Electronic TUBE

1R5

Description and Rating

HEPTODE

FOR PENTAGRID CONVERTER APPLICATIONS

The 1R5 is a miniature pentagrid-converter designed for use as a combined mixer and oscillator in superheterodyne circuits. Because of its small size and high operating efficiency, the 1R5 is especially adapted for compact, battery-operated equipment.

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 Capacitances

	With Shield *	Without Shield	
Grid-Number 3 to All	7.0	7.0	μμf
Plate to All	12	7.5	μμf
Grid-Number 1 to All	3.8	3.8	μμf
Grid-Number 3 to Plate, maximum	0.3	0.4	μμf
Grid-Number 3 to Grid-Number 1, maximum	0.2	0.2	μμf
Grid-Number 1 to Plate, maximum	0.1	0.1	μμf

MAXIMUM RATINGS

DESIGN-CENTER VALUES

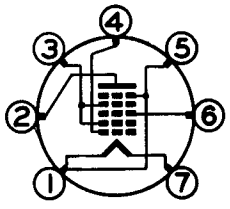
Plate Voltage	90	Volts
Screen-Supply Voltage	90	Volts
Screen Voltage	67.5	Volts
Positive D-C Grid-Number 3 Voltage	0	Volts
Zero-Signal Cathode Current	5.5	Milliamperes

CHARACTERISTICS AND TYPICAL OPERATION

CONVERTER SERVICE +

Plate Voltage	45	67.5	90	Volts
Screen Voltage	45	67.5	67.5	Volts
Grid-Number 3 Voltage	0	0	0	Volts
Grid-Number 1 Voltage, RMS	15	25	25	Volts
Grid-Number 1 Resistance	0.1	0.1	0.1	Megohm
Plate Resistance, approximate	0.5	0.4	0.4	Megohm
Conversion Transconductance	210	280	280	Micromhos
Plate Current	0.7	1.4	1.5	Milliamperes
Screen Current	2.1	3.5	3.5	Milliamperes
Grid-Number 1 Current	0.15	0.25	0.25	Milliampere
Cathode Current	3.0	5.2	5.3	Milliamperes
Grid-Number 3 Voltage, approximate, G_c = 10 Micromhos	-7.0	-13	-13	Volts
Grid-Number 3 Voltage, approximate, G_c = 100 Micromhos	-2.2	-4.9	-5.0	Volts

BASING DIAGRAM

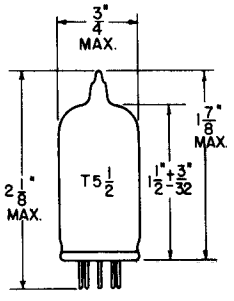


RTMA 7AT
BOTTOM VIEW

TERMINAL CONNECTIONS

Pin 1 - Negative Filament and Grid Number 5
Pin 2 - Plate
Pin 3 - Grids Number 2 and 4 (Screen)
Pin 4 - Grid Number 1 (Oscillator Grid)
Pin 5 - Negative Filament and Grid Number 5
Pin 6 - Grid Number 3 (Mixer Grid)
Pin 7 - Positive Filament

PHYSICAL DIMENSIONS



RTMA 5-2

GENERAL ELECTRIC

Supersedes ET-T229A dated 6-50

CHARACTERISTICS AND TYPICAL OPERATION

OSCILLATOR CHARACTERISTICS (NOT OSCILLATING)

Plate Voltage	67.5	Volts
Screen - Connected to Plate		
Grid-Number 3 Voltage	0	Volts
Grid-Number 1 Voltage	0	Volts
Amplification Factor ‡	6.5	
Transconductance ‡	1400	Micromhos
Cathode Current	9.0	Milliamperes
Grid-Number 1 Voltage, approximate, I_b = 10 Microamperes	-17	Volts

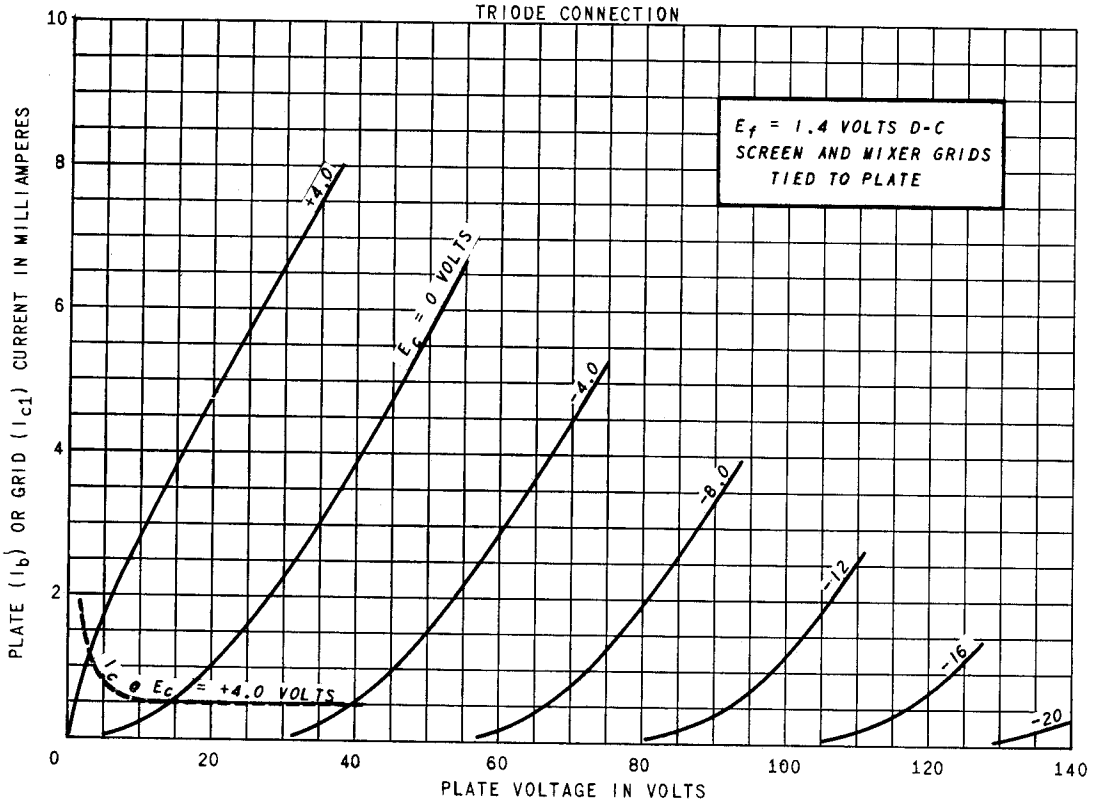
* *With external shield (RTMA 316) connected to pin 1.*

† *Characteristics shown are obtained in the standard RTMA conversion conductance test set which uses separate excitation. The characteristics under these conditions correspond very closely with those obtained in a self-excited oscillatory circuit operating with zero bias.*

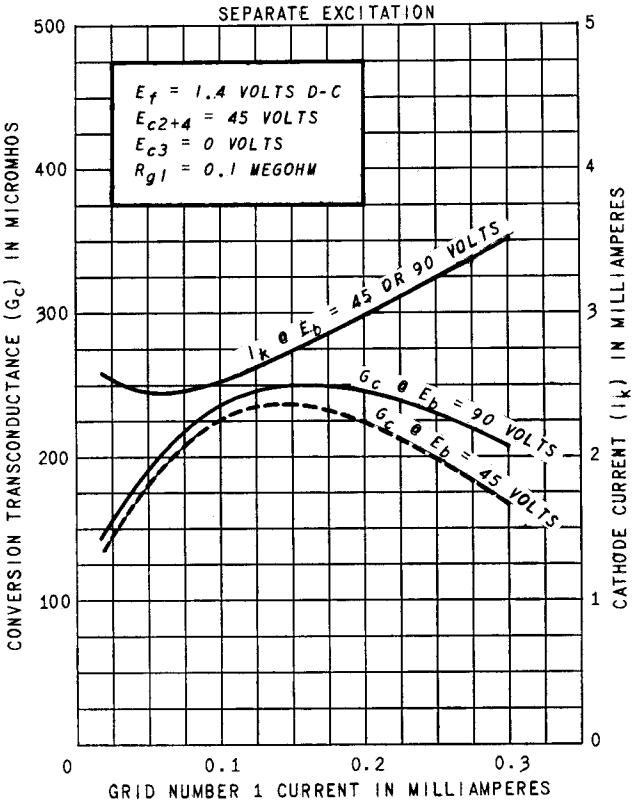
‡ *Between grid number 1 and grids number 2 and 4 connected to plate.*

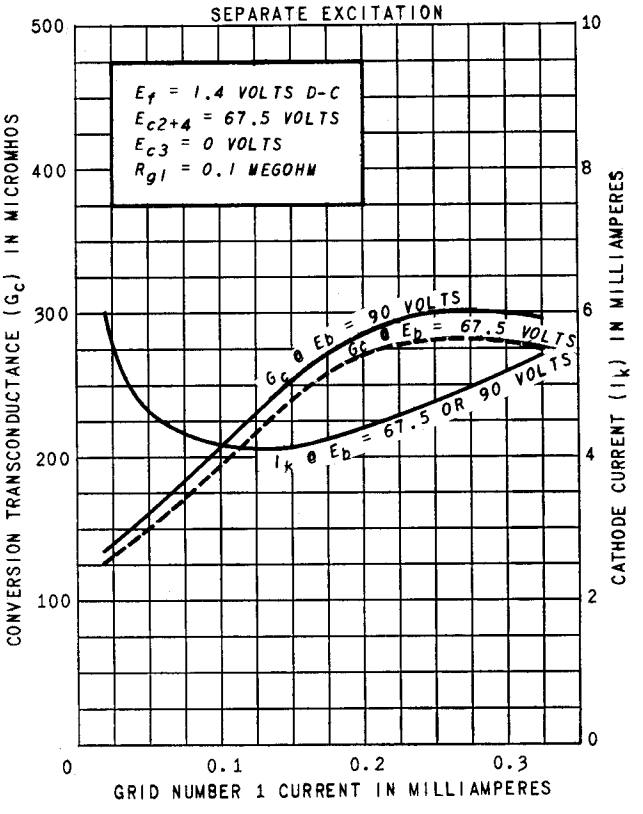
Note: All voltages are referred to the negative terminal of the filament.

AVERAGE PLATE CHARACTERISTICS



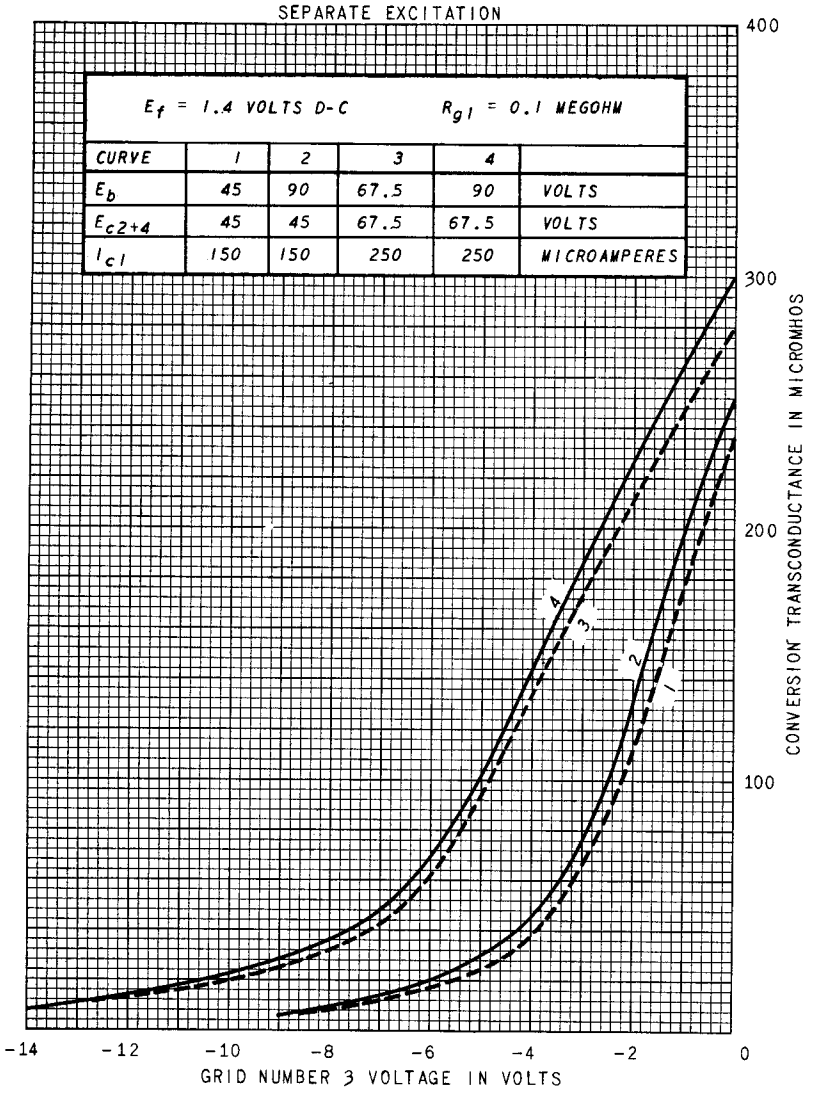
OPERATION CHARACTERISTICS





OPERATION CHARACTERISTICS

SEPARATE EXCITATION



TUBE DEPARTMENT

GENERAL ELECTRIC

Schenectady 5, N. Y.