



1U5

Description and Rating

DIODE-PENTODE

The 1U5 is a miniature diode sharp-cutoff pentode designed for use as a combined detector, audio-frequency amplifier, and automatic-volume-control tube in compact, battery-operated receivers. The diode section is effectively shielded from the pentode section to reduce feed-through effects.

GENERAL

Cathode - Coated Filament		
Filament Voltage, D-C	1.4	Volts
Filament Current	0.05	Ampere
Envelope - T-5½, Glass		
Base - E7-1, Miniature Button 7-Pin		
Mounting Position - Any		
Direct Interelectrode Capacitance		
	With shield*	Without Shield
Diode Plate to Grid-Number 1, maximum	0.04	0.04 μμf

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	90	Volts
Screen Voltage	90	Volts
Positive D-C Grid-Number 1 Voltage	0	Volts
Negative D-C Grid-Number 1 Voltage	50	Volts
D-C Cathode Current	3.0	Milliamperes
Diode Current for Continuous Operation	0.25	Milliampere

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A₁ AMPLIFIER

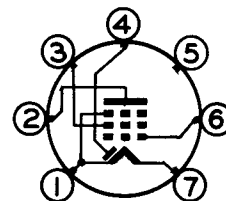
Plate Voltage	67.5	Volts
Screen Voltage	67.5	Volts
Grid-Number 1 Voltage	0	Volts
Plate Resistance, approximate	0.6	Megohm
Transconductance	625	Micromhos
Plate Current	1.6	Milliamperes
Screen Current	0.4	Milliampere
Grid-Number 1 Voltage, approximate, I _b = 10 Microamperes	-5	Volts
Average Diode Current With 10 Volts D-C Applied	1.5	Milliamperes

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

+ The diode is located at the negative end of the filament.

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

BASING DIAGRAM

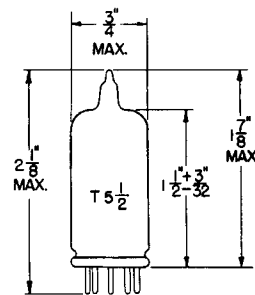


RTMA 6BW
BOTTOM VIEW

TERMINAL CONNECTIONS

- Pin 1 - Negative Filament and Grid Number 3
- Pin 2 - Plate
- Pin 3 - Grid Number 2 (Screen)
- Pin 4 - Diode Plate †
- Pin 5 - No Connection
- Pin 6 - Grid Number 1
- Pin 7 - Positive Filament

PHYSICAL DIMENSIONS

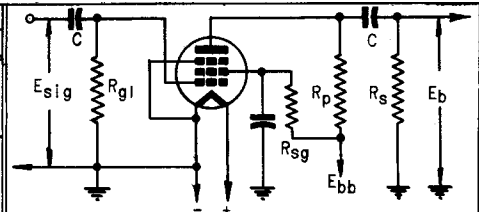


RTMA 5-2



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	-	0.5	18	6.4	-	0.8	29	13	-	1.0	38	20
0.24	0.51	10	-	0.5	24	8.0	-	0.9	38	15	-	1.1	40	25
0.24	1.0	10	-	0.6	28	8.4	-	1.0	45	17	-	1.2	55	28
0.51	0.51	10	-	1.1	25	5.9	-	1.9	40	12	-	2.3	52	19
0.51	0.75	10	-	1.2	29	6.5	-	2.0	46	13	-	2.0	61	22
0.51	1.0	10	-	1.4	32	6.6	-	2.2	51	14	-	2.5	65	22
0.75	0.75	10	-	1.9	29	5.1	-	2.9	47	11	-	3.2	61	18
0.75	1.0	10	-	2.0	32	5.2	-	3.0	52	11	-	3.4	67	18
1.0	1.0	10	-	2.7	31	4.3	-	3.9	50	9	-	4.6	66	15

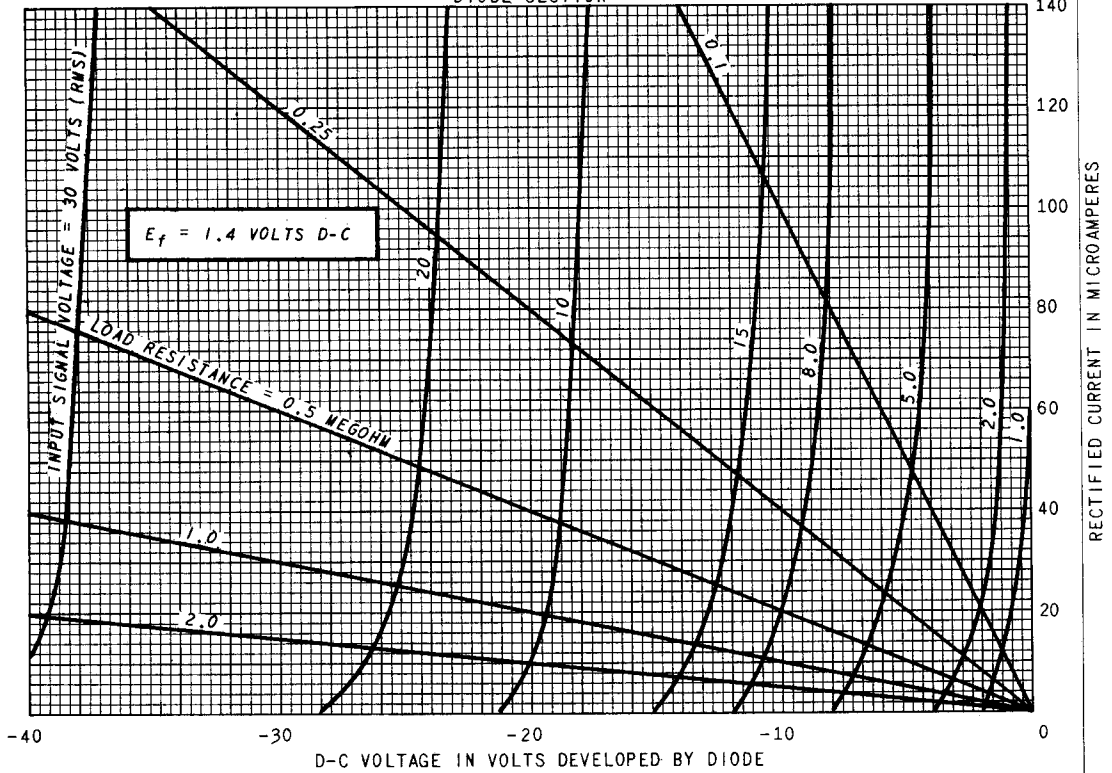


Note: Coupling capacitors (C) should be adjusted to give desired frequency response. Rsg should be adequately by-passed.

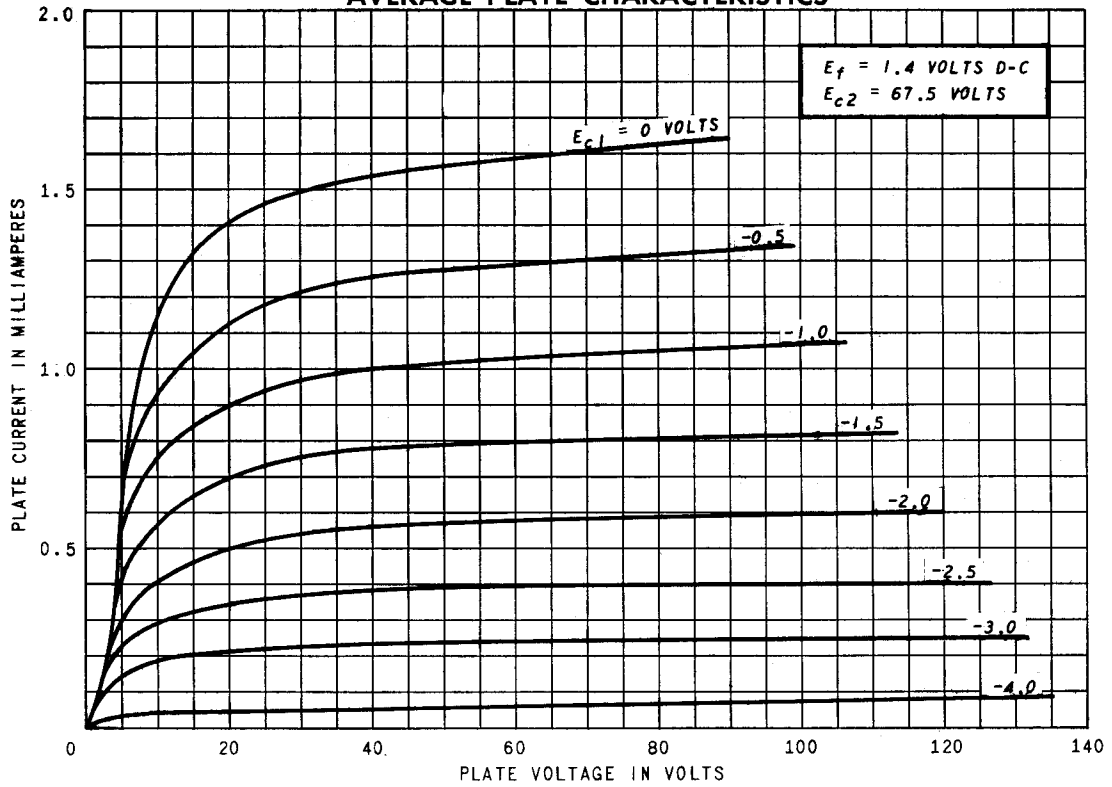
Notes: 1. Eo is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

OPERATION CHARACTERISTICS

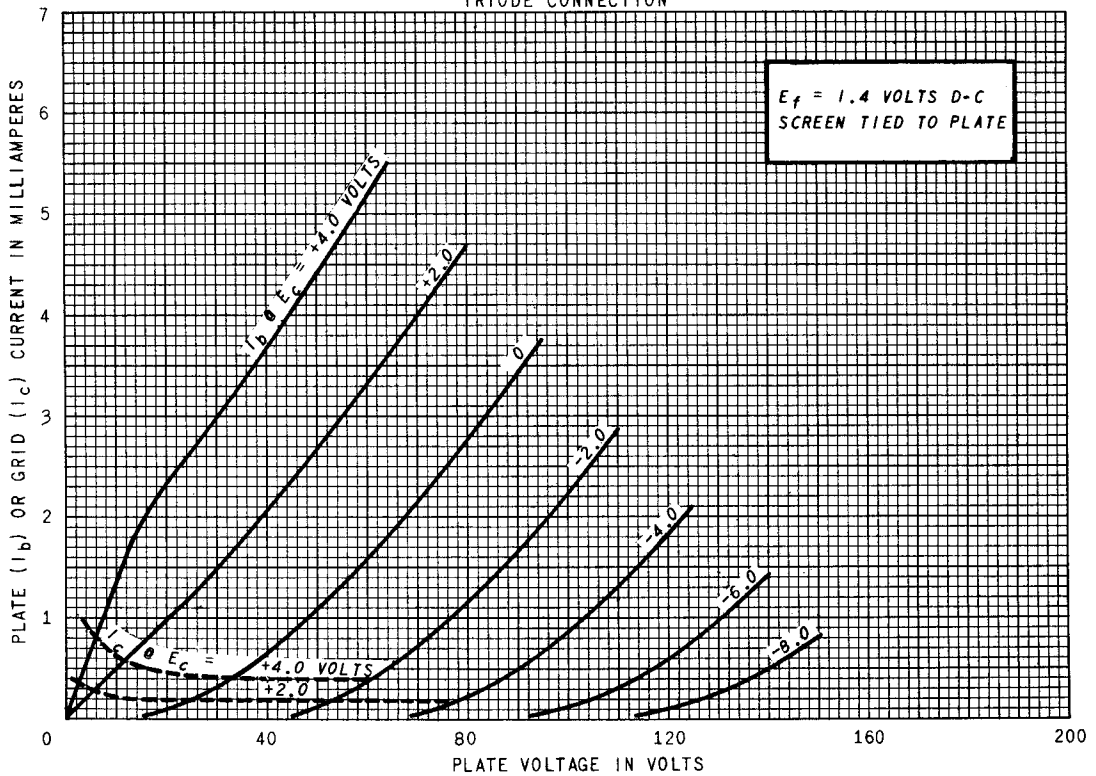
DIODE SECTION



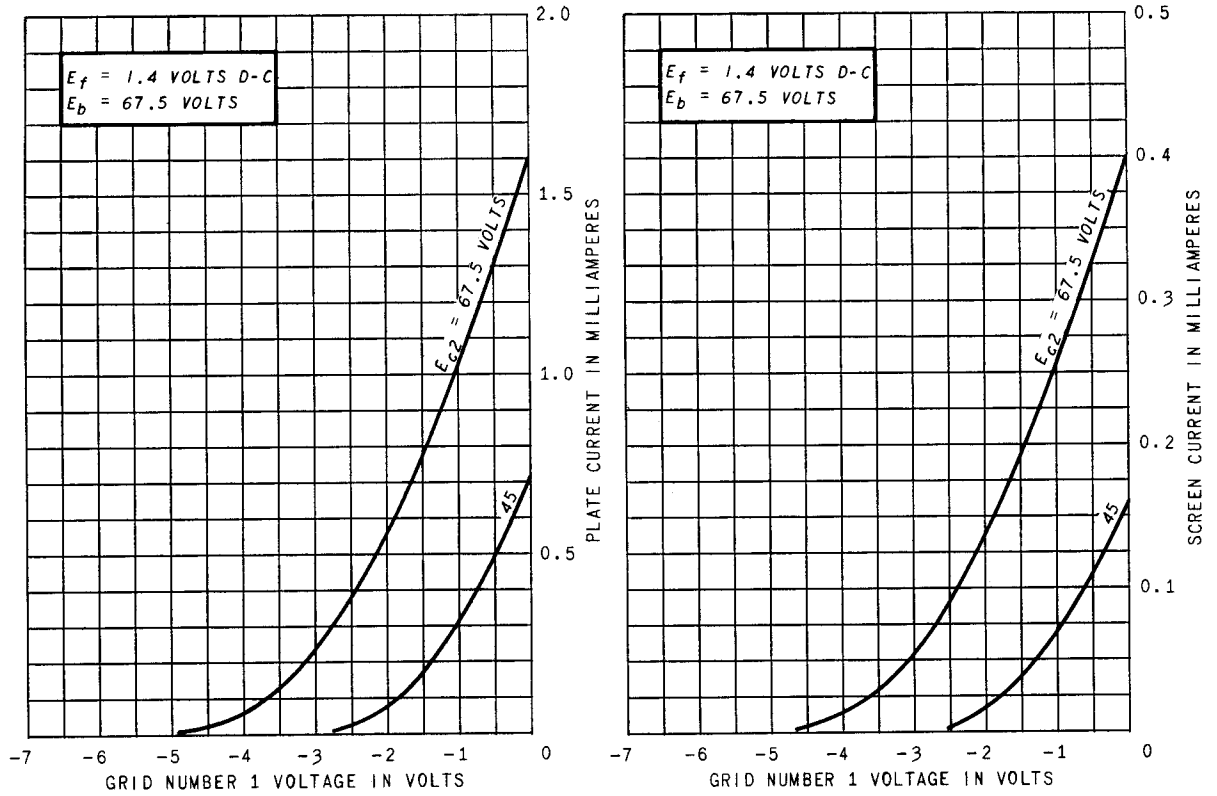
AVERAGE PLATE CHARACTERISTICS



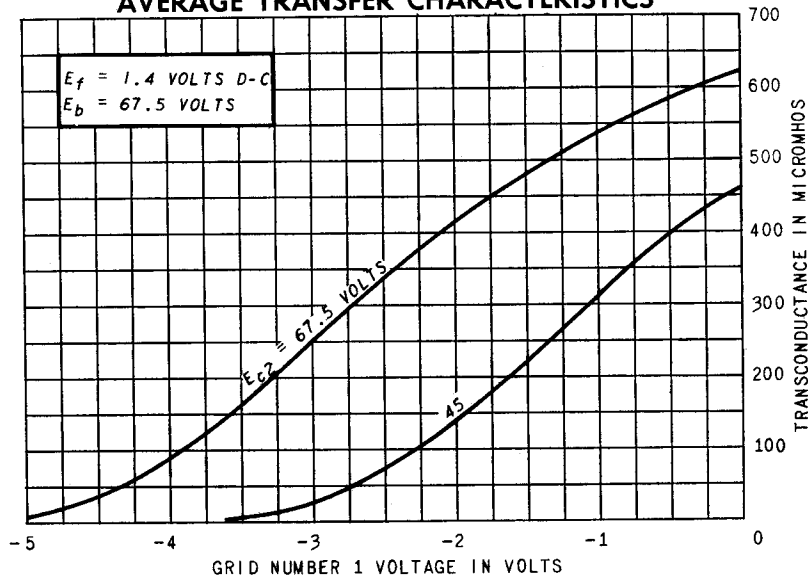
AVERAGE PLATE CHARACTERISTICS
TRIODE CONNECTION



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



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