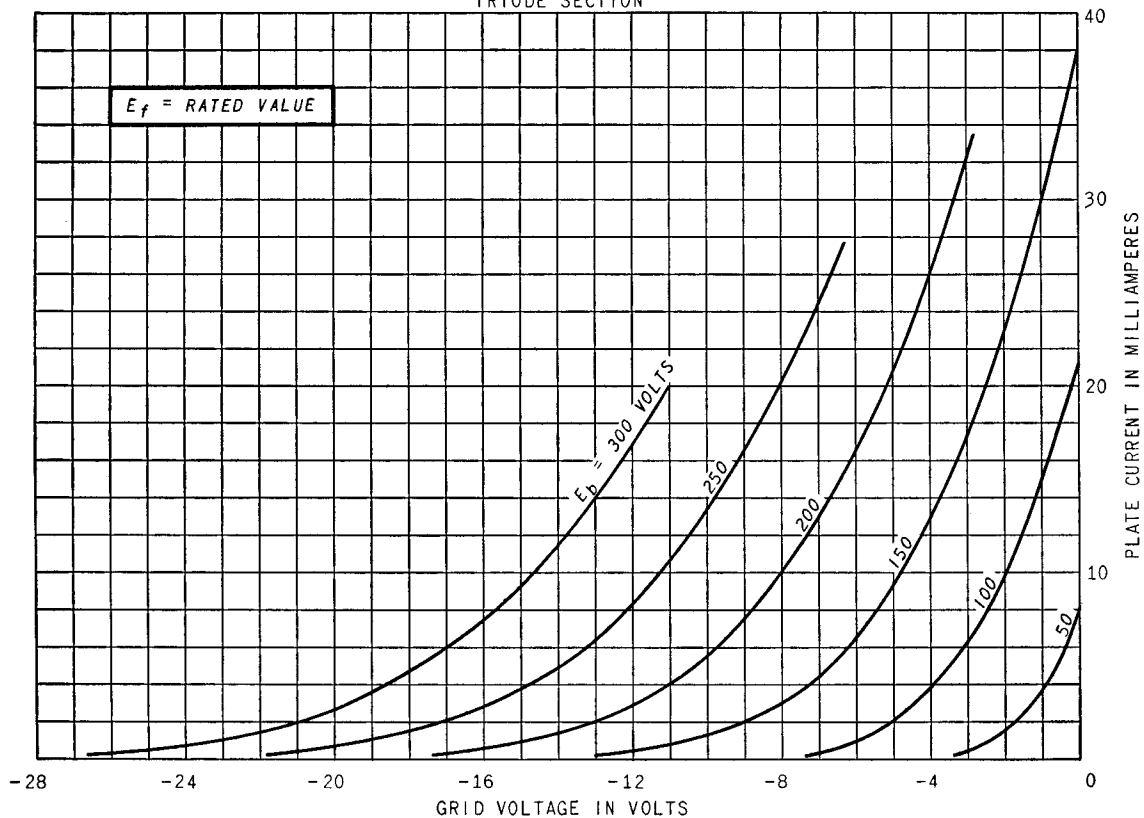
## AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

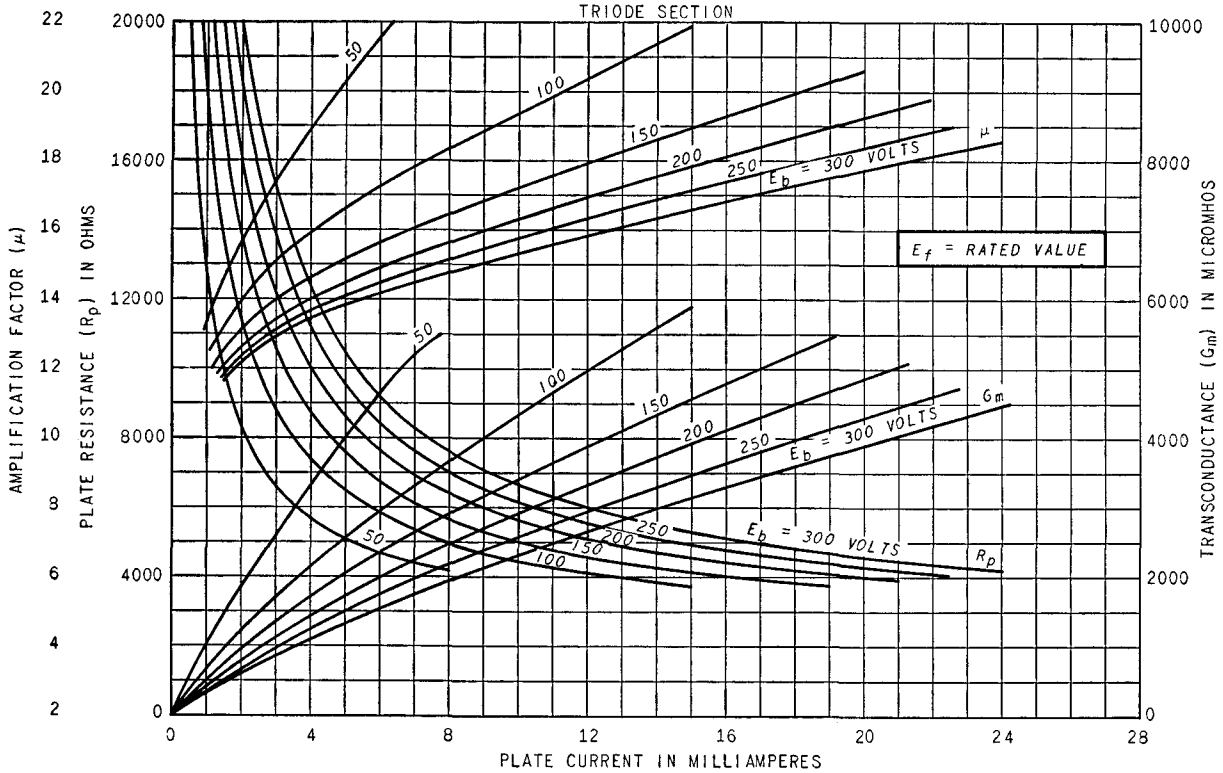


## AVERAGE TRANSFER CHARACTERISTICS

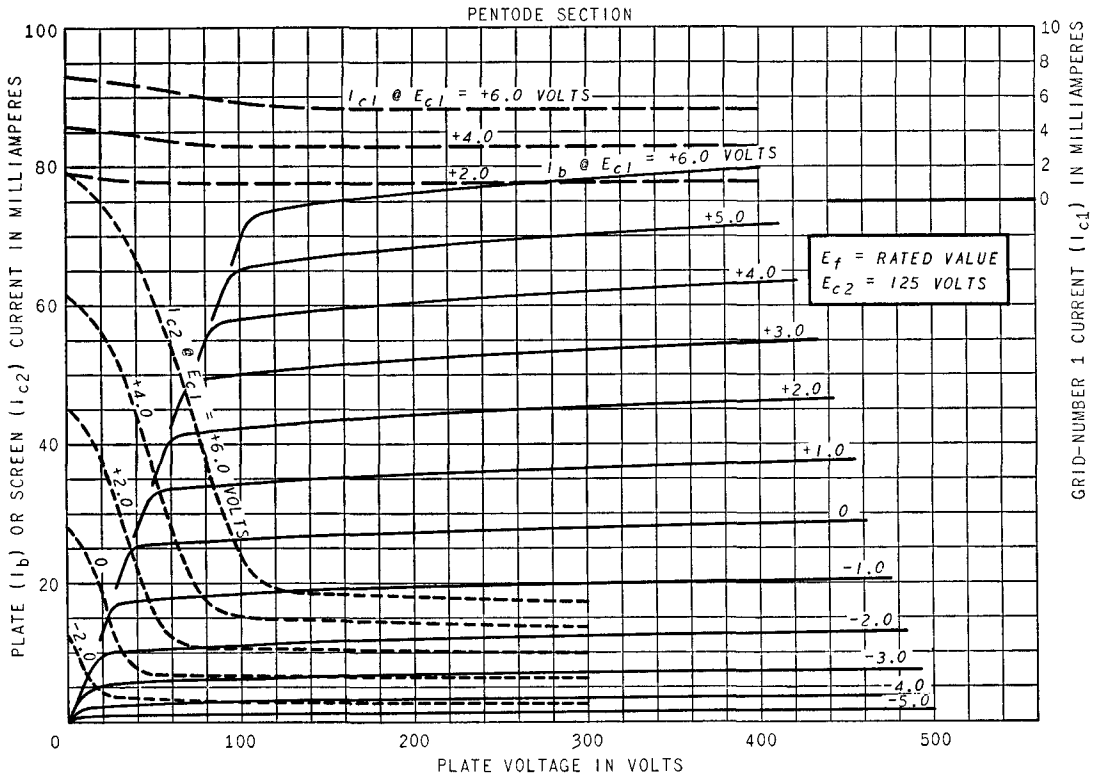
TRIODE SECTION



### AVERAGE CHARACTERISTICS

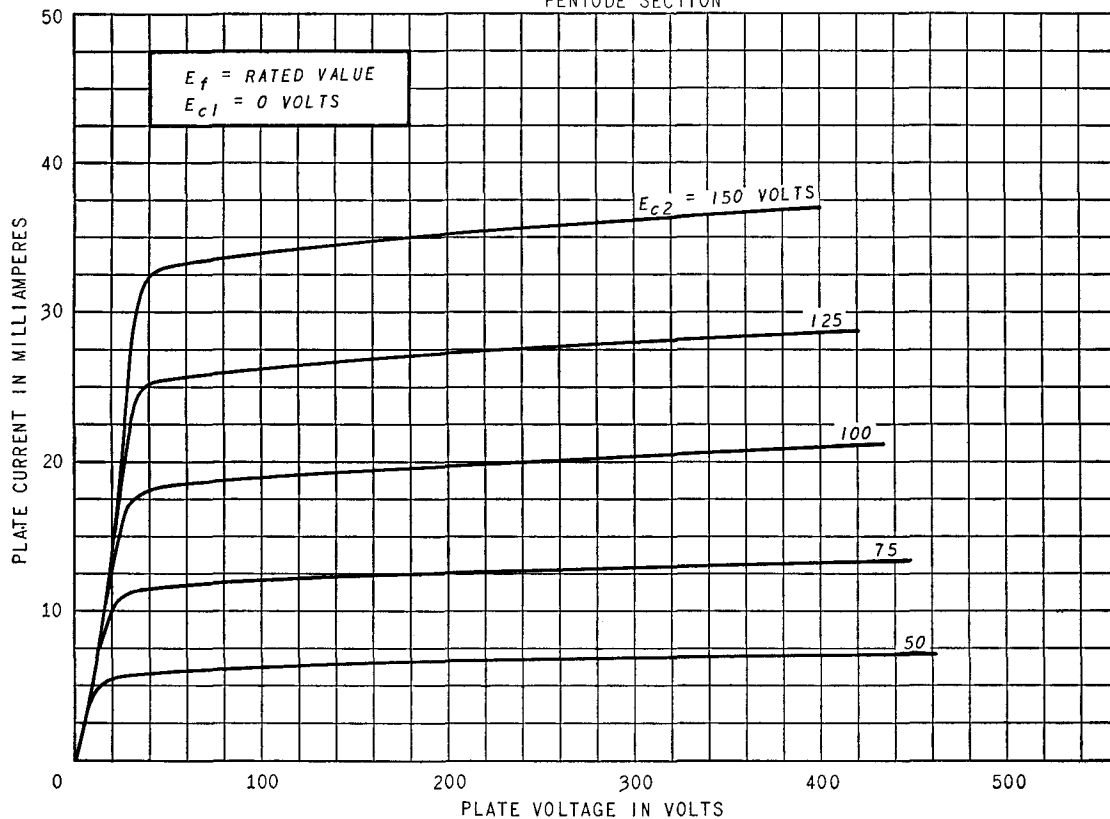


### AVERAGE PLATE CHARACTERISTICS



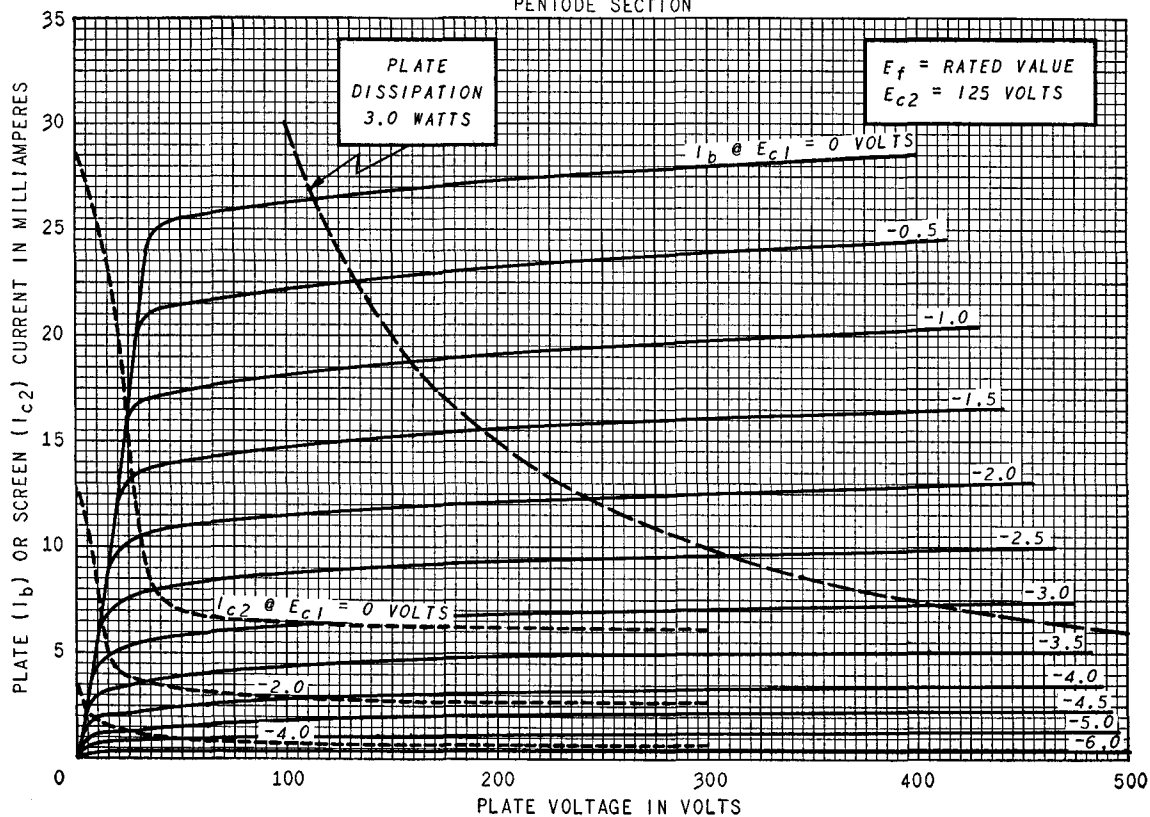
## AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



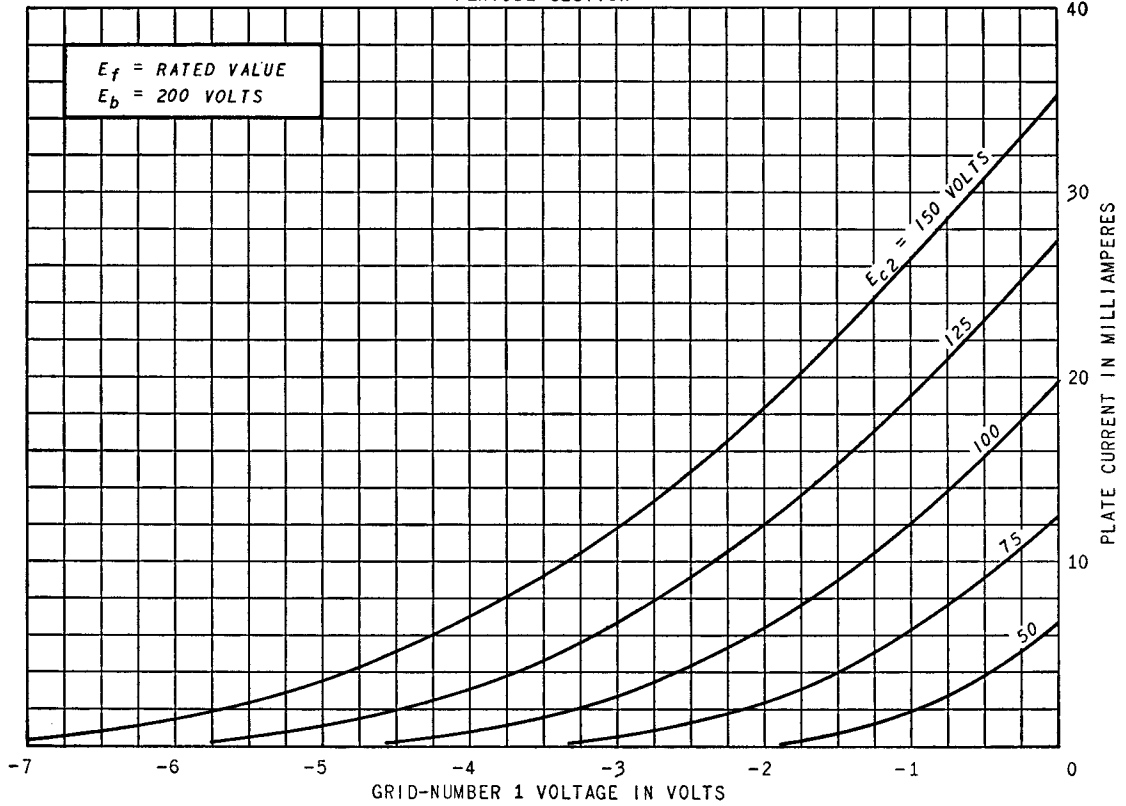
## AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



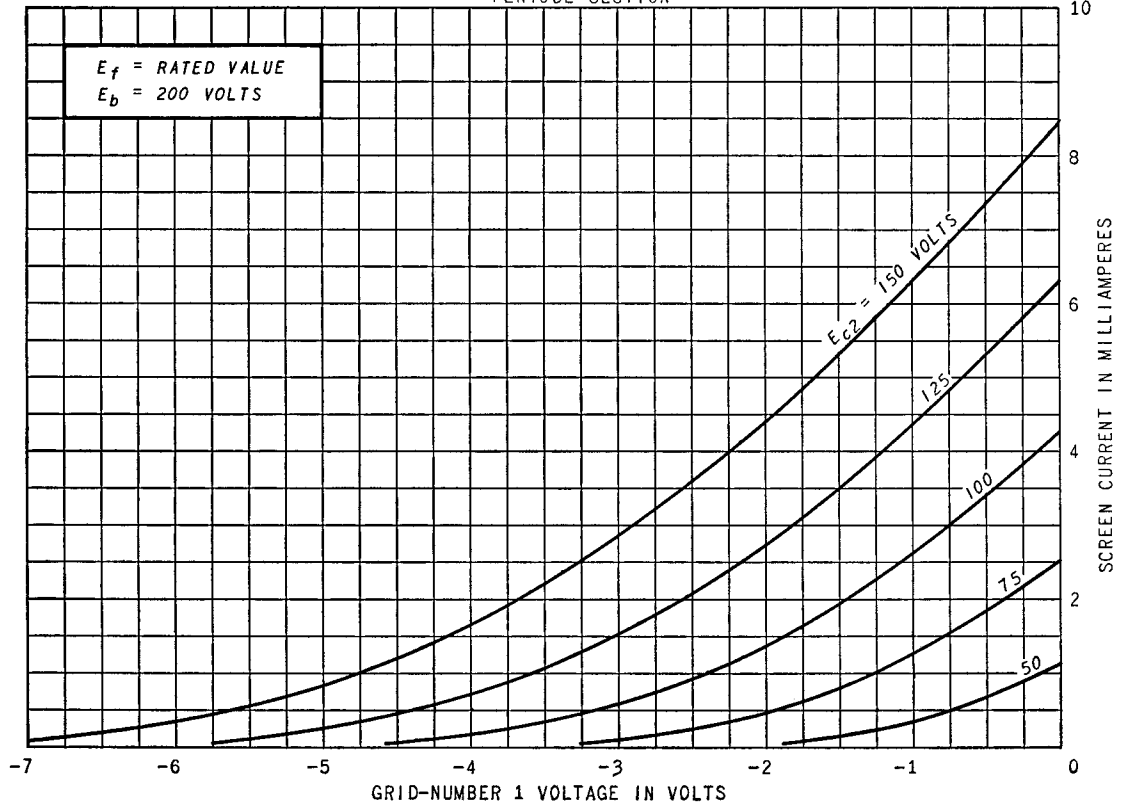
## AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



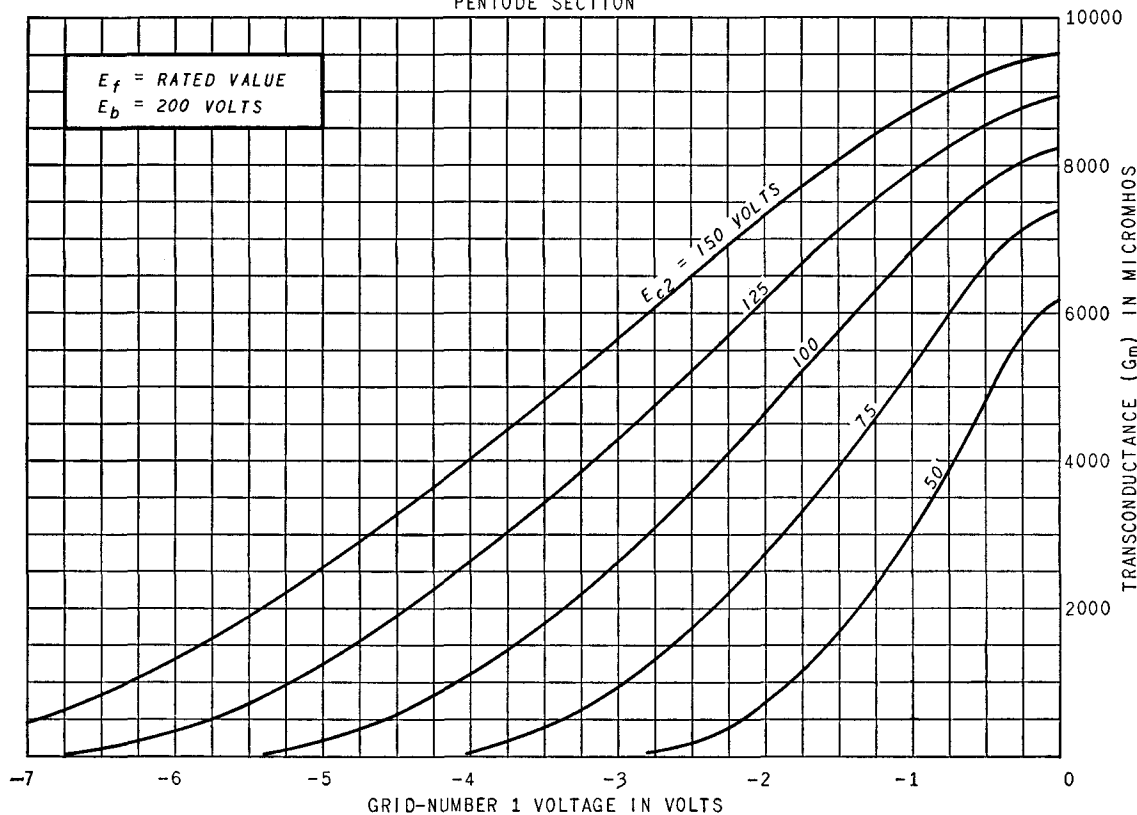
## AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



## AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



TUBE DEPARTMENT

**GENERAL**  **ELECTRIC**

Schenectady 5, N. Y.