## 2050 THYRATRON
### GAS-TETRODE

**Heater**
Coated Unipotential Cathode

**Voltage**
6.3 a-c or d-c volts

**Current**
0.6 amp.

**Direct Inter-electrode Capacitances:**
- Control Grid to Anode: 0.26 μuf
- Input: 4.2 μuf
- Output: 3.6 μuf

**Tube Voltage Drop (Approx.)**
8 volts

**Control Ratio at Breakdown (Approx.):**
- Control Grid to Anode (Shield-Grid Volts = 01): 250
- Shield Grid to Anode (Control-Grid Volts = 01): 800

**Maximum Overall Length**
4-1/8"

**Maximum Seated Height**
3-9/16"

**Maximum Diameter**
1-9/16"

**Bulb**
Small Shell Octal 8-Pin

**Mounting Position**
Any

### BOTTOM VIEW

### MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Forward Anode Voltage</td>
<td>650 max. volts</td>
</tr>
<tr>
<td>Peak Inverse Anode Voltage</td>
<td>1300 max. volts</td>
</tr>
<tr>
<td>Shield-Grid (Grid No. 2) Voltage</td>
<td>-100 max. volts</td>
</tr>
<tr>
<td>Control-Grid (Grid No. 1) Voltage</td>
<td>-100 max. volts</td>
</tr>
<tr>
<td>Peak Heater-Cathode Potential:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>100 max. volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>25 max. volts</td>
</tr>
<tr>
<td>Peak Cathode Current</td>
<td>1.0 max. amp.</td>
</tr>
<tr>
<td>Average Cathode Current**</td>
<td>0.1 max. amp.</td>
</tr>
<tr>
<td>Control-Grid Circuit Resistance</td>
<td>10 max. megohms</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>-55 to +90 °C</td>
</tr>
</tbody>
</table>

### Typical Operation in Relay Service:

<table>
<thead>
<tr>
<th>Voltage Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode Voltage (RMS)*</td>
<td>400 volts</td>
</tr>
<tr>
<td>Shield-Grid Voltage</td>
<td>0 volts</td>
</tr>
<tr>
<td>Control-Grid Bias Voltage (RMS)**</td>
<td>5 volts</td>
</tr>
<tr>
<td>Control-Grid Signal Voltage (Peak)</td>
<td>5 volts</td>
</tr>
<tr>
<td>Control-Grid Circuit Resistance</td>
<td>1 megohm</td>
</tr>
<tr>
<td>Anode Circuit Resistanceº</td>
<td>2000 ohms</td>
</tr>
</tbody>
</table>

*Heater voltage must not deviate more than 10% from the rated value, and must be applied at least 10 seconds before the application of anode voltage.

ºWith no external shield.

**Approximately 180° out of phase with the anode voltage.

ºSufficient resistance, including the tube load, must be used under any conditions of operation to prevent exceeding the current ratings.

APRIL 1, 1944

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LOW-VOLTAGE OPERATION

In certain applications where the applied peak forward anode voltage is to be held to a relatively low value in comparison with the maximum peak forward anode voltage rating, it is permissible to operate the 2050 with an average cathode current as high as 200 milliamperes. Before proceeding to use the 2050 in such low-voltage, high-current operation, equipment designers should consult our engineers for specific information applicable to the design problem involved.

OPERATIONAL RANGE
OF CRITICAL GRID VOLTAGE

Range for 10 Megohms
Range for 0.1 Megohms

TYPE 2050 SHIELD-GRID VOLTS=0
RANGES SHOWN ARE FOR TWO VALUES OF GRID RESISTOR—0.1 MEG. AND 10 MEG.—AND TAKE INTO ACCOUNT INITIAL DIFFERENCES BETWEEN INDIVIDUAL TUBES & SUBSEQUENT DIFFERENCES DURING TUBE LIFE. FOR A HEATER-VOLTAGE RANGE OF 5.7 TO 6.9 VOLTS

D-C CONTROL-GRID VOLTS
AC ANODE VOLTS (RMS-60")

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AVERAGE CONTROL CHARACTERISTICS

$E_x = 6.3$ VOLTS
SHIELD-GRID RESISTOR = 0 OHMS
CONTROL-GRID RESISTOR = 0 OHMS

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MAY 3, 1944
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92CM-6274RI
THYRATRON

AVERAGE GRID CHARACTERISTICS
DURING ANODE CONDUCTION

TYPE 2050
$E_g = 6.3$ VOLTS
SHIELD-GRID VOLTS $= 0$

D-C ANODE MA. $= 25$

D-C CONTROL-GRID MILLIAMPERS

D-C CONTROL-GRID VOLTS

92CM-6275T

AVERAGE GRID CHARACTERISTICS
BEFORE ANODE CONDUCTION

TYPE 2050
$E_g = 6.3$ VOLTS
SHIELD-GRID VOLTS $= 0$
$\sigma =$ CONDUCTION STARTS

D-C ANODE VOLTS $= 25$

D-C CONTROL-GRID MICROAMPERES

D-C CONTROL-GRID VOLTS

92CM-6541T

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92M-6275T
92M-6541T