THE 5964 IS A MEDIUM-MU TWIN TRIODE IN THE 7 PIN MINIATURE CONSTRUCTION. IT IS ESPECIALLY DESIGNED FOR FREQUENCY-DIVIDER CIRCUITS IN ELECTRONIC COMPUTERS AND OTHER 'ON-OFF’ CONTROL APPLICATIONS REQUIRING LONG PERIODS OF OPERATION UNDER CUT-OFF CONDITIONS.

DIRECT INTERELECTRODE CAPACITANCES - APPROX.
WITHOUT EXTERNAL SHIELD
EACH UNIT

GRID TO PLATE  1.3  pF
GRID TO CATHODE AND HEATER  2.1  pF
PLATE TO CATHODE AND HEATER  0.4  pF
GRID OF UNIT #1 TO GRID OF UNIT #2 (MAX.)  0.5  pF

RATINGS
MAXIMUM ABSOLUTE VALUES
EACH UNIT

FREQUENCY DIVIDER IN COMPUTER SERVICE
AND
‘ON-OFF’ CONTROL SERVICE

MAXIMUM PLATE VOLTAGE  250  VOLTS
MAXIMUM GRID VOLTAGE:
NEGATIVE BIAS VALUE  100  VOLTS
POSITIVE BIAS VALUE  0  VOLTS
PEAK NEGATIVE VALUE  200  VOLTS
MAXIMUM PLATE DISSIPATION  1.5  WATTS
MAXIMUM GRID INPUT  0.1  WATT
MAXIMUM DC CATHODE CURRENT  15  MA.
MAXIMUM PEAK CATHODE CURRENT  75  MA.
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:
HEATER NEGATIVE WITH RESPECT TO CATHODE  90  VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE  90  VOLTS
MAXIMUM BULB TEMPERATURE (AT HOTTEST POINT
ON BULB SURFACE)  150  °C

INDICATES A CHANGE.
CONTINUED ON FOLLOWING PAGE
TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A AMPLIFIER - EACH UNIT
WITH BOTH UNITS OPERATING

PLATE VOLTAGE 100 VOLTS
CATHODE-BIAS RESISTOR 50 OHMS
AMPLIFICATION FACTOR 39
PLATE RESISTANCE 6500 OHMS
TRANSCONDUCTANCE 6000 μHOS
PLATE CURRENT 9.5 MA.

FREQUENCY DIVIDER IN COMPUTER SERVICE
AND
'ON-OFF' CONTROL SERVICE

TYPICAL OPERATION AS FREQUENCY HALFER
EACH UNIT

<table>
<thead>
<tr>
<th></th>
<th>CUTOFF CONDITION</th>
<th>ZERO-BIAS CONDITION</th>
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<tbody>
<tr>
<td>PLATE-SUPPLY VOLTAGE</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>PLATE-CIRCUIT RESISTANCE</td>
<td>20000</td>
<td>20000</td>
</tr>
<tr>
<td>GRID-SUPPLY VOLTAGE</td>
<td>-10</td>
<td>0</td>
</tr>
<tr>
<td>GRID-CIRCUIT RESISTANCE</td>
<td>47000</td>
<td>47000</td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

CIRCUIT VALUES

GRID-CIRCUIT RESISTANCE: (MAX.)
FOR FIXED-BIAS OPERATION 0.5 MEGOHM
FOR CATHODE-BIAS OPERATION 1.0 MEGOHM

RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
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<th>MIN.</th>
<th>MAX.</th>
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<tbody>
<tr>
<td>PLATE CURRENT (EACH UNIT) B</td>
<td>0.075</td>
<td>MA.</td>
</tr>
<tr>
<td>DIFFERENCE IN PLATE CURRENT BETWEEN UNITS</td>
<td>0.2</td>
<td>MA.</td>
</tr>
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<td></td>
<td></td>
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<tr>
<td>PLATE CURRENT (EACH UNIT) C</td>
<td>5.7</td>
<td>MA.</td>
</tr>
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<td>1.4</td>
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A WITH BOTH UNITS OPERATING, THE DC CATHODE CURRENT SHOULD NOT EXCEED 30 MILLIAMPERES, AND THE PEAK CATHODE CURRENT SHOULD NOT EXCEED 150 MILLIAMPERES.

B FOR CONDITIONS WITH 6.3 VOLTS ON HEATER, PLATE-SUPPLY VOLTS = 150, PLATE-CIRCUIT RESISTANCE (OHMS) = 20000, GRID-SUPPLY VOLTS = -10, AND GRID-CIRCUIT RESISTANCE (OHMS) = 47000.

C CONDITIONS ARE SAME AS FOR NOTE 1 EXCEPT THAT GRID-SUPPLY VOLTS = 0.

* COMMON TO BOTH UNITS.
5964

EACH UNIT

\[ E_f = 6.3 \text{ Volts} \]

Grid Circuit Resistance = 47000 Ohms

PLATE MILLIAMPERES

0 2.5 5.0 7.5 10.0 12.5 15.0

0 50 100 150 200 250

PLATE VOLTS
TRIODE
MINIATURE TYPE

UNIPOTENTIAL CATHODE

HEATER
6.3±10% VOLTS 0.45 AMP.

AC OR DC
OPERATING POSITION

GLASS BULB

(Any, but for utmost in service, the tube should be operated in a vertical position with base up or down, or in a horizontal position with base pins 1 & 6 in a vertical plane.)

BOTTOM VIEW
SMALL-BUTTON MINIATURE
7 PIN BASE
7 BF

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DIRECT INTERELECTRODE CAPACITANCES - APPROX.
WITHOUT EXTERNAL SHIELD

EACH UNIT

GRID TO PLATE
1.3 µfd
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2.1 µfd
PLATE TO CATHODE AND HEATER
0.4 µfd
GRID OF UNIT #1 TO GRID OF UNIT #2 (MAX.)
0.5 µfd

RATINGS
MAXIMUM ABSOLUTE VALUES

EACH UNIT

FREQUENCY DIVIDER IN COMPUTER SERVICE
AND
'ON-OFF' CONTROL SERVICE

HEATER VOLTAGE
6.3±10% VOLTS
MAXIMUM PLATE VOLTAGE
MAXIMUM GRID VOLTAGE:
NEGATIVE BIAS VALUE
100 VOLTS
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→ INDICATES A CHANGE. CONTINUED ON FOLLOWING PAGE
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