MEDIUM-MU TWIN TRIODE
9-PIN MINIATURE TYPE
For "on-off" control applications involving long periods of operation under cutoff conditions

GENERAL DATA

Electrical:
Heater, Pure Tungsten, for Unipotential Cathodes:
Heater arrangement: Series Parallel
Voltage: 12.6 ± 10% 6.3 ± 10% ac or dc volts
Current: 0.15 0.3 amp
Microphonism: Not Tested
Direct Interelectrode Capacitances (Approx.):

<table>
<thead>
<tr>
<th>Unit No. 1</th>
<th>Unit No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid to plate</td>
<td>1.5</td>
</tr>
<tr>
<td>Grid to cathode and heater</td>
<td>1.9</td>
</tr>
<tr>
<td>Plate to cathode and heater</td>
<td>0.5</td>
</tr>
<tr>
<td>Grid of unit No. 1 to grid of unit No. 2</td>
<td>0.1 max.</td>
</tr>
</tbody>
</table>

Characteristics, Class A1 Amplifier (Each Unit):
Plate Voltage: 67.5 volts
Grid Voltage: 0 volts
Amplification Factor: 21
Plate Resistance (Approx.): 6600 ohms
Transconductance: 3200 μhos
Plate Current: 8.5 ma

Mechanical:
Mounting Position: Any
Maximum Overall Length: 2-3/16"
Maximum Seated Length: 1-5/16"
Length, Base Seat to Bulb Top (Excluding tip): 1-9/16" ± 3/32"
Maximum Diameter: 7/8"
Dimensional Outline: See General Section
Bulb: T-6-1/2
Base: Small-Button Noval 9-Pin (JETEC No. E9-1)
Basing Designation for BOTTOM VIEW: 9A

Pin 1 - Plate of Unit No. 2
Pin 2 - Grid of Unit No. 2
Pin 3 - Cathode of Unit No. 2
Pins 4 & 9 - Heater of Unit No. 2
Pins 5 & 9 - Heater of Unit No. 1

Pin 6 - Plate of Unit No. 1
Pin 7 - Grid of Unit No. 1
Pin 8 - Cathode of Unit No. 1
Pin 9 - Heater Mid-Tap

Without external shield.

Indicates a change.
MEDIUM-MU TWIN TRIODE

FREQUENCY DIVIDER IN COMPUTER SERVICE
and "ON-OFF" CONTROL SERVICE

Values are for Each Unit

Maximum Ratings, Absolute Values:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE VOLTAGE</td>
<td>250 max. volts</td>
</tr>
</tbody>
</table>
| GRID VOLTAGE:
  Negative bias value           | 100 max. volts |
  Positive bias value            | 0 max. volts   |
  Peak negative value            | 200 max. volts |
| PLATE DISSIPATION               | 2.5 max. watts |
| GRID INPUT                     | 0.5 max. watt  |
| CATHODE CURRENT:
  Peak                           | 100 max. mA    |
  DC                              | 20 max. mA     |
| PEAK HEATER-CATHODE VOLTAGE:
  Heater negative with respect to cathode. | 90 max. volts |
  Heater positive with respect to cathode. | 90 max. volts |
| BULB TEMPERATURE (At hottest point on bulb surface) | 120 max. °C |

Typical Operation as Frequency Halver:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Cutoff Condition</th>
<th>Zero-Bias Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLATE-SUPPLY VOLTAGE</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>GRID VOLTAGE</td>
<td>-15</td>
<td>0</td>
</tr>
<tr>
<td>PLATE-CIRCUIT RESISTANCE</td>
<td>20000</td>
<td>20000</td>
</tr>
<tr>
<td>GRID-CIRCUIT RESISTANCE</td>
<td>47000</td>
<td>47000</td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>0</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Maximum Circuit Values:

Grid-Circuit Resistance:
  For fixed-bias operation: 0.5 max. megohm
  For cathode-bias operation: 1.0 max. megohm

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutoff Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>1</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>Difference in Plate Current Between Units</td>
<td>-</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>Zero-Bias Condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>2</td>
<td>4.6</td>
<td>5.4</td>
</tr>
<tr>
<td>Difference in Plate Current Between Units</td>
<td>-</td>
<td>-</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note 1: For conditions with 12.6 volts on heater, plate-supply volts = 150, grid-supply volts = -15, plate-circuit resistance (ohms) = 20000, and grid-circuit resistance (ohms) = 47000.

Note 2: Conditions are same as for Note 1 except that grid-supply volts = 0.

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DATA
E_φ = 6.3 VOLTS
PARALLEL HEATER ARRANGEMENT
GRID - CIRCUIT RESISTANCE (OHMS) = 47000