

6SB7-Y

Description and Rating

PENTAGRID CONVERTER

GENERAL DESCRIPTION

Principal Application: The 6SB7-Y is a pentagrid metal tube designed for use as a combined mixer and oscillator in superheterodyne circuits. Both functions are accomplished in the same electron stream.

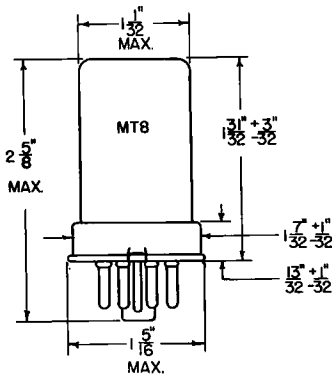
Because of its high oscillator transconductance and high conversion transconductance, the tube is especially useful in FM receiver service below 120 megacycles.

Cathode: Coated Unipotential
 Heater Voltage (A-C or D-C) 6.3 Volts
 Heater Current: 0.300 Ampere
 Envelope: (Metal Shell) MT-8
 Base: B8-21 Small Wafer Octal 8-Pin
 Base Material: Low Loss Phenolic (Micanol)
 Mounting Position: Any

Direct Interelectrode Capacitances: #

R-F Input (Grid No. 3 to All)*	9.6	μμf
Osc Input (Grid No. 1 to All)*	7.3	μμf
Mixer Output (Plate to All)*	9.2	μμf
Grid No. 3 to Plate (Max)*	0.13	μμf
Grid No. 3 to Grid No. 1 (Max)*	0.16	μμf
Grid No. 1 to Plate (Max)*	0.06	μμf
Grid No. 1 to Cathode	3.4	μμf
Cathode to All Except Grid No. 1	4.5	μμf

PHYSICAL DIMENSIONS

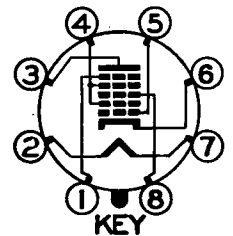


RMA 8-1

TERMINAL CONNECTIONS

- Pin 1 - Shell and Grid No. 5
- Pin 2 - Heater
- Pin 3 - Plate
- Pin 4 - Grids No. 2 and No. 4
- Pin 5 - Grid No. 1
- Pin 6 - Cathode
- Pin 7 - Heater
- Pin 8 - Grid No. 3

BASING DIAGRAM



RMA 8R
Bottom View

MAXIMUM RATINGS

	Design Center	Absolute	
Plate Voltage	300	330	Volts
Screen (Grids No. 2 and No. 4) Voltage	100	110	Volts
Screen Supply Voltage	300	330	Volts
Plate Dissipation	2.0	2.2	Watts
Screen (Grids No. 2 and No. 4) Dissipation	1.5	1.6	Watts
Total Cathode Current (Zero-Signal)	22	25	Milliamperes
Signal (Grid No. 3) Voltage (Negative)	100	110	Volts
Signal (Grid No. 3) Voltage (Positive)		Never Positive	
D-C Heater-Cathode Voltage	90	100	Volts

Approximate Values

* With Shell Connected to Cathode

CHARACTERISTICS AND TYPICAL OPERATION

CONVERTER-WITH SEPARATE EXCITATION*

Heater Voltage	6.3	6.3	Volts
Plate Voltage	100	250	Volts
Screen (Grids Number 2 and Number 4) Voltage	100	100	Volts
Grid Number 3 (Signal Grid) Voltage	-1.0	-1.0	Volts
Grid Number 1 (Oscillator Grid) Resistor	20000	20000	Ohms
Plate Resistance (Approx)	0.5	1.0	Megohm
Conversion Transconductance	900	950	Micromhos
Conversion Transconductance δ	3.5	3.5	Micromhos
Plate Current	3.6	3.8	Milliamperes
Screen (Grids Number 2 and Number 4) Current	10.2	10.0	Milliamperes
Grid Number 1 (Oscillator Grid) Current	0.35	0.35	Milliamperes
Total Cathode Current (Approx).	14.2	14.4	Milliamperes
Oscillator Transconductance $\#$	8000		Micromhos
Oscillator Plate Current $\#$	32		Milliamperes
Oscillator Amplification Factor $\#$	16.5		

CONVERTER-WITH SELF-EXCITATION

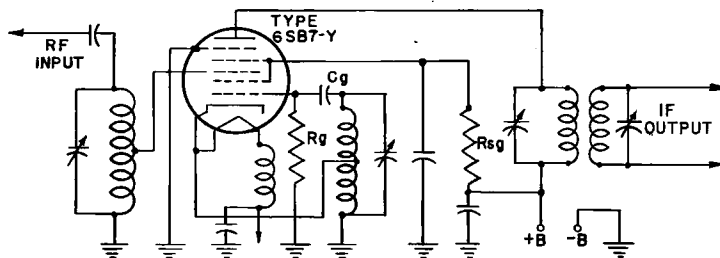
Heater Voltage	6.3	6.3	Volts
Plate Voltage	250	250	Volts
Screen (Grids Number 2 and Number 4) Voltage	250	250	Volts
Screen (Grids Number 2 and Number 4) Resistor	12000	12000	Ohms
Grid Number 1 (Oscillator Grid) Resistor	20000	20000	Ohms
Signal Frequency	88	108	Megacycles
Oscillator Frequency	93.7	118.7	Megacycles
Plate Current	6.8	6.5	Milliamperes
Screen (Grids Number 2 and Number 4)	12.6	12.5	Milliamperes
Grid Number 1 Current	0.130	0.140	Milliamperes

* The Characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

δ Approximate values obtained with grid number 3 bias of -20 volts.

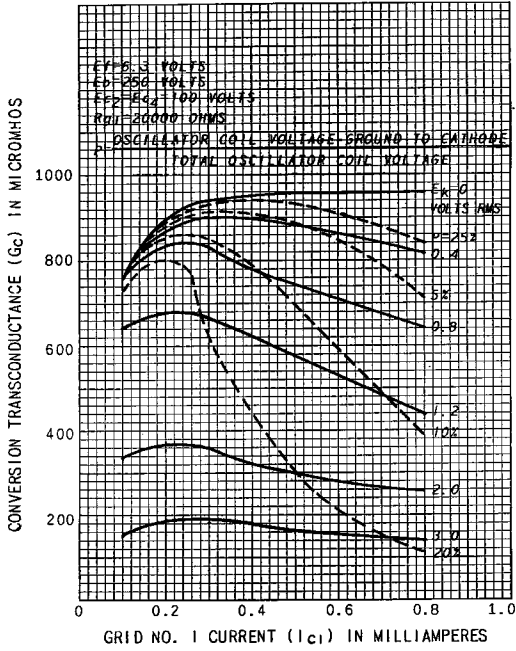
$\#$ Approximate values with grids number 1, number 3 and number 5 at zero volts, and with grids number 2 and number 4 connected to plate and operated at 100 volts.

BASIC FM CONVERTER CIRCUIT WITH SELF-EXCITATION
See typical operation above.

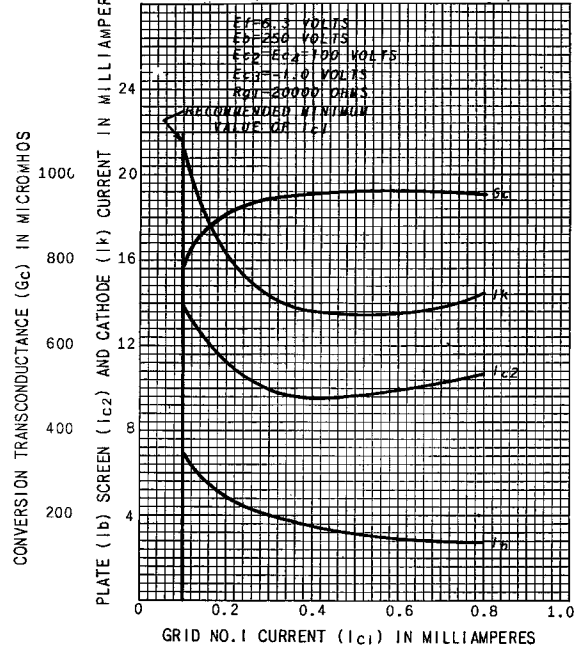


Rg=20,000 ohms
Rsg=12,000 ohms
Cg=22 uuf

OPERATION CHARACTERISTICS
With Self-Excitation



OPERATION CHARACTERISTICS
With Separate Oscillator Excitation.



OPERATION CHARACTERISTICS

