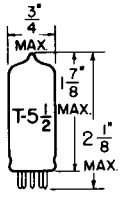
TUNG-SOL

HEPTODE

MINIATURE TYPE

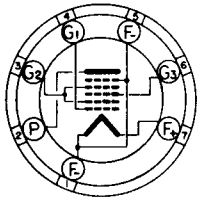


GLASS BULB

COATED FILAMENT

1.4 VOLTS 0.05 AMP.
DC

ANY MOUNTING POSITION



BOTTOM VIEW
MINIATURE BUTTON
7 PIN BASE
7AT

THE 1R5 IS A HEPTODE CONVERTER USING THE 7 PIN MINIATURE CONSTRUCTION. IT IS DESIGNED PRIMARILY FOR SERVICE AS A COMBINED OSCILLATOR AND MIXER IN COMPACT, LIGHT-WEIGHT, PORTABLE BATTERY OPERATED EQUIPMENT. IT FEATURES A HIGH EFFICIENCY FILAMENT, ADAPTABILITY TO AVC AND PROVIDES REASONABLE CONVERSION GAIN WITH LOW BATTERY VOLTAGE AND LOW ELECTRODE CURRENTS.

DIRECT INTERELECTRODE CAPACITANCES

	WITH[A] SHIELD	WITHOUT SHIELD	
MIXER GRID TO PLATE: (G_3 TO P) MAX.	0.3	0.4	μμf
RF INPUT: G_3 TO ($F+G_1+G_{2\&4}+G_5+P$)	7.0	7.0	μμf
MIXER OUTPUT: P TO ($F+G_1+G_{2\&4}+G_3+G_5$)	12.0	7.5	μμf
OSCILLATOR INPUT: G_1 TO ($F+G_{2\&4}+G_3+G_5+P$)	3.8	3.8	μμf
COUPLING: (G_1 TO G_3) MAX.	0.2	0.2	μμf
OSCILLATOR GRID TO PLATE: (G_1 TO P) MAX.	0.10	0.10	μμf

[A] EXTERNAL SHIELD #316 CONNECTED TO PIN #1.

RATINGS

INTERPRETED ACCORDING TO RMA STANDARD M8-210

FILAMENT VOLTAGE	1.4	VOLTS
MAXIMUM PLATE VOLTAGE	90	VOLTS
MAXIMUM GRIDS #2 AND #4 VOLTAGE	67.5	VOLTS
MAXIMUM GRIDS #2 AND #4 SUPPLY VOLTAGE	90	VOLTS
MAXIMUM CATHODE CURRENT (ZERO-SIGNAL)	5.5	MA.
MINIMUM POSITIVE DC GRID #3 VOLTAGE	0	VOLTS

CONTINUED ON FOLLOWING PAGE

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PLATE 3015
1952

→ INDICATES A CHANGE OR ADDITION

CONTINUED FROM PRECEDING PAGE

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CONVERTER SERVICE – SEPARATE EXCITATION[B]

FILAMENT VOLTAGE	1.4	1.4	1.4	VOLTS
FILAMENT CURRENT	0.05	0.05	0.05	AMP.
PLATE VOLTAGE	45	67.5	90	VOLTS
GRIDS #2 AND #4 VOLTAGE	45	67.5	67.5	VOLTS
GRID #3 VOLTAGE	0	0	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR GRID) RMS	15	25	25	VOLTS
GRID #1 CURRENT (OSCILLATOR GRID)	150	250	250	μA.
GRID #1 RESISTANCE (OSCILLATOR GRID)	0.1	0.1	0.1	MEGOHM
PLATE RESISTANCE (APPROX.)	0.5	0.4	0.4	MEGOHM
PLATE CURRENT	0.7	1.4	1.5	MA.
GRIDS #2 AND #4 CURRENT	2.1	3.5	3.5	MA.
CATHODE CURRENT	3.0	5.2	5.3	MA.
CONVERSION TRANSCONDUCTANCE	210	280	280	μMHOS
GRID #3 VOLTAGE FOR G_C = 10 μMHOS	−7.0	−13	−13	VOLTS
GRID #3 VOLTAGE FOR G_C = 100 μMHOS	−2.2	−4.9	−5.0	VOLTS

[B] CHARACTERISTICS SHOWN ARE OBTAINED IN THE STANDARD RMA 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.

OSCILLATOR TRANSCONDUCTANCE
NOT OSCILLATING

GRID #3 VOLTAGE	0	VOLTS
GRID #1 VOLTAGE (OSCILLATOR)	0	VOLTS
GRIDS #2 AND #4 CONNECTED TO PLATE	67.5	VOLTS
TRANSCONDUCTANCE BETWEEN GRID #1 AND GRIDS #2 AND #4 CONNECTED TO PLATE	1400	μMHOS
CATHODE CURRENT	9.0	MA.
AMPLIFICATION FACTOR BETWEEN GRID #1 AND GRIDS #2 AND #4 CONNECTED TO PLATE	6.5	
GRID #1 VOLTAGE FOR I_b = 10 μA. (APPROX.)	17	VOLTS

PLATE 3016
SEPT. 1 1952

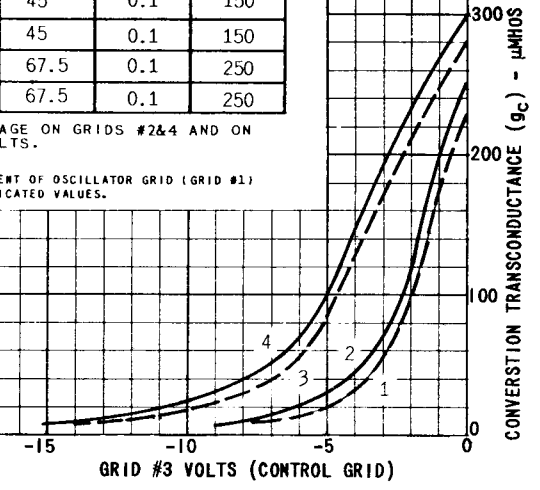
→ INDICATES A CHANGE OR ADDITION.

IR5
E_f = 1.4 Volts DC

CURVE	PLATE VOLTS	GRIDS 2 & 4 volts	GRID #1 RESISTOR MEGOHM	GRID #1 CURRENT[A] µAMP
1	45	45	0.1	150
2	90	45	0.1	150
3	67.5	67.5	0.1	250
4	90	67.5	0.1	250

OSCILLATOR VOLTAGE ON GRIDS #2&4 AND ON FILAMENT = 0 VOLTS.

[A] OBTAINED BY ADJUSTMENT OF OSCILLATOR GRID (GRID #1) VOLTAGE TO GIVE INDICATED VALUES.



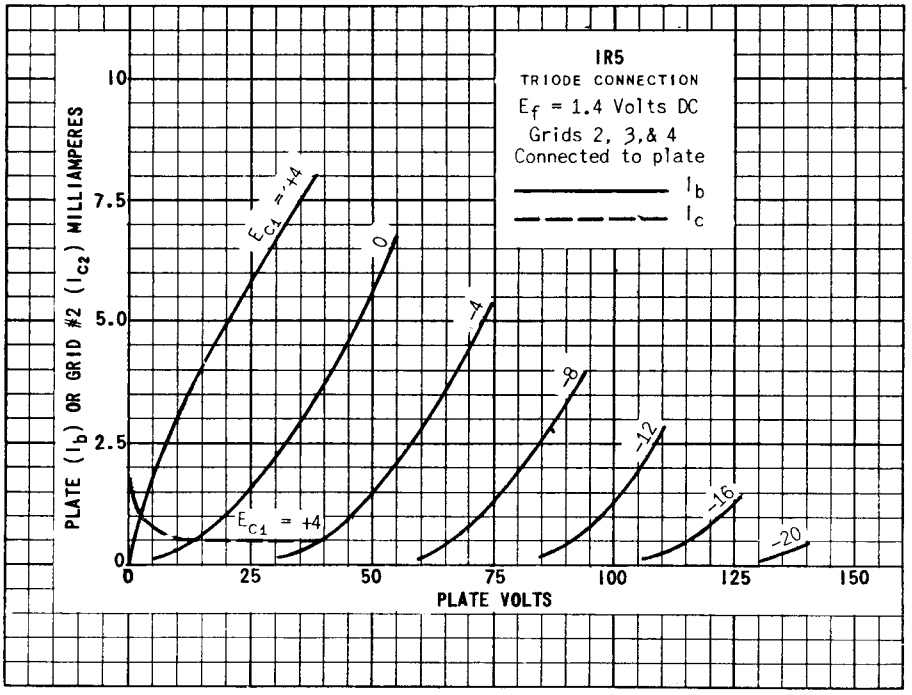


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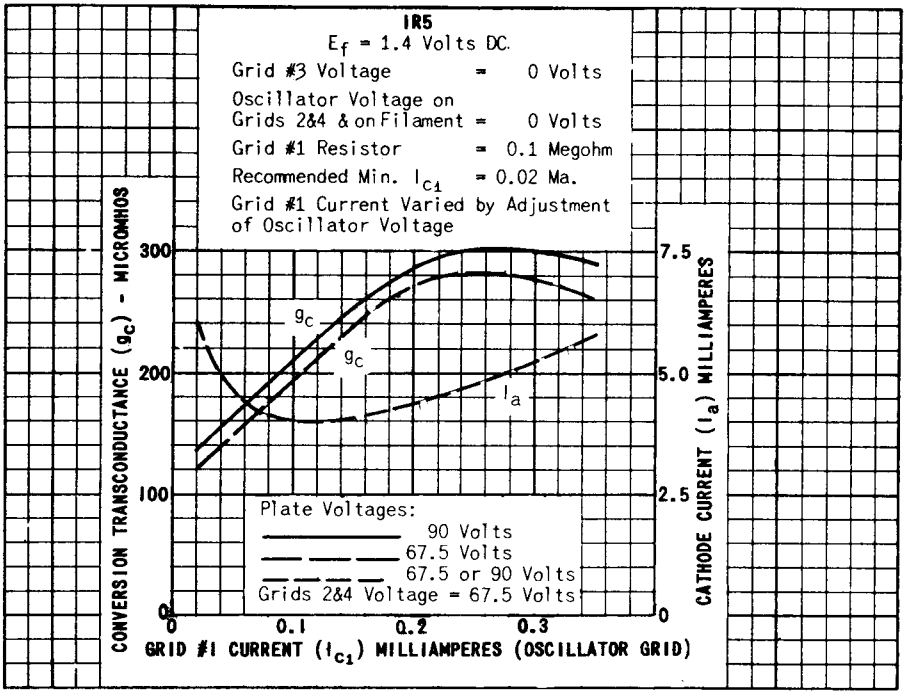
PLATE
3017
SEPT. 1
1952

IR5



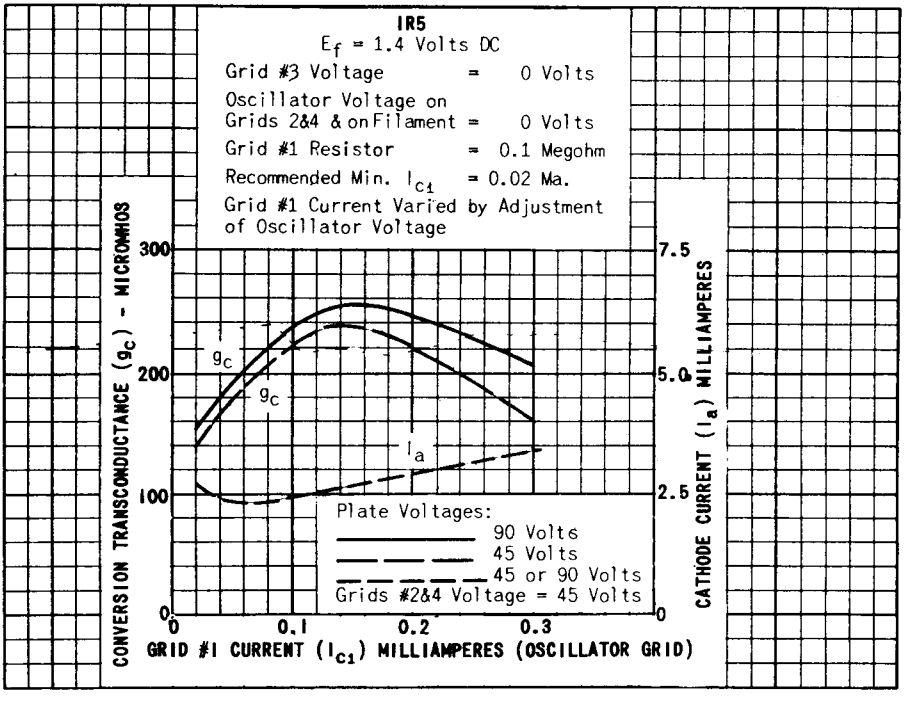


PLATE 3018
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