



6SA7  
6SA7-GT/G

# 6SA7, 6SA7-GT/G

## PENTAGRID CONVERTER

|  |   |                                  |
|--|---|----------------------------------|
| Heater   | Coated Unipotential Cathode                       |                                  |
| Voltage  | 6.3   | a-c or d-c volts                 |
| Current  | 0.3   | amp.                             |
| Direct Interelectrode Capacitances:                                | <i>6SA7</i>                                       | <i>6SA7-GT/G</i>                 |
| 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<br>{ Octal 8-Pin                    | { Intermed. Sh.<br>{ Octal 8-Pin |
| Pin 1  | { 6SA7, Shell, Grid #5<br>{ 6SA7-GT/G, No Conn.   |                                  |
| Pin 2  | Heater  |                                  |
| Pin 3  | Plate   |                                  |
| Pin 4  | Grids #2 & #4                                     |                                  |
| Pin 5  | Grid #1   |                                  |
| Pin 6  | { 6SA7, Cathode<br>{ 6SA7-GT/G, Cathode & Grid #5 |                                  |
| Pin 7  | Heater  |                                  |
| Pin 8  | Grid #3   |                                  |
| Mounting Position  |   | Any                              |

BOTTOM VIEW  
(8R)

BOTTOM VIEW  
(G-8AD)

*Maximum And Minimum Ratings Are Design-Center Values*

| CONVERTER SERVICE            |                |
|------------------------------|----------------|
| 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.    |

■ 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.  
 ▲ With shell connected to cathode.  
 ▲▲ With external shield connected to cathode.  
 \* For self-excited oscillator.  
 ← Indicates a change.

Jan. 1, 1943

RCA VICTOR DIVISION  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

DATA

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6SA7-GT/G



## 6SA7, 6SA7-GT/G PENTAGRID CONVERTER

(continued from preceding page)

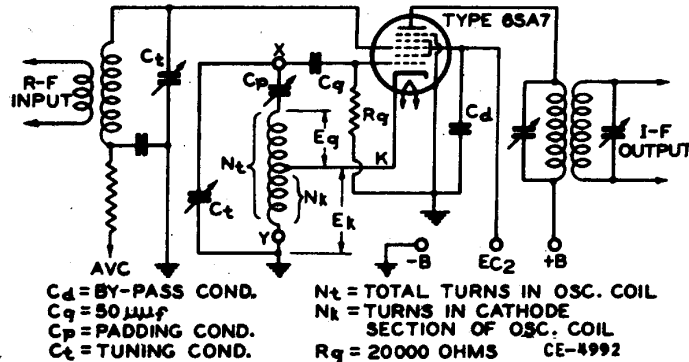
| Characteristics:                     | Self-excitation* |       | Separate Excitation |       |        |
|--------------------------------------|------------------|-------|---------------------|-------|--------|
|                                      |                  |       |                     |       |        |
| 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   | μmhos  |
| Conversion Transcond.<br>(Approx.) † | 2                | 2     | 2                   | 2     | μmhos  |
| 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 μmhos 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



The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

Jan. 1, 1943

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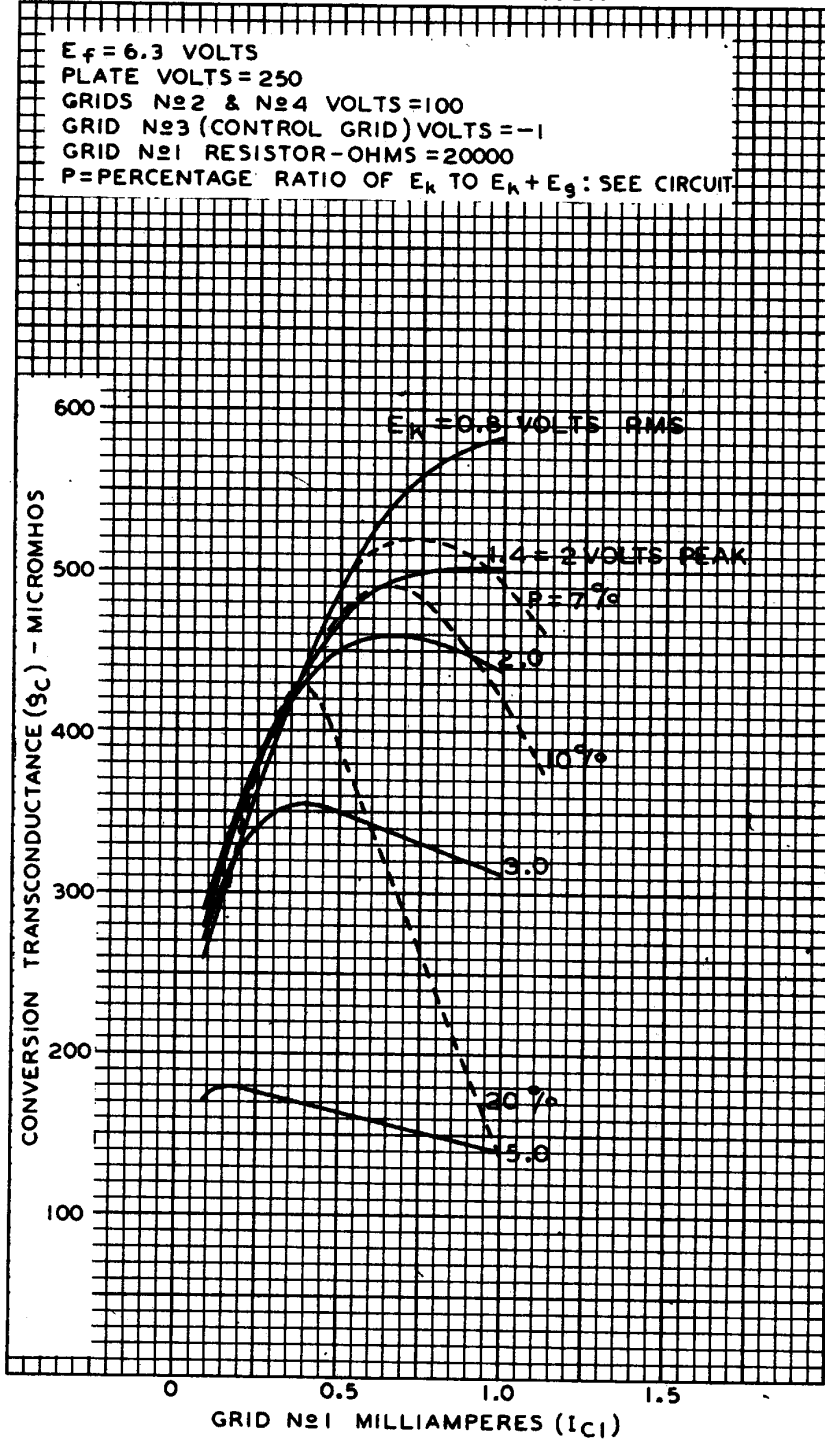
DATA



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### OPERATION CHARACTERISTICS WITH SELF-EXCITATION



NOV. 2, 1938

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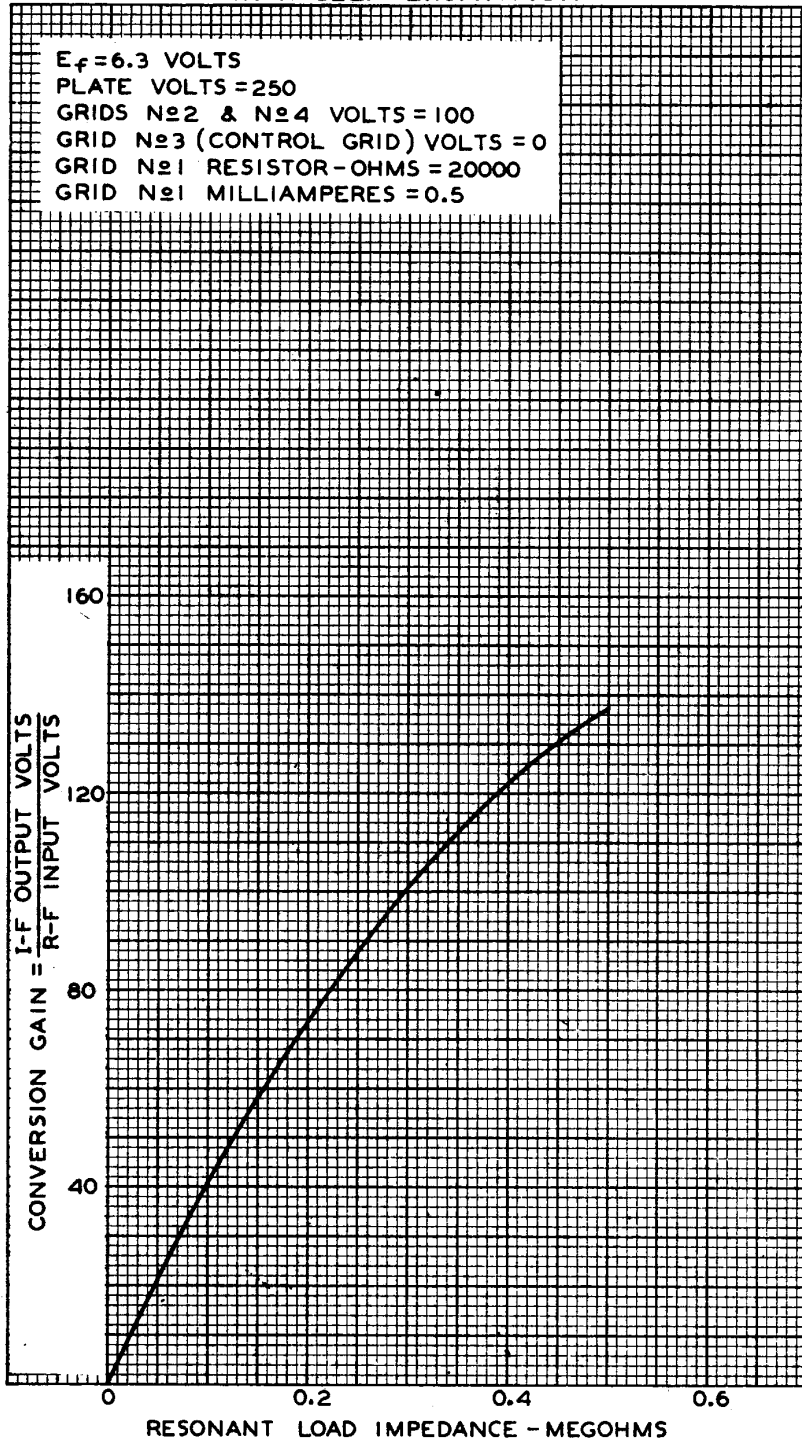
92C-4993

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### OPERATION CHARACTERISTIC WITH SELF-EXCITATION



APR. 25, 1941

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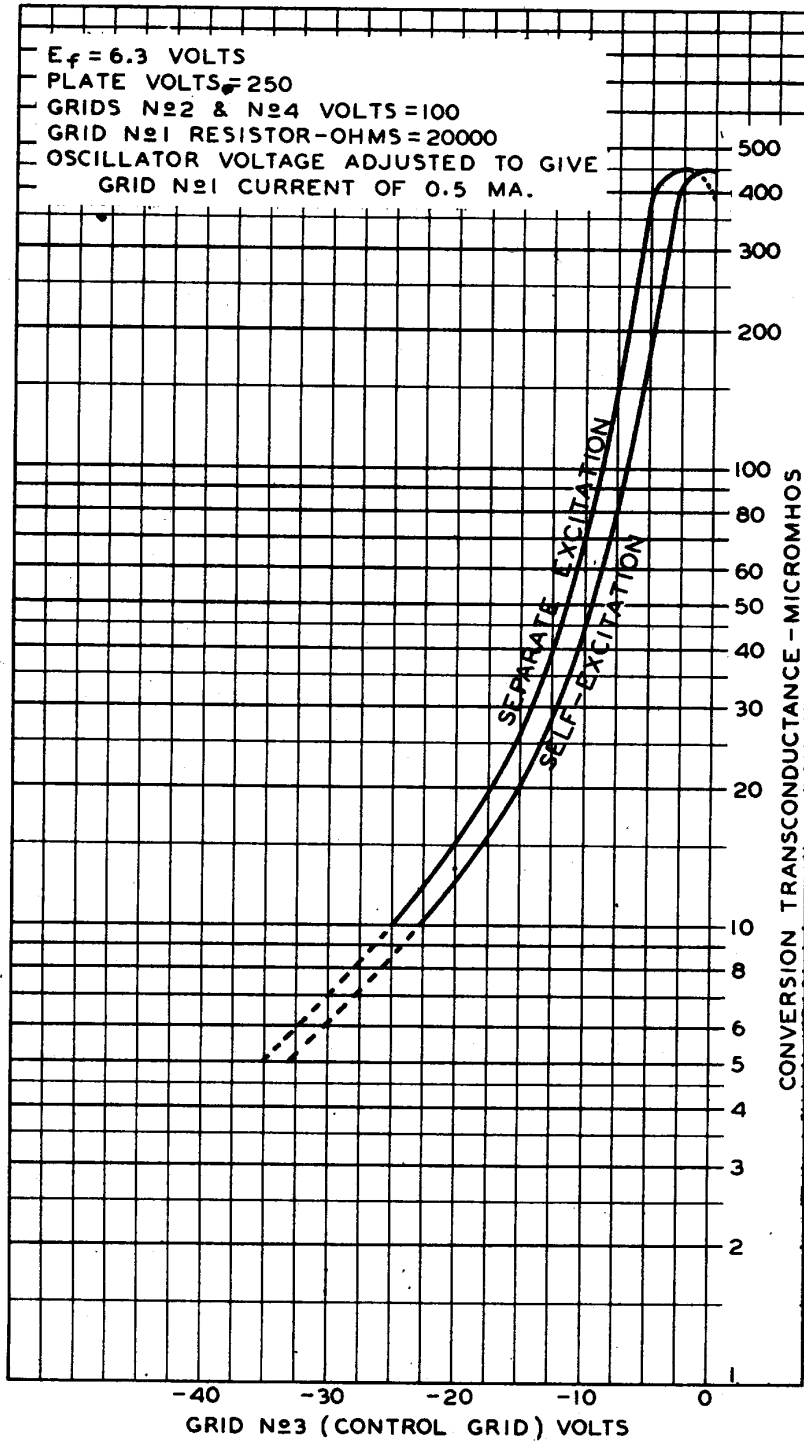
CE-4994



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### OPERATION CHARACTERISTICS



OCT. 25, 1938

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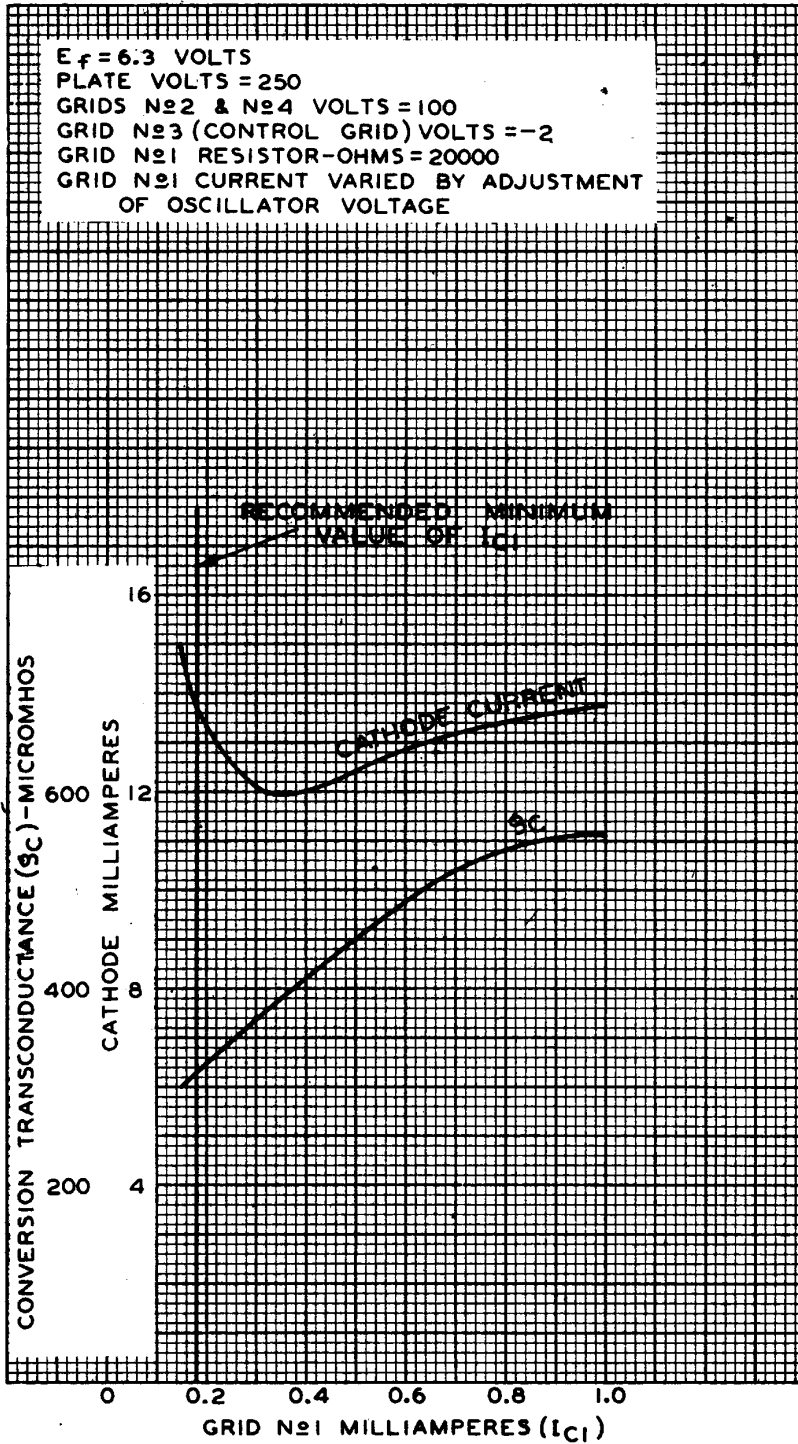
92C-4989

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### OPERATION CHARACTERISTICS WITH SEPARATE OSCILLATOR EXCITATION



APR. 24, 1941

RCA RADIOTRON DIVISION  
RCA MANUFACTURING COMPANY, INC.

92C-4990R1