

6SA7  
6SA7-GT/G

## 6SA7, 6SA7-GT/G

## PENTAGRID CONVERTER

Heater <sup>■</sup>		Coated Unipotential Cathode	
Voltage	6.3	a-c or d-c volts	
Current	0.3	amp.	
Direct Interelectrode Capacitances:			
	6SA7	6SA7-GT/G	
Grid #3 to All Other Electrodes (R-F Input)	9.5 <sup>▲</sup>	11 <sup>▲▲</sup>	μf
Plate to All Other Electrodes (Mixer Output)	12 <sup>▲</sup>	11 <sup>▲▲</sup>	μf
Grid #1 to All Other Electrodes (Osc. Input)	7 <sup>▲</sup>	8 <sup>▲▲</sup>	μf
Grid #3 to Plate	0.13 max. <sup>▲</sup>	0.5 max. <sup>▲▲</sup>	μf
Grid #3 to Grid #1	0.15 max. <sup>▲</sup>	0.4 max. <sup>▲▲</sup>	μf
Grid #1 to Plate	0.06 max. <sup>▲</sup>	0.2 max. <sup>▲▲</sup>	μf
Grid #1 to Shell, Grid #5, and All Other Electrodes except Cathode	4.4	-	μf
Grid #1 to All Other Electrodes except Cathode & Grid #5	-	5	μf
Grid #1 to Cathode	2.6	-	μf
Grid #1 to Cathode & Grid #5	-	3	μf
Cathode to Shell, Grid #5, and All Other Electrodes except Grid #1	5	-	μf
Cathode and Grid #5 to All Other Electrodes except Grid #1	-	14	μf
Maximum Overall Length	2-5/8"	3-5/16"	
Maximum Seated Height	2-1/16"	2-3/4"	
Maximum Diameter	1-5/16"	1-5/16"	
Bulb	Metal Shell MT-8	T-9	
Base	{ Small Wafer { Octal 8-Pin	{ Intermed. Sh. { Octal 8-Pin	
Pin 1	{ 6SA7, Shell, Grid #5 { 6SA7-GT/G, No Conn.		
Pin 2	- Heater		
Pin 3	- Plate		
Pin 4	- Grids #2 & #4		
Pin 5	- Grid #1		
Pin 6	{ 6SA7, Cathode { 6SA7-GT/G, Cathode & Grid #5		
Pin 7	- Heater		
Pin 8	- Grid #3		
Mounting Position		Any	
<i>Maximum And Minimum Ratings Are Design-Center Values</i>			
<u>CONVERTER SERVICE</u>			
Plate Voltage		300 max.	volts
Grids #2 & #4 Voltage		100 max.	volts
Grids #2 & #4 Supply Voltage		300 max.	volts
Grid #3 Voltage*		0 min.	volts
Plate Dissipation		1.0 max.	watt
Screen Dissipation		1.0 max.	watt
Total Cathode Current		14 max.	ma.
<sup>■</sup> In circuits where the cathode is not directly connected to the heater, the potential difference between heater and cathode should be kept as low as possible. <sup>▲▲</sup> with shell connected to cathode. <sup>▲▲</sup> with external shield connected to cathode. <sup>*</sup> For self-excited oscillator. <sup>←</sup> Indicates a change.			



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(continued from preceding page)

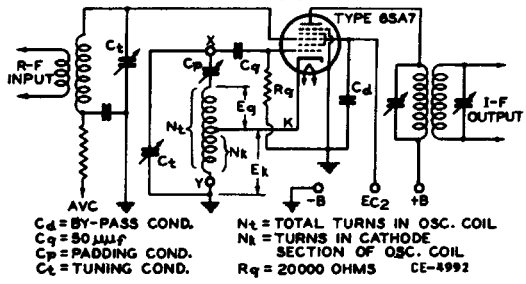
Characteristics:	Self-excitation*		Separate Excitation		
Plate Voltage	100	250	100	250	volts
Grids #2 & #4 Volt.	100	100	100	100	volts
Grid #3 (Control) Volt.	0	0	-2	-2	volts
Grid #1 Resistor	20000	20000	20000	20000	ohms
Plate Res. (Approx.)	0.5	1.0	0.5	1.0	megohm
Conversion Transcond.	425	450	425	450	μhos
Conversion Transcond. (Approx.) †	2	2	2	2	μhos
Plate Current	3.3	3.5	3.3	3.5	ma.
Grids #2 & #4 Current	8.5	8.5	8.5	8.5	ma.
Grid #1 Current	0.5	0.5	0.5	0.5	ma.
Total Cathode Current	12.3	12.5	12.3	12.5	ma.

NOTE: The transconductance between Grid #1 and Grids #2 & #4 connected to plate (not oscillating) is approximately 4500 μhos under the following conditions: Grids #1, #3, and shell at 0 volts; Grids #2 & #4 and plate at 100 volts.

\* Characteristics are approximate only and are shown for a Hartley circuit with a feedback of approximately 2 volts peak in the cathode circuit.

† With Grid #3 bias of -35 volts.

TYPICAL SELF-EXCITED CONVERTER CIRCUIT FOR TYPE 6SA7



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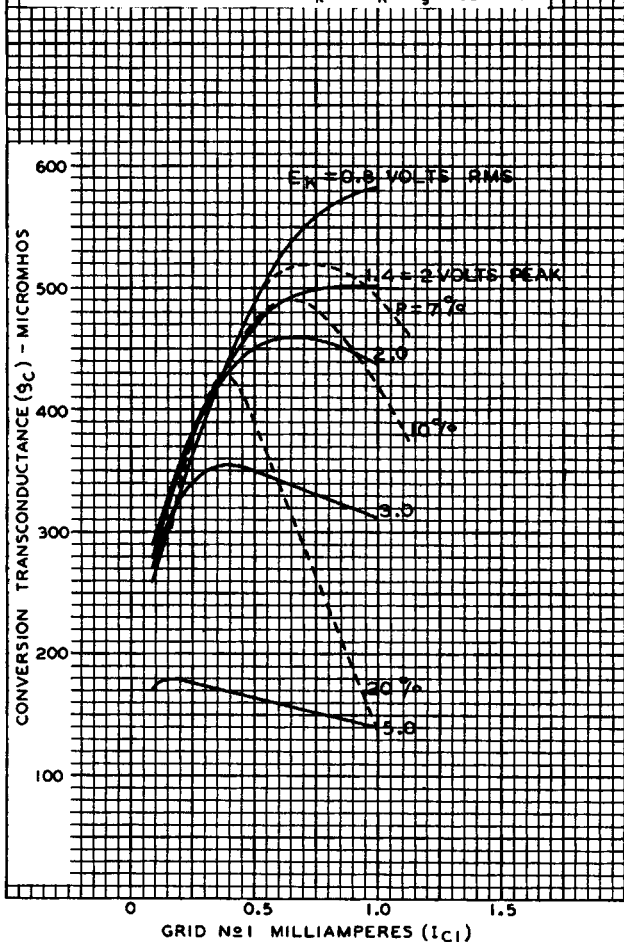


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### OPERATION CHARACTERISTICS WITH SELF-EXCITATION

$E_f = 6.3$  VOLTS  
 PLATE VOLTS = 250  
 GRIDS No 2 & No 4 VOLTS = 100  
 GRID No 3 (CONTROL GRID) VOLTS = -1  
 GRID No 1 RESISTOR - OHMS = 20000  
 P = PERCENTAGE RATIO OF  $E_k$  TO  $E_k + E_g$ : SEE CIRCUIT



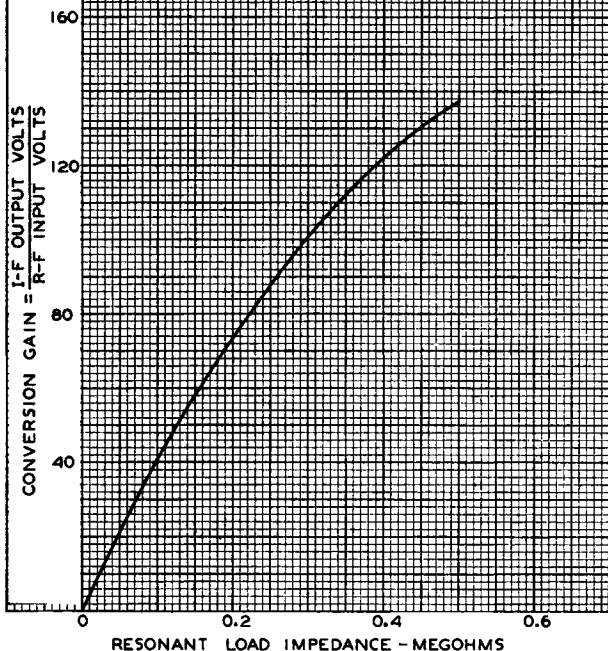
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### OPERATION CHARACTERISTIC WITH SELF-EXCITATION

$E_f = 6.3$  VOLTS  
 PLATE VOLTS = 250  
 GRIDS N<sup>o</sup>2 & N<sup>o</sup>4 VOLTS = 100  
 GRID N<sup>o</sup>3 (CONTROL GRID) VOLTS = 0  
 GRID N<sup>o</sup>1 RESISTOR - OHMS = 20000  
 GRID N<sup>o</sup>1 MILLIAMPERES = 0.5

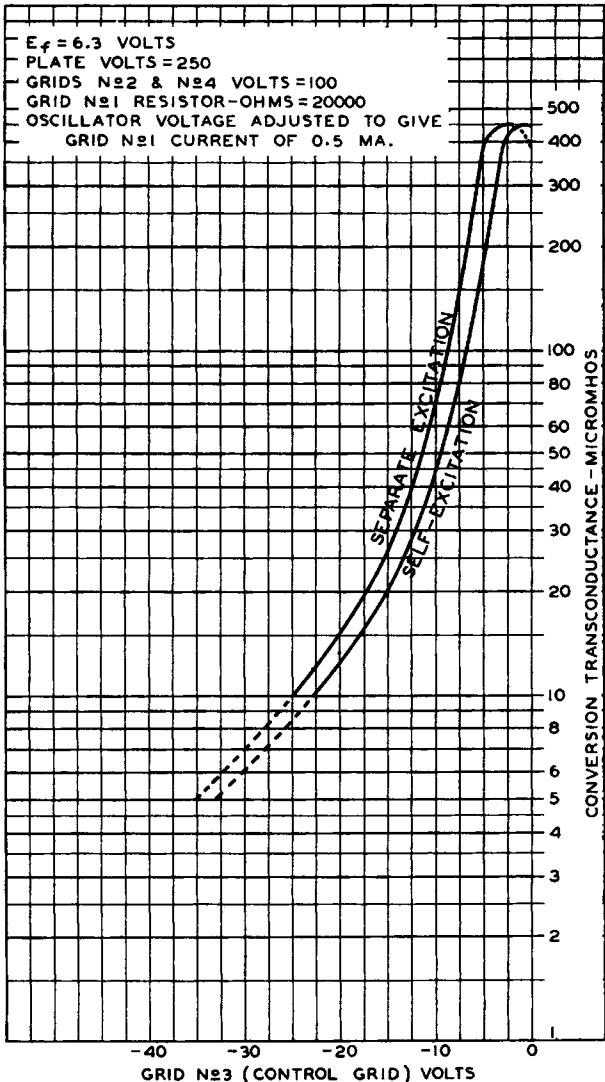




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### OPERATION CHARACTERISTICS



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### OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION

$E_f = 6.3$  VOLTS  
 PLATE VOLTS = 250  
 GRIDS No2 & No4 VOLTS = 100  
 GRID No3 (CONTROL GRID) VOLTS = -2  
 GRID No1 RESISTOR-OHMS = 20000  
 GRID No1 CURRENT VARIED BY ADJUSTMENT  
 OF OSCILLATOR VOLTAGE

