

## TUNG-SOL

## PENTAGRID CONVERTER

## PHYSICAL SPECIFICATIONS

EMITTER UNIPOTENTIAL CATHODE		PIN CONNECTIONS	
BASE SMALL WAFER OCTAL 8-PIN	MICANOL	PIN 1 SHELL, G5	PIN 7 HEATER
		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 M8-210

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) <sup>A</sup> [C <sub>G3</sub> (H+K+G <sub>1</sub> +G <sub>2</sub> +G <sub>4</sub> +G <sub>5</sub> +P)]	9.6	μuf
PLATE TO ALL OTHER ELECTRODES (MIXER OUTPUT) <sup>A</sup> [C <sub>P</sub> (H+K+G <sub>1</sub> +G <sub>2</sub> +G <sub>4</sub> +G <sub>3</sub> +G <sub>5</sub> )]	9.2	μuf
GRID 1 TO ALL OTHER ELECTRODES (OSCILLATOR INPUT) <sup>A</sup> [C <sub>G1</sub> (H+K+G <sub>2</sub> +G <sub>4</sub> +G <sub>3</sub> +G <sub>5</sub> +P)]	7.3	μuf
GRID 3 TO PLATE [C <sub>G3P</sub> ] (MAX.) <sup>A</sup>	0.15	μuf
GRID 1 TO GRID 3 [C <sub>G1G3</sub> ] (MAX.) <sup>A</sup>	0.16	μuf
GRID 1 TO PLATE [C <sub>G1P</sub> ] (MAX.) <sup>A</sup>	0.06	μuf
GRID 1 TO ALL OTHER ELECTRODES AND SHELL EXCEPT CATHODE [C <sub>G1</sub> (S+H+G <sub>2</sub> +G <sub>4</sub> +G <sub>3</sub> +G <sub>5</sub> +P)]	3.8	μuf
GRID 1 TO CATHODE [C <sub>G1K</sub> ]	3.4	μuf
CATHODE TO ALL OTHER ELECTRODES AND SHELL EXCEPT GRID 1 [C <sub>K</sub> (S+H+G <sub>2</sub> +G <sub>4</sub> +G <sub>3</sub> +G <sub>5</sub> +P)]	4.5	μuf

<sup>A</sup>WITH 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.

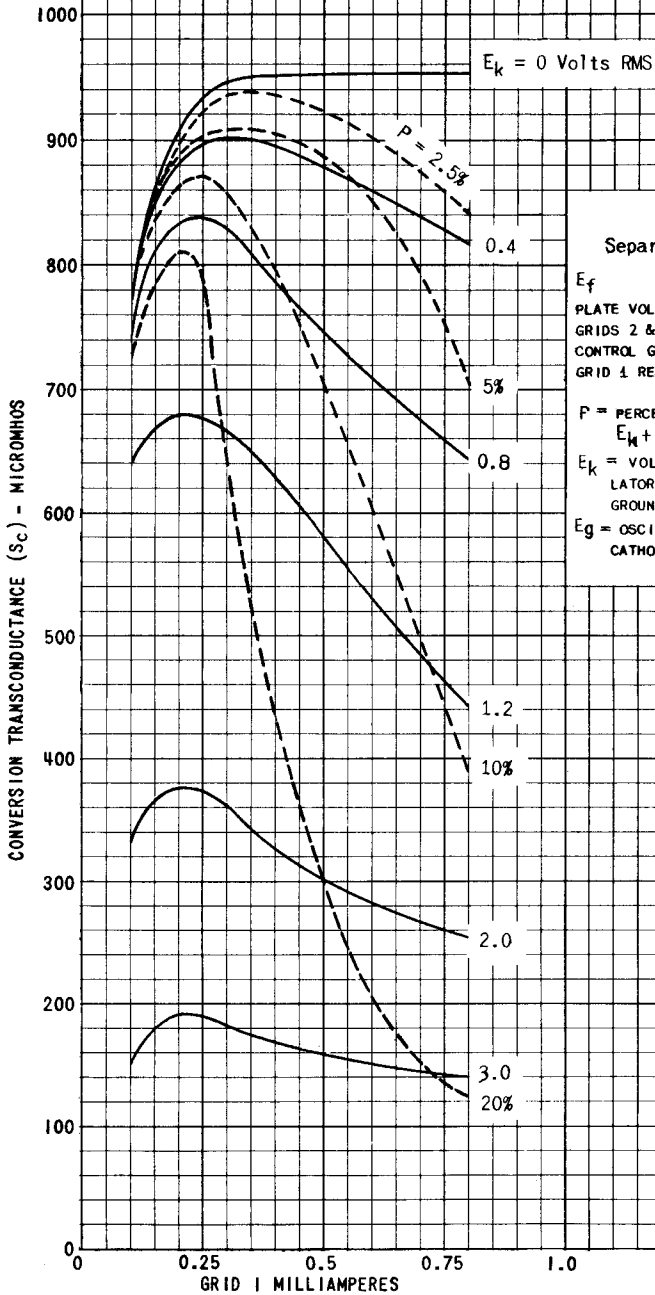
PLATE VOLTAGE	100	250	VOLTS
SCREEN (GRIDS 2 & 4) VOLTAGE	100	100	VOLTS
CONTROL GRID (GRID 3) VOLTAGE	-1.0	-1.0	VOLT
PLATE CURRENT	3.6	3.8	MA.
SCREEN (GRIDS 2 & 4) CURRENT	10.2	10	MA.
OSCILLATOR (GRID 1) CURRENT	0.35	0.35	MA.
TOTAL CATHODE CURRENT	14.2	14.2	MA.
PLATE RESISTANCE (APPROX.)	0.5	1.0	MEG OHMS
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

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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



**6SB7Y**  
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.

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# 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.

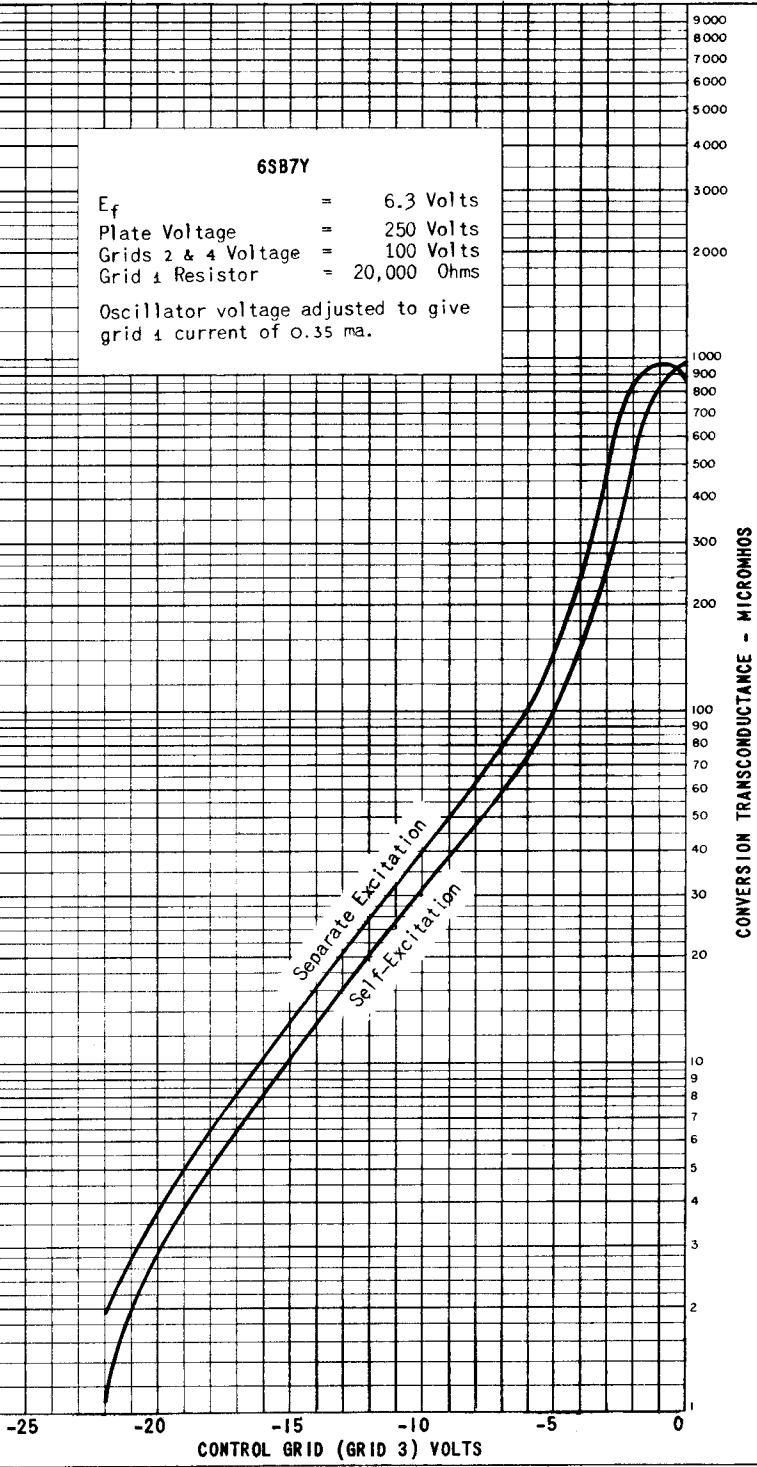


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## 6SB7Y

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.

