

## 6BR8 — 5BR8

## TRIODE-PENTODE

## FOR VHF CONVERTER APPLICATIONS

**6BR8****5BR8**

ET-T979

Page 1

9-55

## DESCRIPTION AND RATING

The 6BR8 is a miniature tube which contains a sharp-cutoff pentode and a medium- $\mu$  triode in one envelope. It is intended primarily for service as a combined triode oscillator and pentode mixer in VHF television tuners although the tube is also suitable for a wide variety of general-purpose applications in both monochrome and color television receivers. Except for basing arrangement and direct interelectrode capacitances, the 6BR8 is identical to the 6U8.

The 5BR8 is a 600-milliampere version of the 6BR8 which differs only in heater ratings. The 5BR8 exhibits a controlled heater warm-up characteristic which makes it particularly suited for use in television receivers which employ 600-milliampere series-connected heaters.

## GENERAL

## ELECTRICAL

|                             |             |             |         |
|-----------------------------|-------------|-------------|---------|
| Cathode—Coated Unipotential | <b>5BR8</b> | <b>6BR8</b> |         |
| Heater Voltage, AC or DC    | 4.7         | 6.3         | Volts   |
| Heater Current              | 0.6         | 0.45        | Amperes |
| Heater Warm-up Time*        | 11          | ...         | Seconds |

| Direct Interelectrode Capacitances        | With†<br>Shield | Without<br>Shield |            |
|-------------------------------------------|-----------------|-------------------|------------|
| <b>Pentode Section</b>                    |                 |                   |            |
| Grid-Number 1 to Plate, maximum . . . . . | 0.008           | 0.015             | $\mu\mu f$ |
| Input . . . . .                           | 5.0             | 5.0               | $\mu\mu f$ |
| Output . . . . .                          | 3.5             | 2.6               | $\mu\mu f$ |
| <b>Triode Section</b>                     |                 |                   |            |
| Grid to Plate . . . . .                   | 1.8             | 1.8               | $\mu\mu f$ |
| Input . . . . .                           | 2.5             | 2.5               | $\mu\mu f$ |
| Output . . . . .                          | 1.0             | 0.4               | $\mu\mu f$ |
| Heater to Cathode, Each Section . . . . . | 3.0‡            | 3.0               | $\mu\mu f$ |

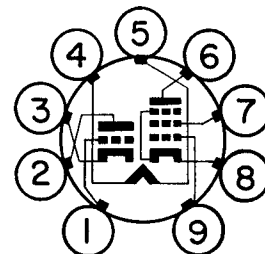
## MECHANICAL

**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 . . . . .                       | 2.8                | 2.7               | Watts |
| Screen Dissipation . . . . .                      | 0.5                | ....              | Watts |
| Heater-Cathode Voltage                            |                    |                   |       |
| Heater Positive with Respect to Cathode . . . . . | 200                | 200               | Volts |
| Heater Negative with Respect to Cathode . . . . . | 200                | 200               | Volts |

### BASING DIAGRAM

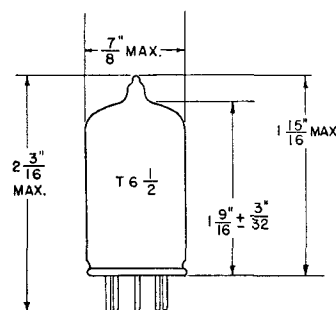


RETMA 9FA

## TERMINAL CONNECTIONS

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

## PHYSICAL DIMENSIONS



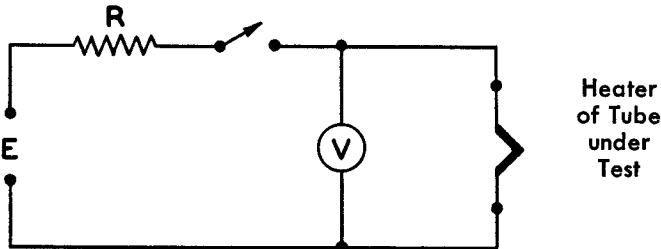
RETMA 6-2

CHARACTERISTICS AND TYPICAL OPERATION

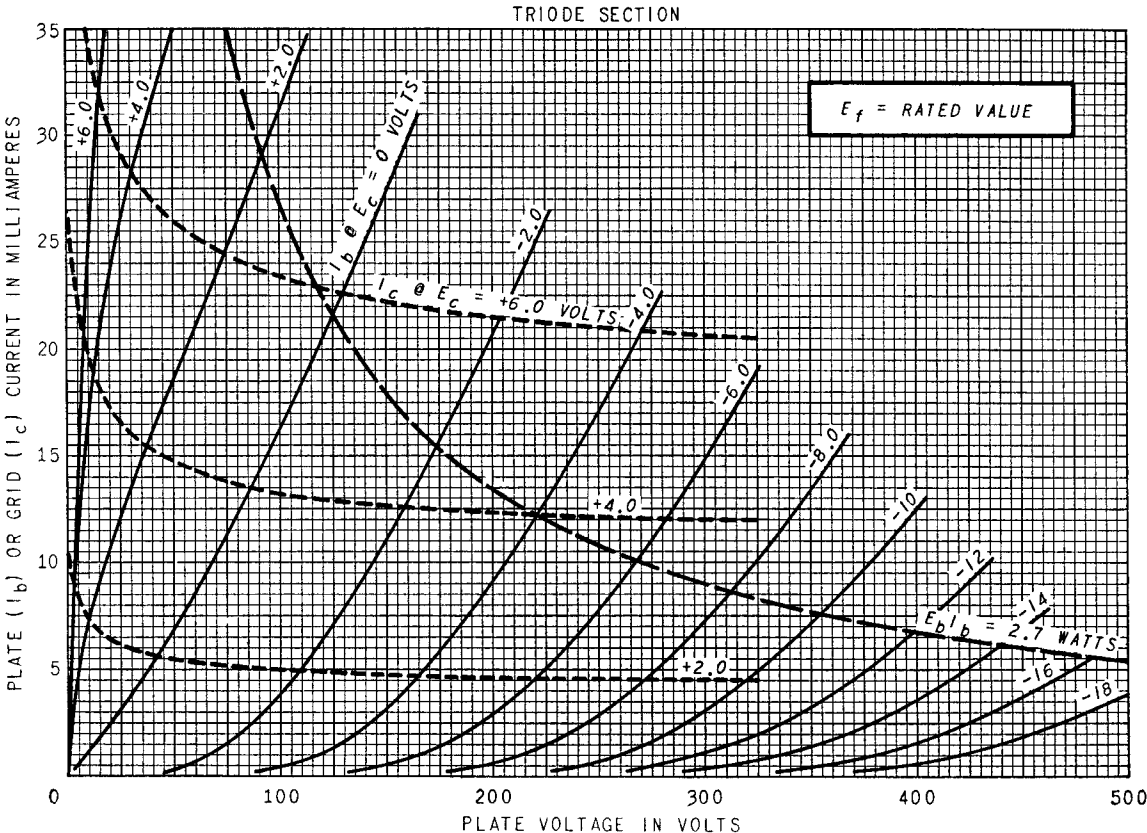
AVERAGE CHARACTERISTICS

|                                    | Pentode Section | Triode Section   |
|------------------------------------|-----------------|------------------|
| Plate Voltage                      | 250             | 150 Volts        |
| Screen Voltage                     | 110             | ... Volts        |
| Cathode-Bias Resistor              | 68              | 56 Ohms          |
| Amplification Factor               | ...             | 40               |
| Plate Resistance, approximate      | 400000          | 5000 Ohms        |
| Transconductance                   | 5200            | 8500 Micromhos   |
| Plate Current                      | 10              | 18 Milliamperes  |
| Screen Current                     | 3.5             | ... Milliamperes |
| Grid-Number 1 Voltage, approximate |                 |                  |
| $I_b = 10$ Microamperes            | -10             | -12 Volts        |

- \* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals (V) to increase from zero to the heater test voltage ( $V_1$ ). For this type,  $E = 18.7$  volts (RMS or DC),  $V_1 = 3.73$  volts (RMS or DC), and  $R = 23.5$  ohms.
- † With external shield (RETMA 315) connected to cathode of section under test unless otherwise indicated.
- ‡ With external shield (RETMA 315) connected to ground.

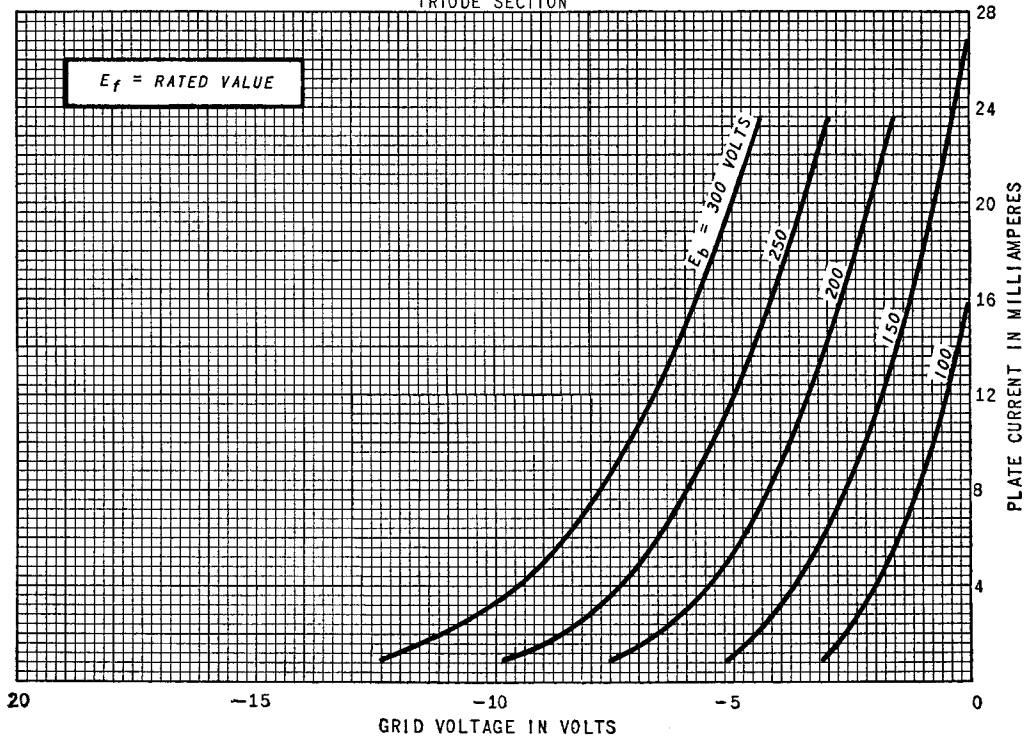


AVERAGE PLATE CHARACTERISTICS



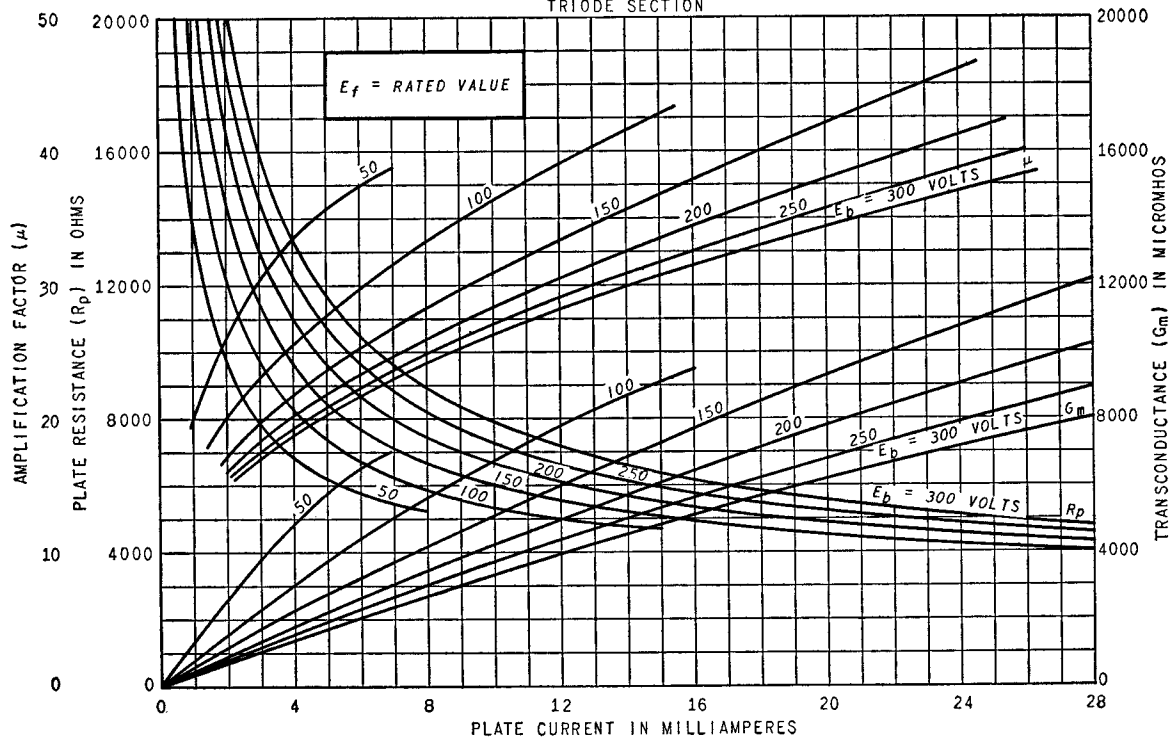
## AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION



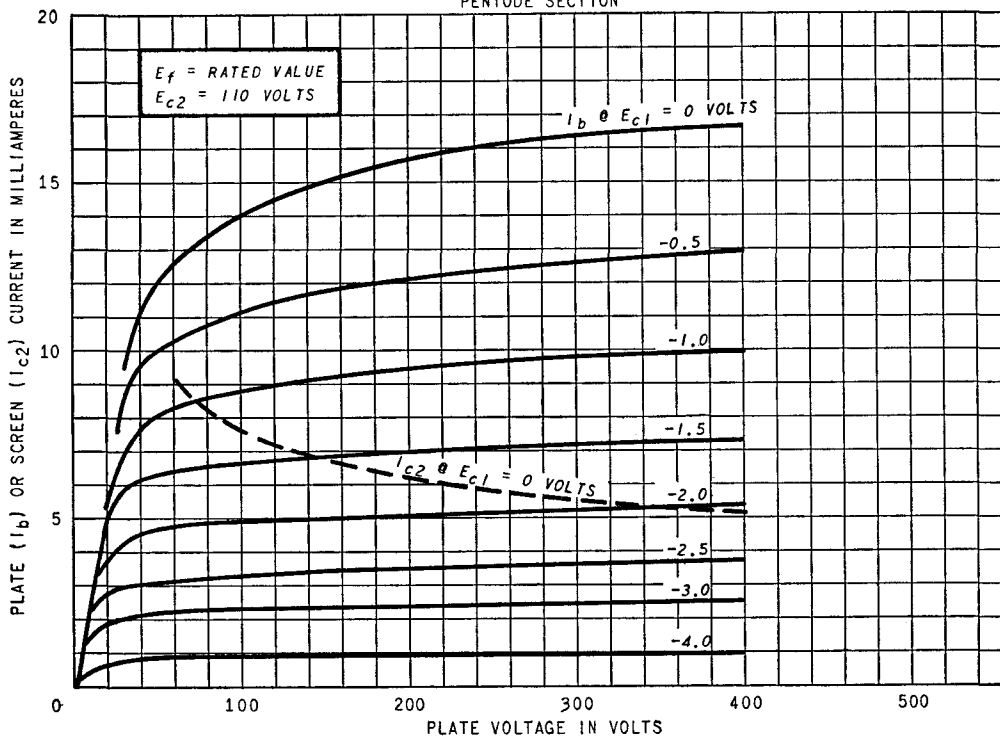
## AVERAGE CHARACTERISTICS

TRIODE SECTION



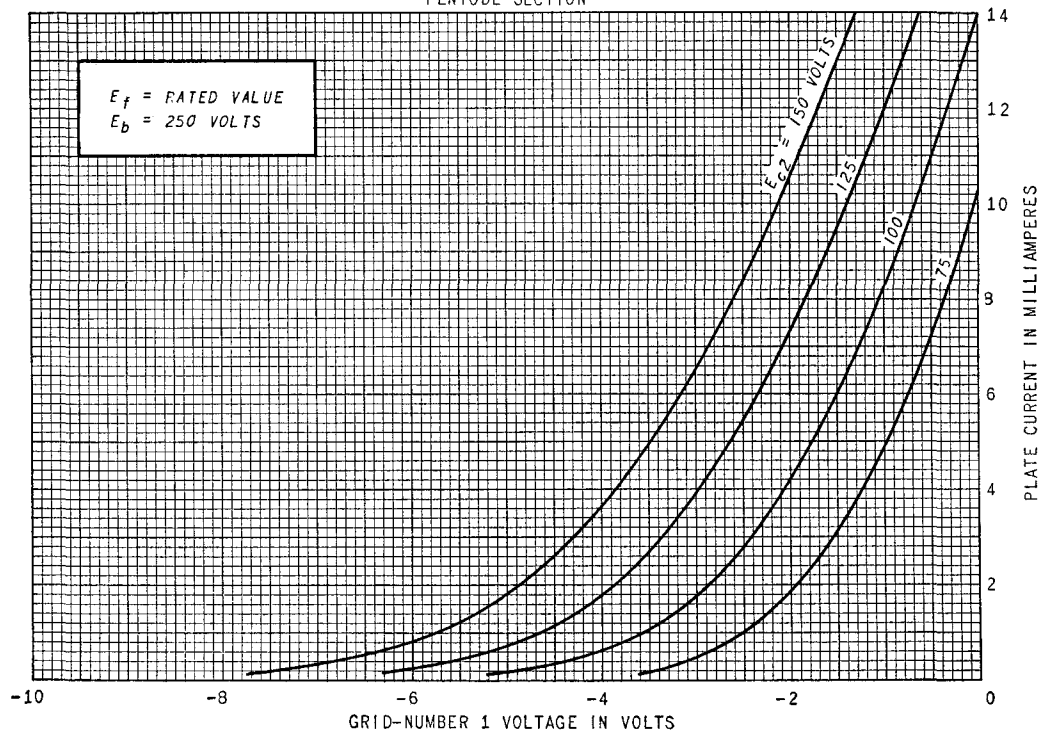
## AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



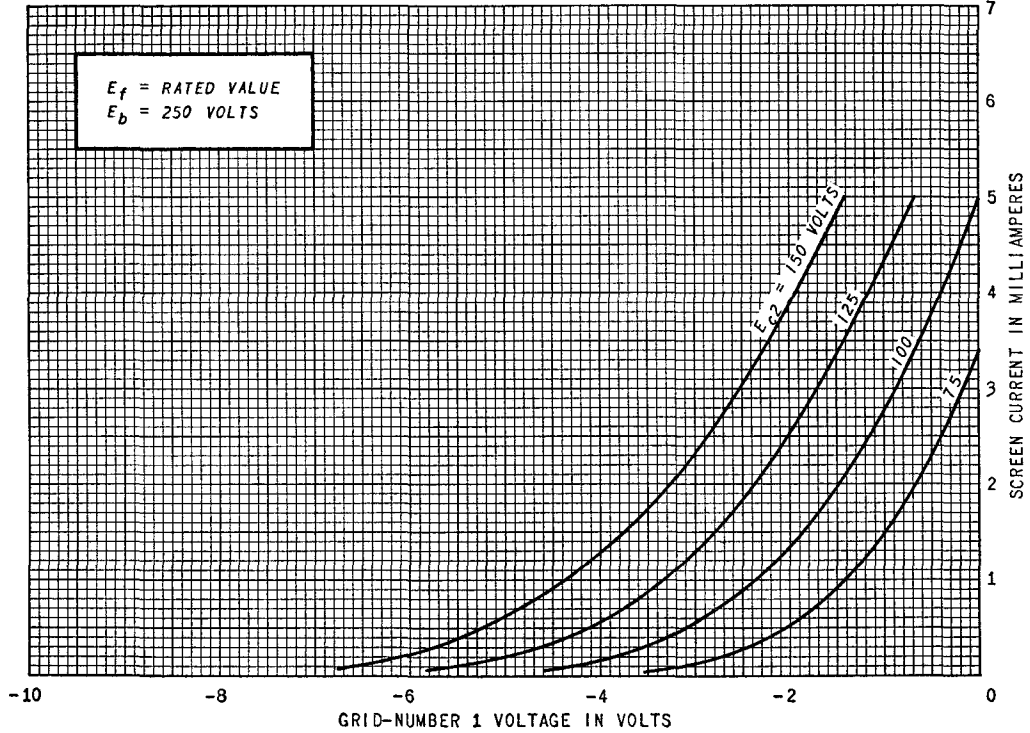
## AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



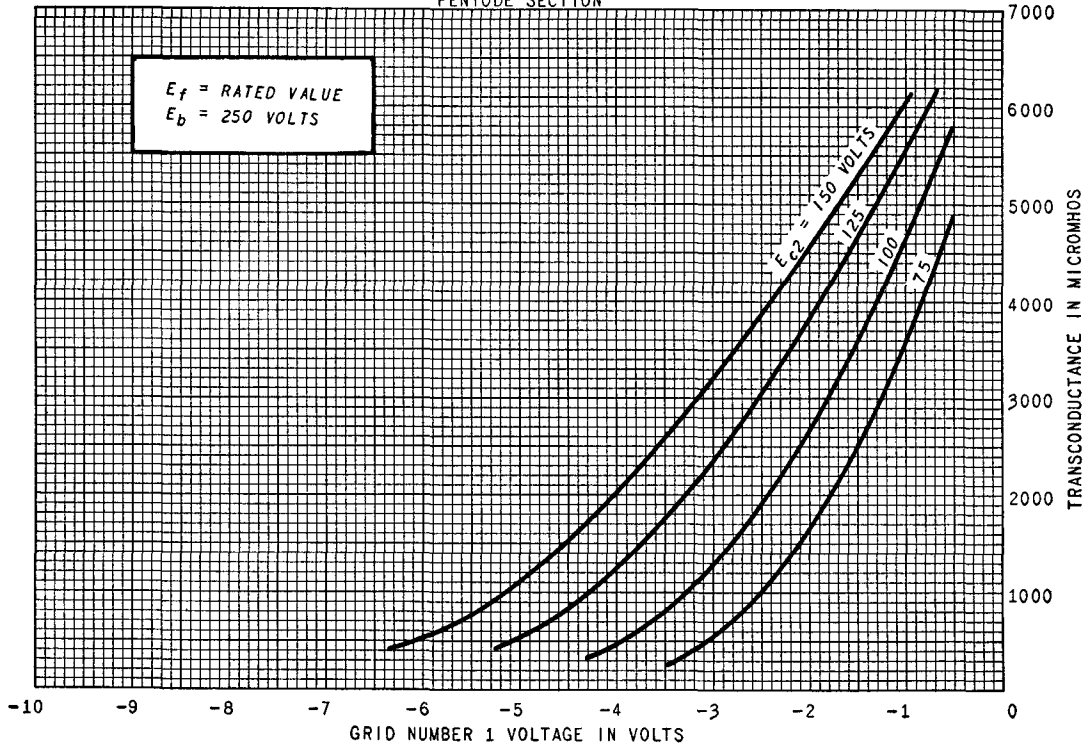
# AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

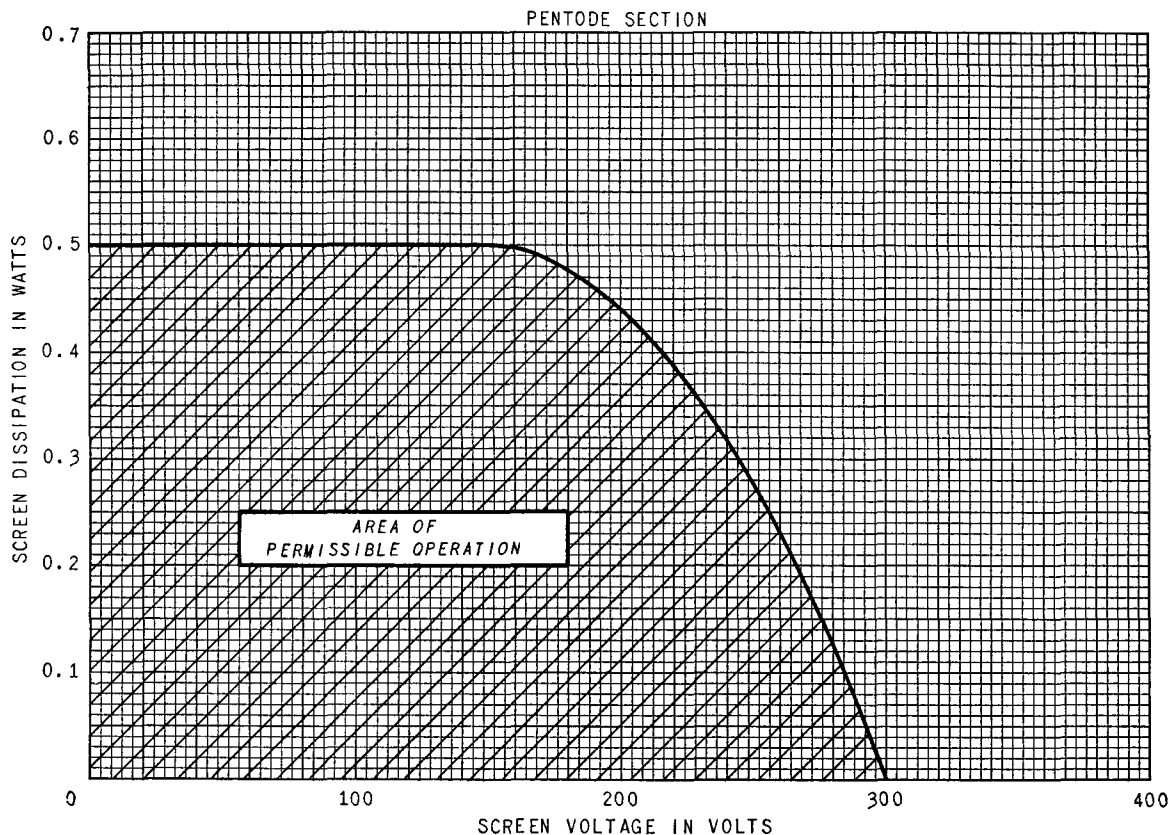


# AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



## SCREEN RATING CHART



TUBE DEPARTMENT

**GENERAL**  **ELECTRIC**

Schenectady 5, N. Y.