

TUNG-SOL

PENTAGRID CONVERTER

PHYSICAL SPECIFICATIONS

EMITTER UNIPOTENTIAL CATHODE		PIN CONNECTIONS	
BASE	SMALL WAFER OCTAL 8-PIN	PIN 1 SHELL, G5	PIN 7 HEATER
	MICANOL	PIN 2 HEATER	PIN 8 GRID 3
BULB	MT-8G	PIN 3 PLATE	
MAXIMUM DIAMETER	1 5/16"	PIN 4 GRIDS 2 & 4	MOUNTING POS. ANY
MAXIMUM OVERALL LENGTH	2 5/8"	PIN 5 GRID 1	
MAXIMUM SEATED HEIGHT	2 1/16"	PIN 6 CATHODE	

RATINGS

INTERPRETED ACCORDING TO RMA STANDARD MB-210

HEATER VOLTAGE (AC OR DC)	6.3	VOLTS
HEATER CURRENT	0.3	AMP.
MAXIMUM PLATE VOLTAGE	300	VOLTS
MAXIMUM GRIDS 2 & 4 VOLTAGE	100	VOLTS
MAXIMUM GRIDS 2 & 4 SUPPLY VOLTAGE	300	VOLTS
MAXIMUM GRID 3 VOLTAGE:		
NEGATIVE BIAS VOLTAGE	100	VOLTS
POSITIVE BIAS VOLTAGE	0	VOLTS
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEG. WITH RESPECT TO CATHODE	90	VOLTS
HEATER POS. WITH RESPECT TO CATHODE	90	VOLTS
MAXIMUM TOTAL CATHODE CURRENT	22	MA.
MAXIMUM PLATE DISSIPATION	2.0	WATTS
MAXIMUM GRIDS 2 & 4 DISSIPATION	1.5	WATTS

DIRECT INTERELECTRODE CAPACITANCES

GRID 3 TO ALL OTHER ELECTRODES (RF INPUT) ^A [C _{G3(H+K+G1+G2+G4+G5+P)}]	9.6	μμf
PLATE TO ALL OTHER ELECTRODES (MIXER OUTPUT) ^A [C _{P(H+K+G1+G2+G4+G3+G5)}]	9.2	μμf
GRID 1 TO ALL OTHER ELECTRODES (OSCILLATOR INPUT) ^A [C _{G1(H+K+G2+G4+G3+G5+P)}]	7.3	μμf
GRID 3 TO PLATE [C _{G3P}] (MAX.) ^A	0.15	μμf
GRID 1 TO GRID 3 [C _{G1G3}] (MAX.) ^A	0.16	μμf
GRID 1 TO PLATE [C _{G1P}] (MAX.) ^A	0.06	μμf
GRID 1 TO ALL OTHER ELECTRODES AND SHELL EXCEPT CATHODE [C _{G1(S+H+G2+G4+G3+G5+P)}]	3.8	μμf
GRID 1 TO CATHODE [C _{G1K}]	3.4	μμf
CATHODE TO ALL OTHER ELECTRODES AND SHELL EXCEPT GRID 1 [C _{K(S+H+G2+G4+G3+G5+P)}]	4.5	μμf

^AWITH SHELL CONNECTED TO CATHODE

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

SEPARATE EXCITATION

CHARACTERISTICS SHOWN WITH SEPARATE EXCITATION CORRESPOND VERY CLOSELY WITH THOSE OBTAINED IN A SELF-EXCITED OSCILLATOR CIRCUIT OPERATING WITH ZERO BIAS.

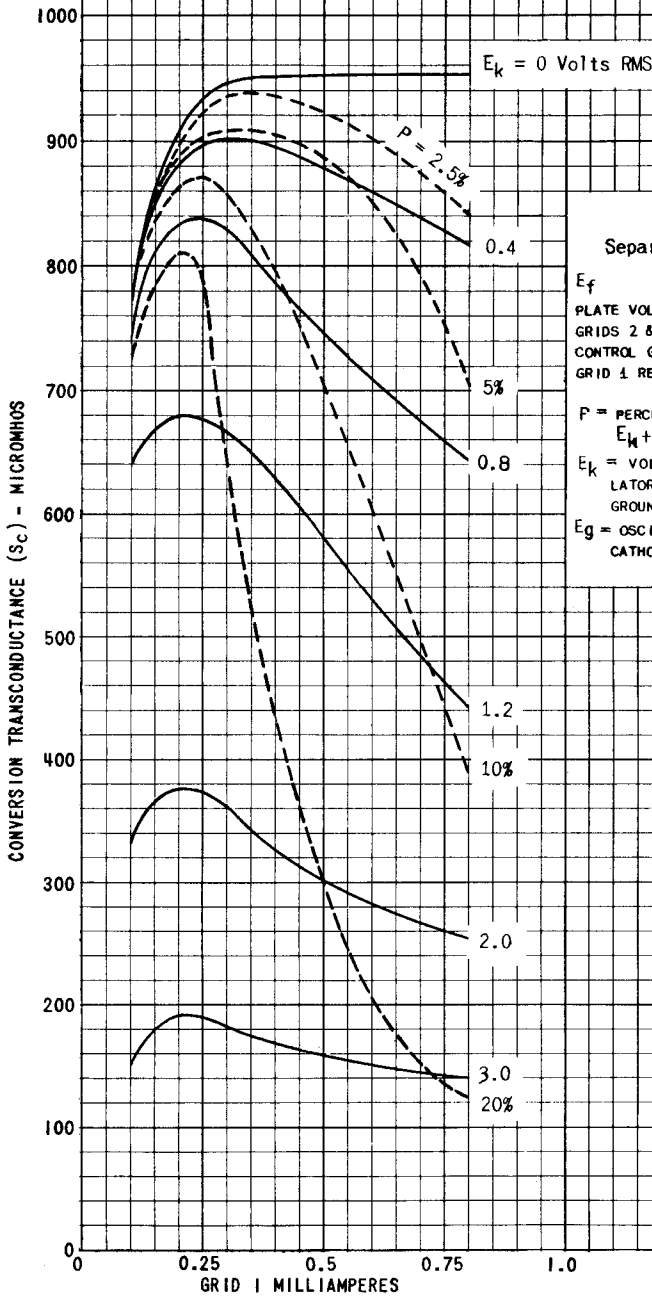
PLATE VOLTAGE	100	250	VOLTS
SCREEN (GRIDS 2 & 4) VOLTAGE	100	100	VOLTS
CONTROL GRID (GRID 3) VOLTAGE	-1.0	-1.0	VOLT
PLATE CURRENT	3.6	3.8	MA.
SCREEN (GRIDS 2 & 4) CURRENT	10.2	10	MA.
OSCILLATOR (GRID 1) CURRENT	0.35	0.35	MA.
TOTAL CATHODE CURRENT	14.2	14.2	MA.
PLATE RESISTANCE (APPROX.)	0.5	1.0	MEGOHM
OSCILLATOR GRID (GRID 1) RESISTOR	20 000	20 000	OHMS
CONVERSION TRANSCONDUCTANCE	900	950	MICROMHOS
CONVERSION TRANSCONDUCTANCE (APPROX.) FOR GRID 3 BIAS = -20 VOLTS	3.5	3.5	MICROMHOS

OSCILLATOR IN FM BAND (88-108 MC.)

PLATE VOLTAGE	250	VOLTS
SCREEN (GRIDS 2 & 4) SUPPLY VOLTAGE	250	VOLTS
SCREEN (GRIDS 2 & 4) RESISTOR	12 000	OHMS
OSCILLATOR GRID (GRID 1) RESISTOR	22 000	OHMS
SIGNAL FREQUENCY	88	108
OSCILLATION FREQUENCY	98.7	118.7
PLATE CURRENT	6.8	6.5
SCREEN (GRIDS 2 & 4) CURRENT	12.6	12.5
OSCILLATOR (GRID 1) CURRENT	0.130	0.140

OSCILLATOR TRANSCONDUCTANCE

GRID 3	CONNECTED TO GROUND
GRIDS 2 & 4 CONNECTED TO PLATE (NOT OSCILLATING)	100 VOLTS
GRID 1 SIGNAL VOLTAGE	0 VOLTS
TRANSCONDUCTANCE (APPROX.) BETWEEN GRID 1 & PLATE WITH GRIDS 2 & 4 CONNECTED TO PLATE	8000 MICROMHOS
PLATE CURRENT	32 MA.
AMPLIFICATION FACTOR	16.5
PLATE RESISTANCE (APPROX.)	2060 OHMS



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 Separate Excitation

$E_f = 6.3$ VOLTS
 PLATE VOLTAGE = 250 VOLTS
 GRIDS 2 & 4 = 100 VOLTS
 CONTROL GRID = -1 VOLTS
 GRID 1 RESISTOR = 20,000 OHMS

$P =$ PERCENTAGE RATIO OF E_k TO $E_k + E_g$ WHERE
 $E_k =$ VOLTAGE ACROSS OSCILLATOR COIL SECTION BETWEEN GROUND AND CATHODE.
 $E_g =$ OSCILLATOR VOLTAGE BETWEEN CATHODE AND GRID.

6SB7Y

6SB7Y

E_f = 6.3 Volts
Plate Voltage = 250 Volts
Grids 2 & 4 Voltage = 100 Volts
Grid 1 Resistor = 20,000 Ohms

Oscillator voltage adjusted to give grid 1 current of 0.35 ma.

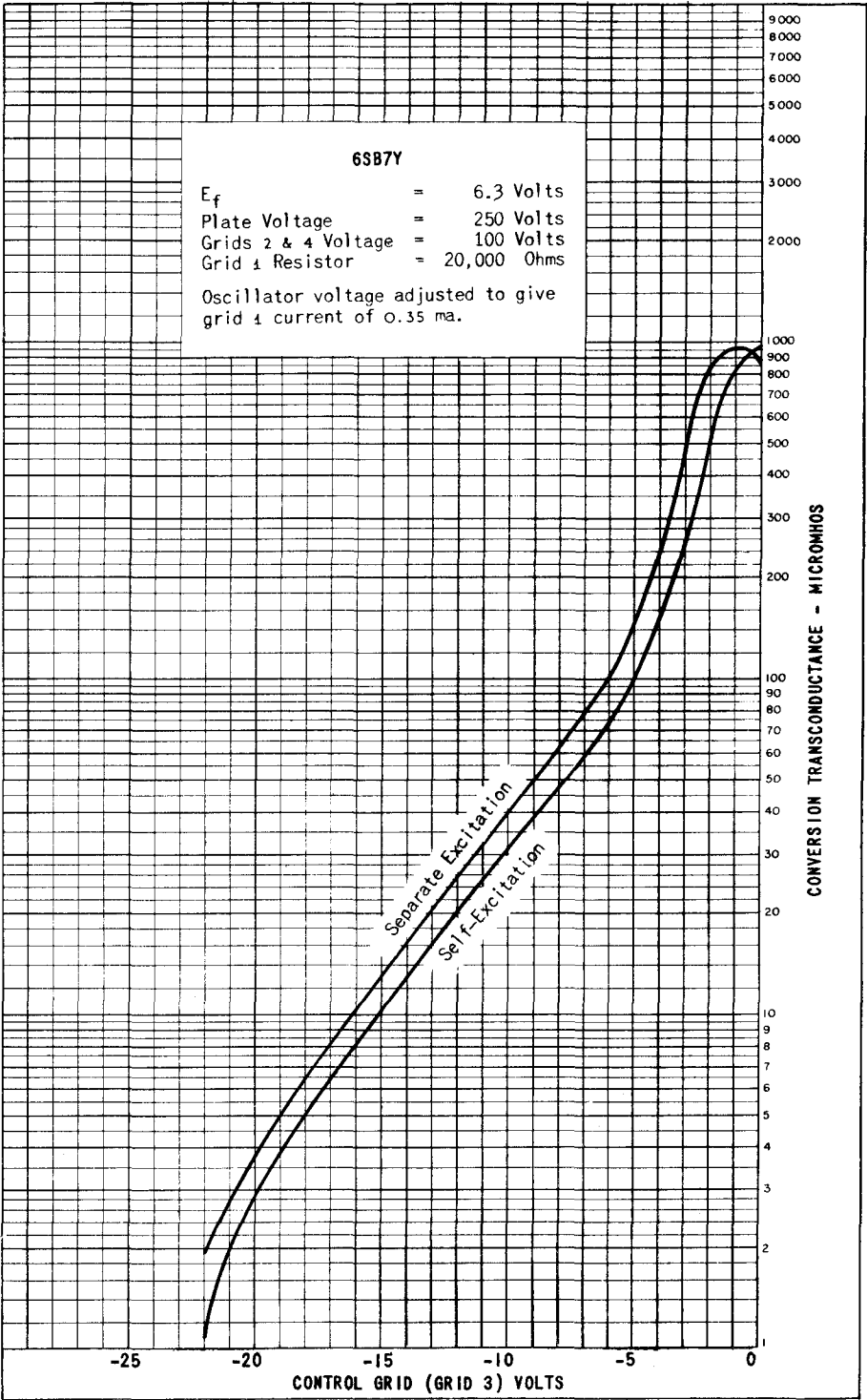


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6SB7Y

Separate Excitation

E_f = 6.3 Volts
 Plate Voltage = 250 Volts
 Grids 2 & 4 Voltage = 100 Volts
 Grid 3 Voltage = 1 Volt
 Grid 1 Resistor = 20,000 Ohms
 Grid 1 current varied by adjustment
 of oscillator voltage.

