Electronic TUBES

# 6BH6

# PENTODE

## DESCRIPTION AND RATING

The 6BH6 is a miniature sharp-cutoff pentode primarily designed for use as a high-gain radio-frequency or intermediate-frequency amplifier. Features include low grid-plate capacitance, relatively high transconductance, and low heater current.

### GENERAL

**ELECTRICAL**

Cathode—Coated Unipotential

| | | | |
|---|---|---|---|
| Heater Voltage, AC or DC | | 6.3 | Volts |
| Heater Current | | 0.15 | Amperes |
| Direct Interelectrode Capacitances | **With Shield*** | **Without Shield** | |
| Grid-Number 1 to Plate, maximum | 0.0035 | 0.0035 | μμf |
| Input | 5.4 | 5.4 | μμf |
| Output | 4.4 | 4.4 | μμf |

**MECHANICAL**

Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

### MAXIMUM RATINGS

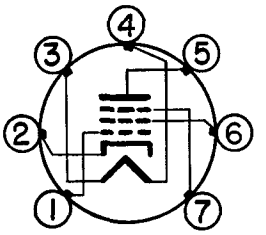
**DESIGN-CENTER VALUES**

| | | |
|---|---|---|
| Plate Voltage | 300 | Volts |
| Screen-Supply Voltage | 300 | Volts |
| Screen Voltage—See Screen Rating Chart | | |
| Positive DC Grid-Number 1 Voltage | 0 | Volts |
| Negative DC Grid-Number 1 Voltage | 50 | Volts |
| Plate Dissipation | 3.0 | Watts |
| Screen Dissipation | 0.5 | Watts |
| Heater-Cathode Voltage | | |
| Heater Positive with Respect to Cathode | 90 | Volts |
| Heater Negative with Respect to Cathode | 90 | Volts |

GENERAL ELECTRIC

*Supersedes ET-T525A, dated 3-51*

**BASING DIAGRAM**

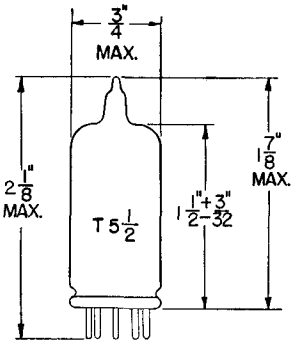



EIA 7CM

**TERMINAL CONNECTIONS**

Pin 1—Grid Number 1
Pin 2—Cathode
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid Number 2 (Screen)
Pin 7—Internal Shield and Grid Number 3 (Suppressor)

**PHYSICAL DIMENSIONS**




EIA 5-2

## CHARACTERISTICS AND TYPICAL OPERATION

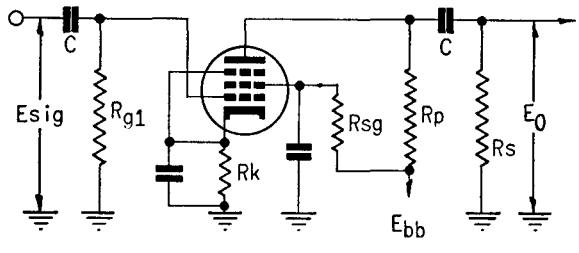
**CLASS $A_1$ AMPLIFIER**

| | | | |
|---|---|---|---|
| Plate Voltage | 100 | 250 | Volts |
| Suppressor, Connected to Cathode | | | |
| Screen Voltage | 100 | 150 | Volts |
| Grid-Number 1 Voltage | −1.0 | −1.0 | Volts |
| Plate Resistance, approximate | 0.7 | 1.4 | Megohms |
| Transconductance | 3400 | 4600 | Micromhos |
| Plate Current | 3.6 | 7.4 | Milliamperes |
| Screen Current | 1.4 | 2.9 | Milliamperes |
| Grid-Number 1 Voltage, approximate Ib = 10 Microamperes | −5 | −7.7 | Volts |

* With external shield (EIA 316) connected to pins 2 and 7.

## CLASS A RESISTANCE-COUPLED AMPLIFIER

| Rp Meg. | Rs Meg. | Rg1 Meg. | Ebb = 90 Volts | | | | Ebb = 180 Volts | | | | Ebb = 300 Volts | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rk | Rsg | Gain | Eo | Rk | Rsg | Gain | Eo | Rk | Rsg | Gain | Eo |
| 0.10 | 0.10 | 0.1 | 1000 | 0.09 | 57 | 14 | 740 | 0.13 | 88 | 29 | 490 | 0.18 | 105 | 44 |
| 0.10 | 0.24 | 0.1 | 1100 | 0.10 | 78 | 18 | 740 | 0.15 | 109 | 36 | 440 | 0.21 | 144 | 57 |
| 0.24 | 0.24 | 0.1 | 2700 | 0.31 | 77 | 13 | 1500 | 0.46 | 128 | 27 | 1300 | 0.47 | 156 | 43 |
| 0.24 | 0.51 | 0.1 | 3200 | 0.34 | 97 | 17 | 1800 | 0.49 | 159 | 33 | 1000 | 0.59 | 220 | 53 |
| 0.51 | 0.51 | 0.1 | 6600 | 0.68 | 96 | 13 | 3400 | 0.99 | 154 | 25 | 2000 | 1.40 | 228 | 41 |
| 0.51 | 1.0 | 0.1 | 6300 | 0.82 | 115 | 14 | 3900 | 1.00 | 194 | 29 | 1900 | 1.30 | 292 | 46 |
| 0.24 | 0.24 | 10 | 0 | 0.54 | 96 | 9.2 | 0 | 0.55 | 154 | 26 | 0 | 0.64 | 214 | 43 |
| 0.24 | 0.51 | 10 | 0 | 0.48 | 117 | 15 | 0 | 0.61 | 214 | 32 | 0 | 0.66 | 286 | 53 |
| 0.51 | 0.51 | 10 | 0 | 1.10 | 123 | 10 | 0 | 1.20 | 196 | 22 | 0 | 1.30 | 306 | 39 |
| 0.51 | 1.0 | 10 | 0 | 1.10 | 139 | 13 | 0 | 1.40 | 259 | 26 | 0 | 1.50 | 373 | 44 |

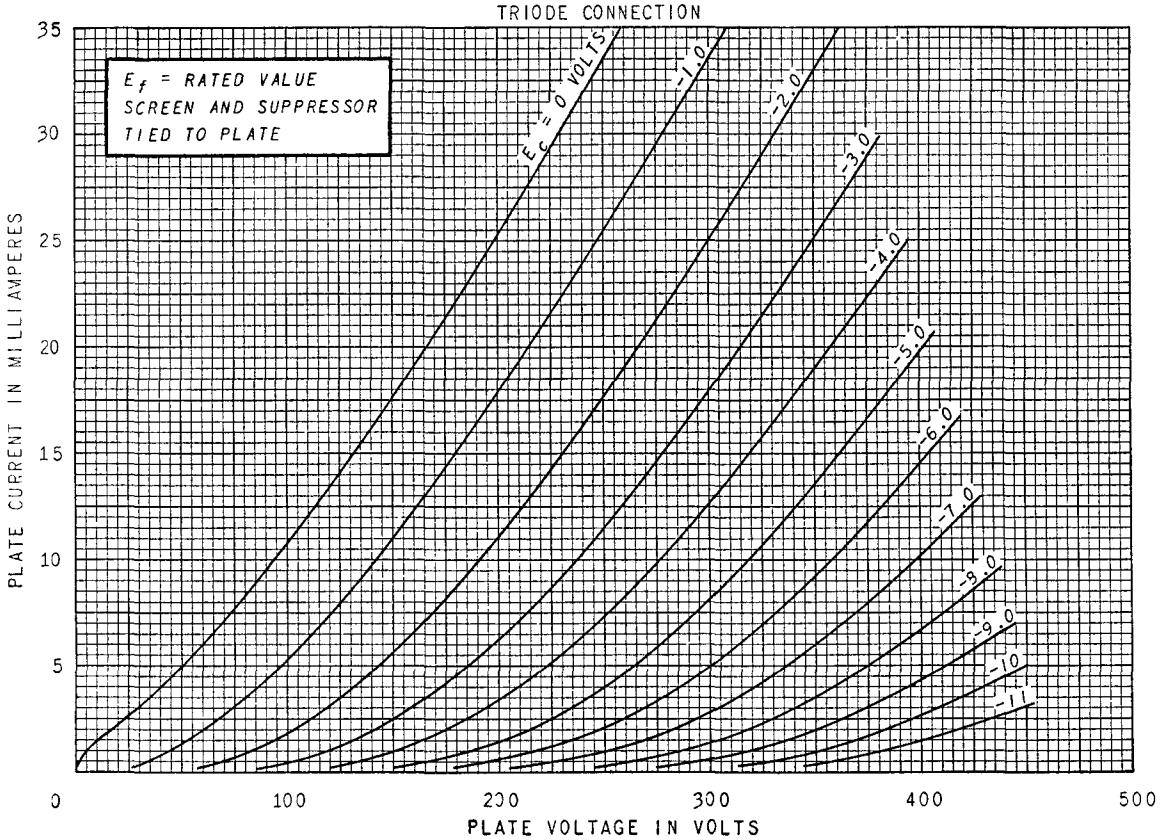



Note: Coupling capacitors (C) should be adjusted to give desired frequency response. Rk and Rsg should be adequately by-passed.

Notes: 1. Eo is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

## AVERAGE PLATE CHARACTERISTICS

TRIODE CONNECTION

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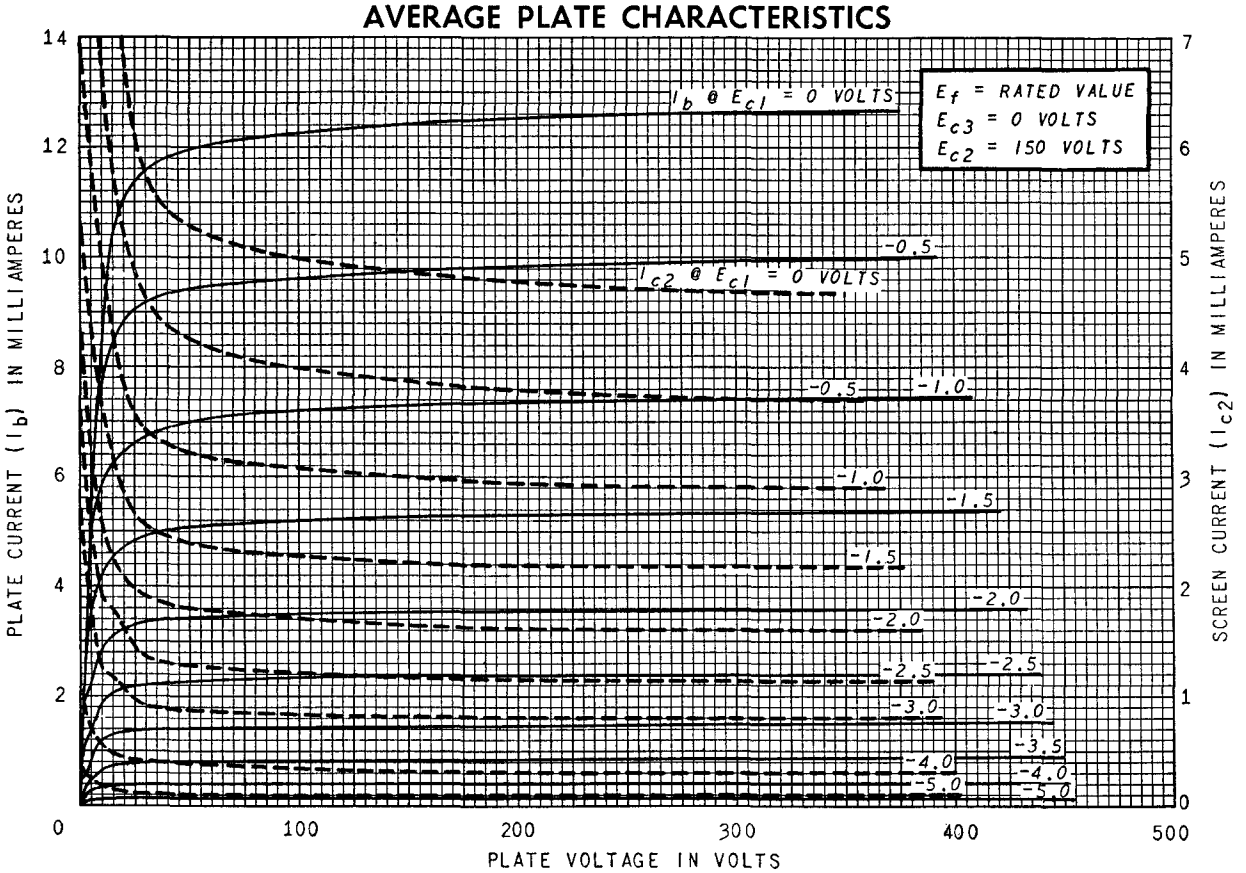
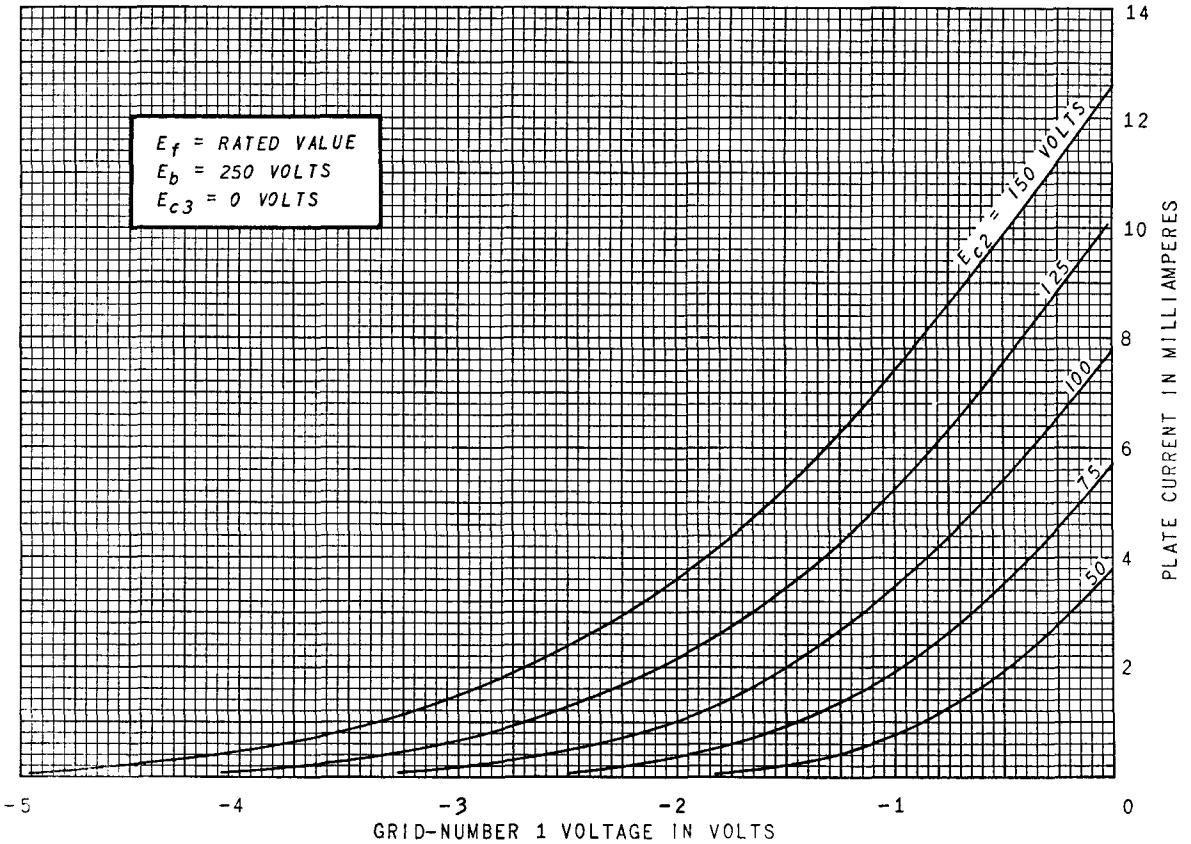


## AVERAGE TRANSFER CHARACTERISTICS

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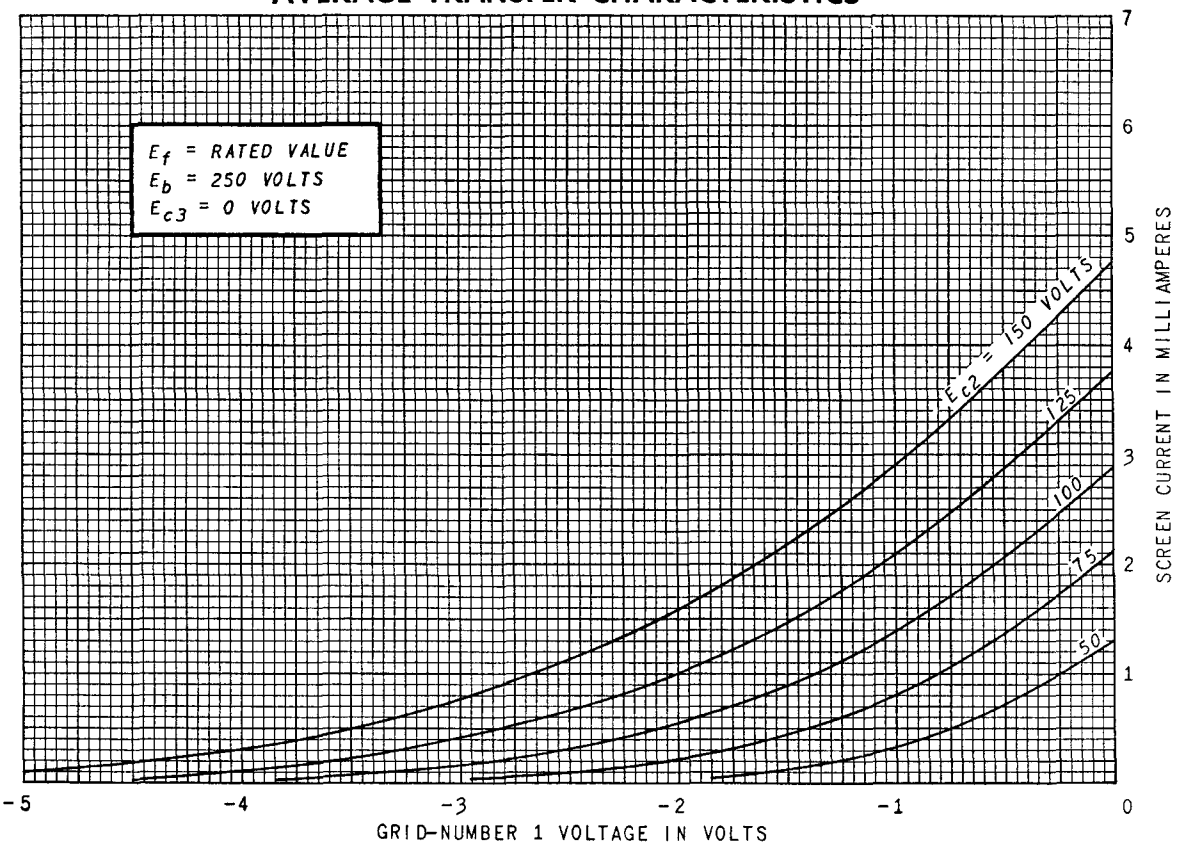

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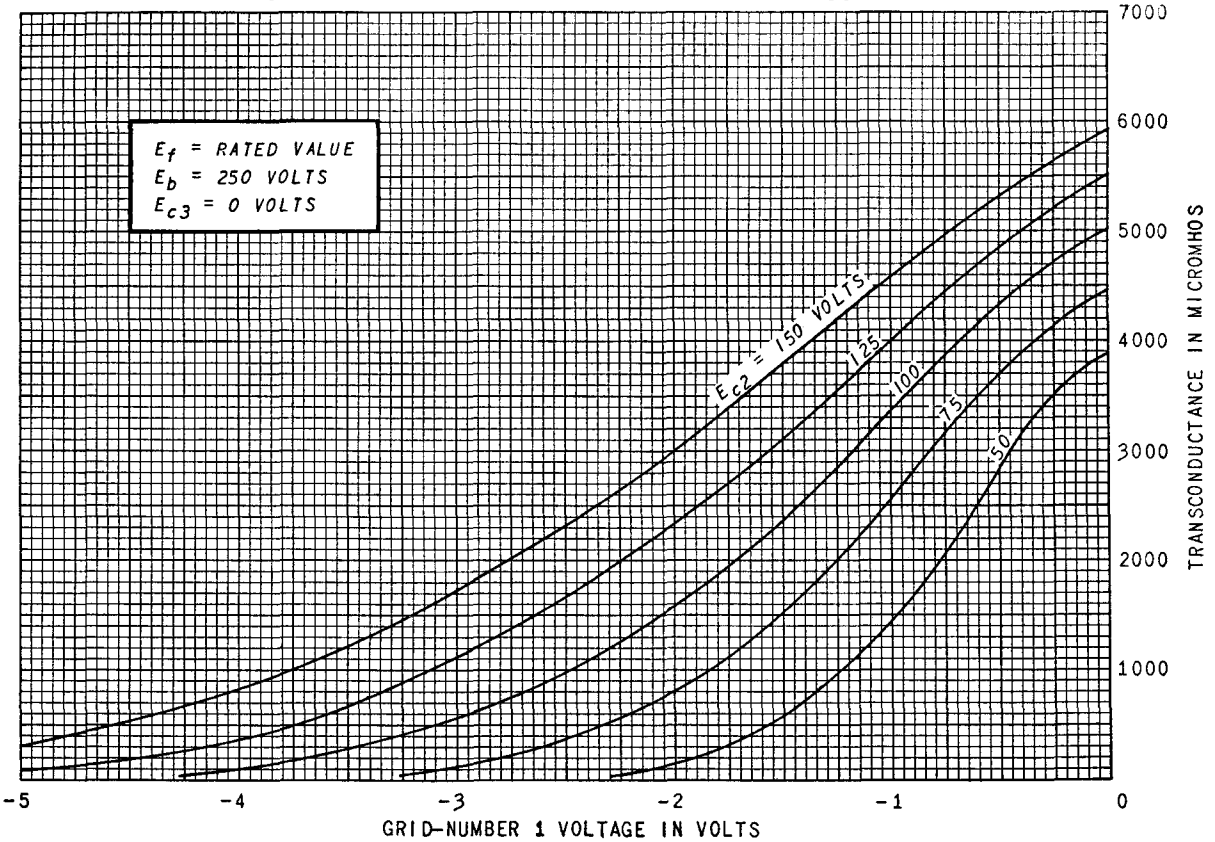

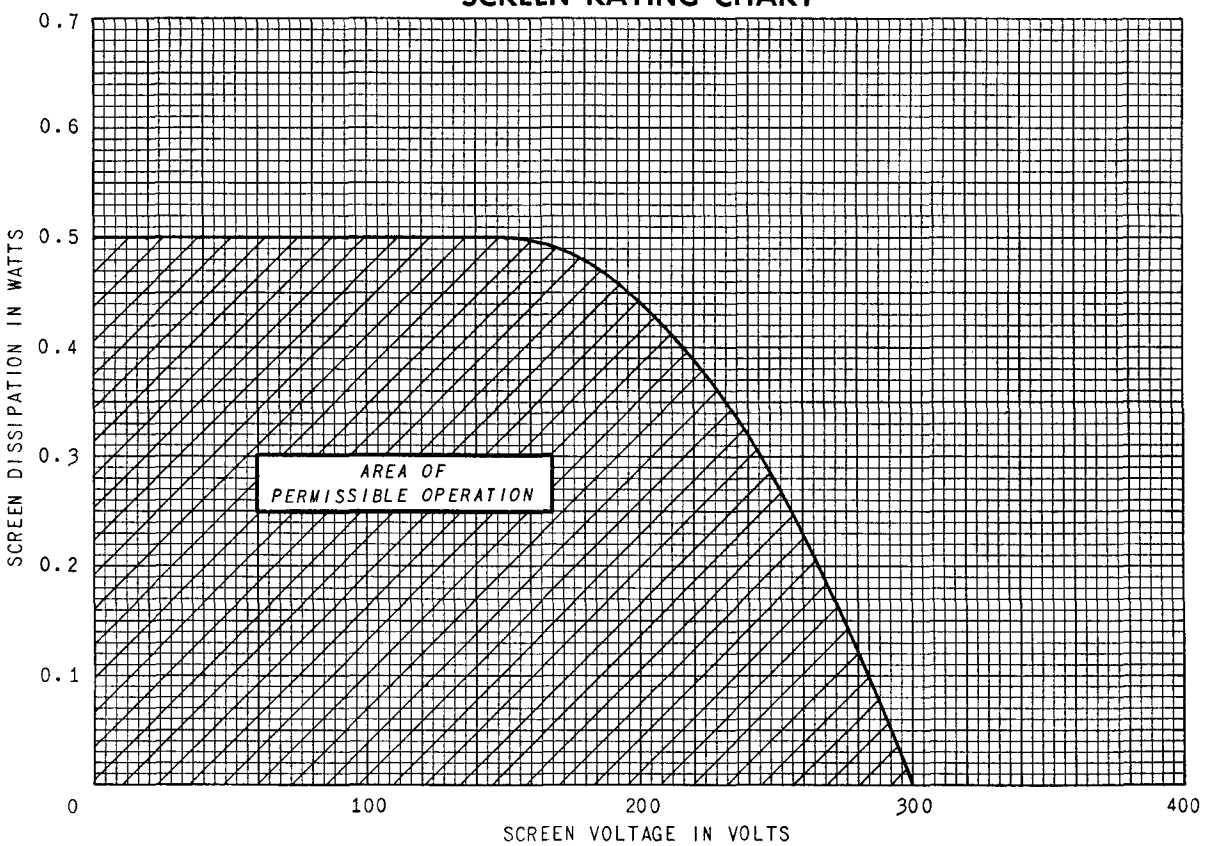
## SCREEN RATING CHART