

1U4

PENTODE

DESCRIPTION AND RATING

The 1U4 is a miniature, filamentary, sharp-cutoff pentode intended for radio-frequency or intermediate-frequency amplifier use in battery-operated receivers.

GENERAL

ELECTRICAL

| | | | |
|------------------------------------|---------------------|-----------------------|------------------|
| Cathode—Coated Filament | | | |
| Filament Voltage, DC | 1.4 | Volts | |
| Filament Current | 0.05 | Amperes | |
| Direct Interelectrode Capacitances | With Shield* | Without Shield | |
| Grid-Number 1 to Plate, maximum | 0.01 | 0.01 | $\mu\mu\text{f}$ |
| Input | 3.6 | 3.6 | $\mu\mu\text{f}$ |
| Output | 7.5 | 7.5 | $\mu\mu\text{f}$ |

MECHANICAL

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

MAXIMUM RATINGS

DESIGN-CENTER VALUES

| | | |
|-----------------------------------|-----|--------------|
| Plate Voltage | 110 | Volts |
| Screen Voltage | 110 | Volts |
| Positive DC Grid-Number 1 Voltage | 0 | Volts |
| DC Cathode Current | 6.0 | Milliamperes |

CHARACTERISTICS AND TYPICAL OPERATION

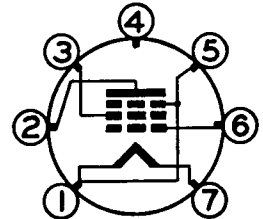
CLASS A₁ AMPLIFIER

| | | |
|------------------------------------|-----|--------------|
| Plate Voltage | 90 | Volts |
| Screen Voltage | 90 | Volts |
| Grid-Number 1 Voltage | 0 | Volts |
| Plate Resistance, approximate | 1.0 | Megohms |
| Transconductance | 900 | Micromhos |
| Plate Current | 1.6 | Milliamperes |
| Screen Current | 0.5 | Milliamperes |
| Grid-Number 1 Voltage, approximate | | |
| I _b = 10 Microamperes | -4 | Volts |

* With external shield (RETMA 316) connected to pin 1.

Note: All voltages are referred to the negative terminal of the filament.

BASING DIAGRAM

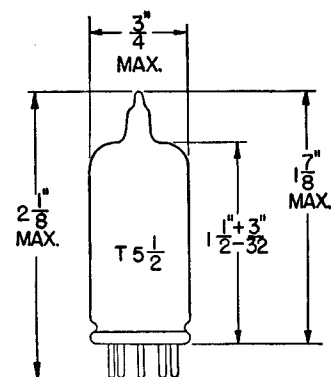


RETMA 6AR

TERMINAL CONNECTIONS

- Pin 1—Negative Filament, Internal Shield, and Grid Number 3 (Suppressor)
- Pin 2—Plate
- Pin 3—Grid Number 2 (Screen)
- Pin 4—No Connection
- Pin 5—Negative Filament, Internal Shield, and Grid Number 3 (Suppressor)
- Pin 6—Grid Number 1
- Pin 7—Positive Filament

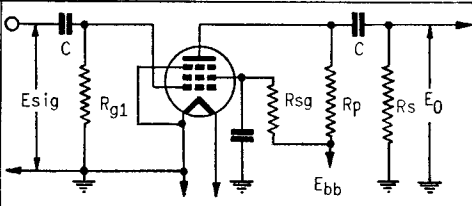
PHYSICAL DIMENSIONS



RETMA 5-2

CLASS A RESISTANCE-COUPLED AMPLIFIER

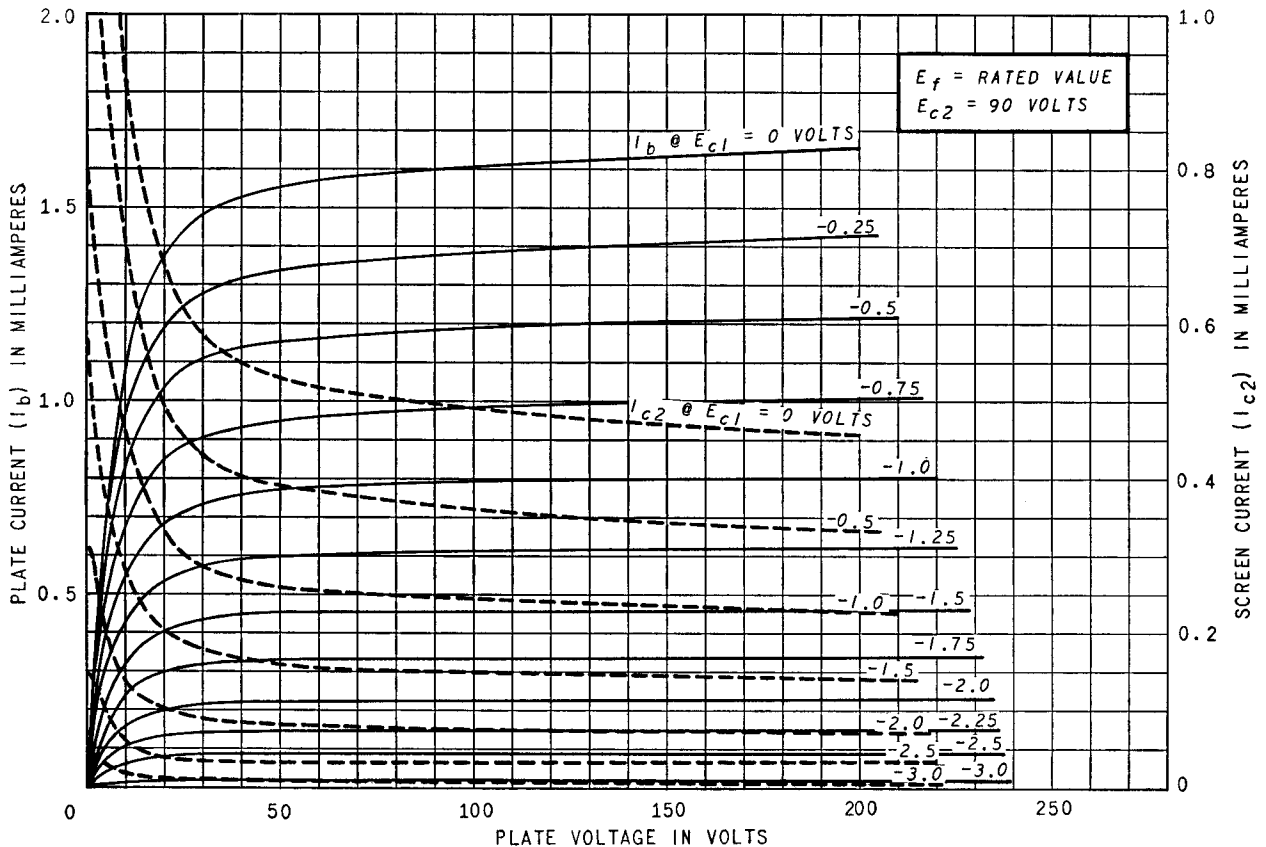
| Rp Meg. | Rs Meg. | Rg1 Meg. | Ebb = 45 Volts | | | Ebb = 90 Volts | | | Ebb = 135 Volts | | | | | |
|------------|------------|-------------|----------------|------|------|----------------|----|------|-----------------|----|----|------|------|----|
| | | | Rk | Rsg | Gain | Eo | Rk | Rsg | Gain | Eo | Rk | Rsg | Gain | Eo |
| 0.24 | 0.24 | 10 | — | 0 | 26 | 8.1 | — | 0.26 | 43 | 18 | — | 0.37 | 57 | 28 |
| 0.24 | 0.51 | 10 | — | 0.02 | 34 | 9.6 | — | 0.30 | 55 | 20 | — | 0.41 | 67 | 32 |
| 0.24 | 1.0 | 10 | — | 0.03 | 39 | 10 | — | 0.33 | 62 | 22 | — | 0.45 | 75 | 34 |
| 0.51 | 0.51 | 10 | — | 0.42 | 42 | 7.1 | — | 0.93 | 61 | 15 | — | 1.2 | 80 | 22 |
| 0.51 | 0.75 | 10 | — | 0.47 | 48 | 7.9 | — | 1.0 | 76 | 17 | — | 1.3 | 102 | 26 |
| 0.51 | 1.0 | 10 | — | 0.50 | 51 | 8.1 | — | 1.1 | 82 | 18 | — | 1.4 | 108 | 27 |
| 0.75 | 0.75 | 10 | — | 0.83 | 47 | 6.3 | — | 1.6 | 75 | 14 | — | 2.0 | 101 | 22 |
| 0.75 | 1.0 | 10 | — | 0.90 | 51 | 6.5 | — | 1.8 | 82 | 15 | — | 2.1 | 108 | 22 |
| 1.0 | 1.0 | 10 | — | 1.4 | 48 | 5.0 | — | 2.6 | 79 | 12 | — | 3.1 | 106 | 17 |



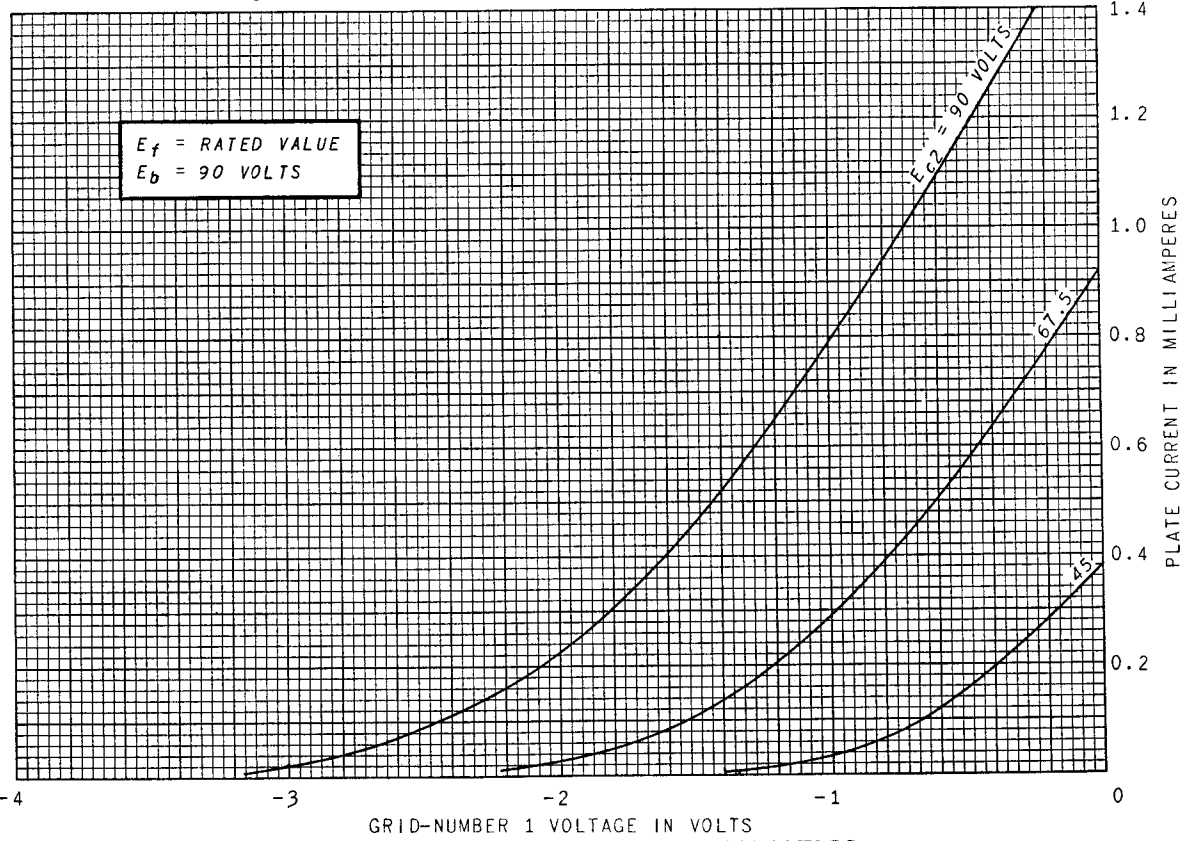
Note: Coupling capacitors (C) should be adjusted to give desired frequency response. Rsg should be adequately by-passed.

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.

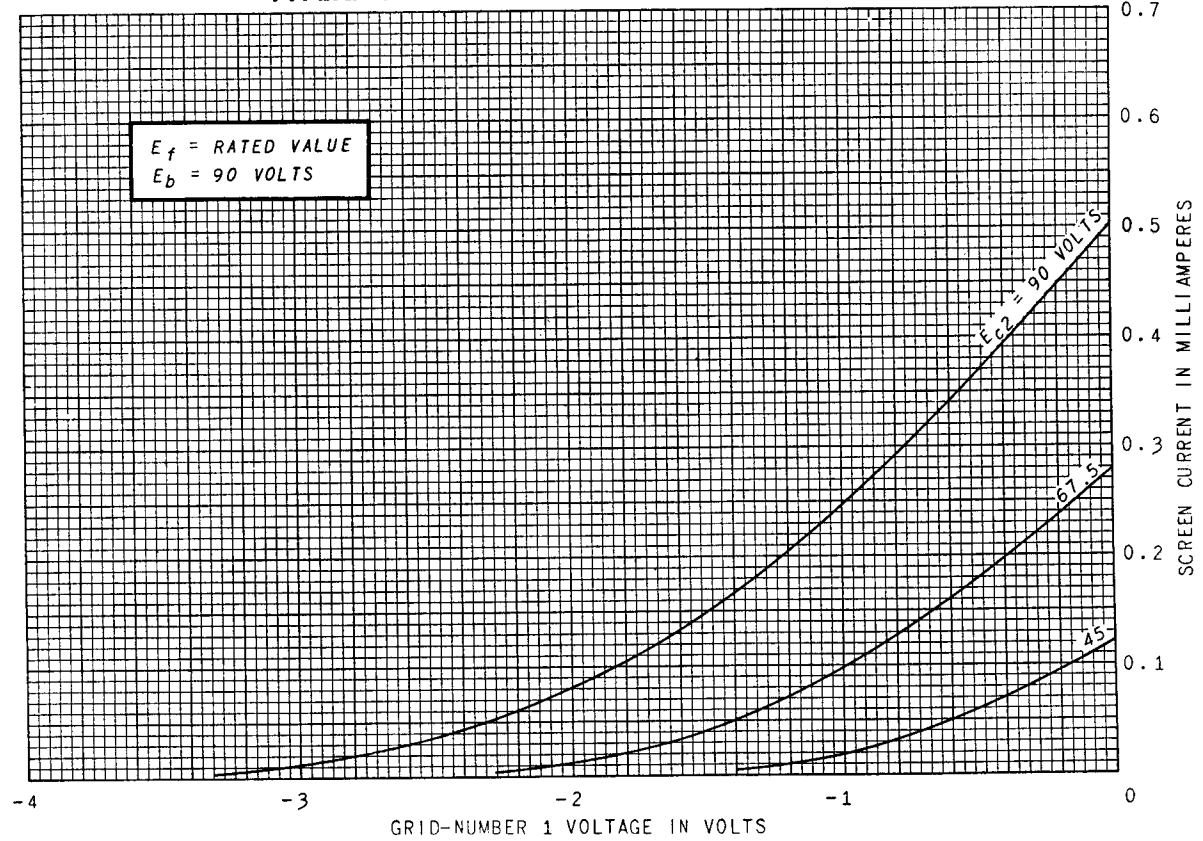
AVERAGE PLATE CHARACTERISTICS



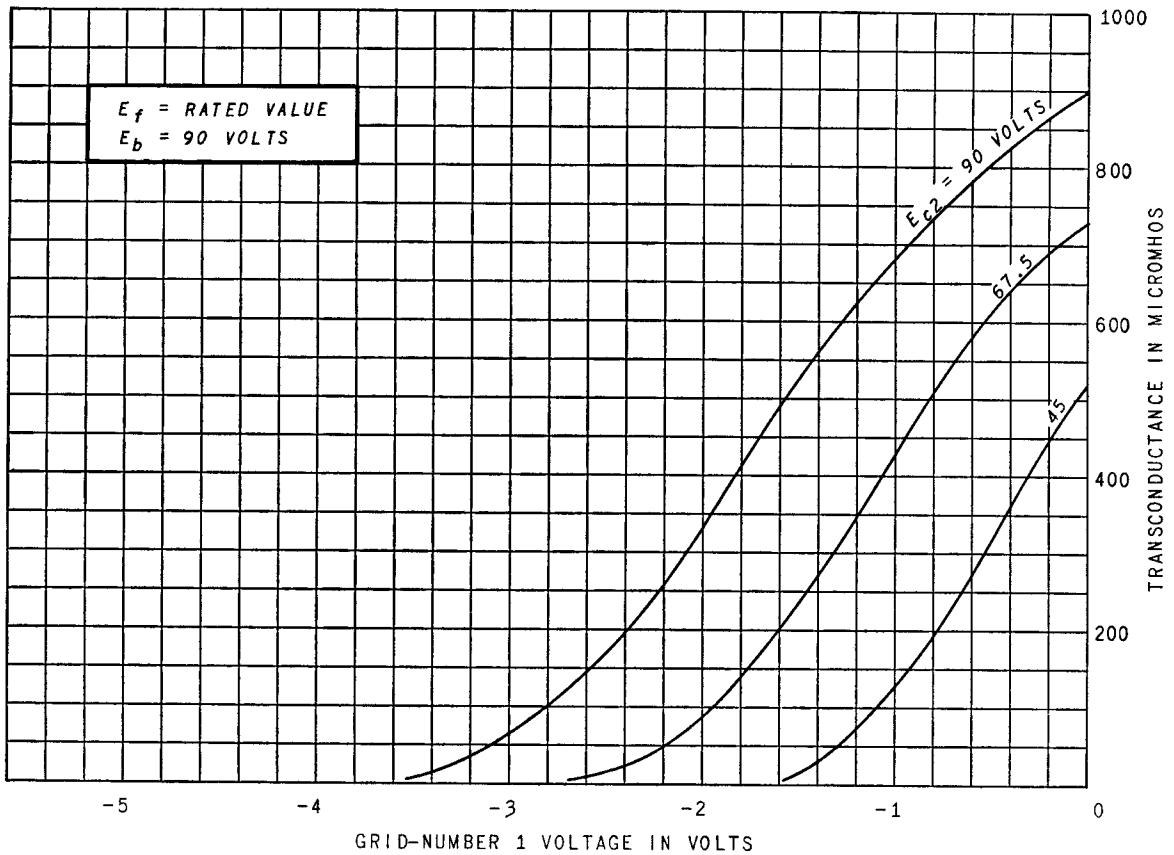
AVERAGE TRANSFER CHARACTERISTICS



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AVERAGE TRANSFER CHARACTERISTICS



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