5728/FG-67
MERCURY-VAPOR THYRATRON
NEGATIVE/POSITIVE-CONTROL TRIODE TYPE

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:

<table>
<thead>
<tr>
<th>Min.</th>
<th>Av.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage (AC or DC)</td>
<td>4.75</td>
<td>5.0</td>
</tr>
<tr>
<td>Current at 5.0 volts</td>
<td>-</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Cathode:
Minimum Heating Time, prior to tube conduction
5 minutes

Maximum Outage Time, without reheating
See Curves

Direct Interelectrode Capacitances
(Approx., without external shield):

| Grid to Anode | 3.25 | μf |
| Grid to Cathode | 8.9 | μf |

Maximum Critical Grid Current
with ac anode volts (rms) = 220
10 μamp

Anode Voltage Drop (Approx.)
16 volts

Ionization Time (Approx.):
For conditions: dc anode-supply volts = 100, peak grid volts = +35, and peak anode amperes = 15
15 μsec

Deionization Time (Approx.):
For conditions: dc anode volts = 120, dc grid-supply volts = -500, grid resistor (ohms) = 1000, and dc anode amperes = 2.5
5 μsec
For conditions: dc anode volts = 120, dc grid-supply volts = 0, grid resistor (ohms) = 1000, and dc anode amperes = 2.5
850 μsec

Mechanical:
Mounting Position
Vertical, base down

Maximum Overall Length
7"

Seated Length
6-1/8" ± 1/4"

Maximum Diameter
3"

Bulb
ST-23

Cap
Medium (JE Tec No. CI-5)

Base
Medium-Shell Small 4-Pin, Bayonet (JE Tec No. A4-10)

Bottom View

Pin 1: Heater
Pin 2: Cathode (Grid & Anode Return)
Pin 3: Grid
Pin 4: Heater, Cathode

March 1, 1954
Tube Department
Radio Corporation of America, Harrison, New Jersey
Tentative Data
Temperature Control:

*Heating*—When the ambient temperature is so low that the normal rise of condensed-mercury temperature above the ambient temperature will not bring the condensed-mercury temperature up to the minimum value of the operating range specified under *Maximum Ratings*, some form of heat-conserving enclosure or auxiliary heater will be required.

*Cooling*—When the operating conditions are such that the maximum value of the operating condensed-mercury temperature is exceeded, provision should be made for forced-air cooling sufficient to prevent exceeding the maximum value.

Temperature Rise of Condensed Mercury to Equilibrium Above Ambient Temperature

(Approx.)*:

<table>
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<tr>
<th>Condition</th>
<th>Temperature</th>
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<tbody>
<tr>
<td>No Load</td>
<td>25°C</td>
</tr>
<tr>
<td>Full Load</td>
<td>31°C</td>
</tr>
</tbody>
</table>

**INVERTER SERVICE**

**Maximum Ratings, Absolute Values:**

**PEAK ANODE VOLTAGE:**
- Forward ........................................ 1000 max. volts
- Inverse ........................................ 1000 max. volts

**GRID VOLTAGE:**
- Peak, before anode conduction ............. -500 max. volts
- Average*, during anode conduction ......... -5 max. volts

**CATHODE CURRENT:**
- Peak ........................................... 15 max. amp
- Average** ..................................... 2.5 max. amp
- Fault, for duration of 0.1 sec. max. ..... 200 max. amp

**GRID CURRENT:**
- Average* ....................................... +0.3 max. amp

**CONDENSED-MERCURY TEMPERATURE RANGE:** +40 to +80 °C

* With heater voltage = 4.75 volts and no heat-conserving enclosure.

* Averaged over one conducting cycle.

** Averaged over any interval of 15 seconds maximum.
MERCURY-VAPOR THYRATRON

MEDIUM CAP
JETEC N°C1-5

ST-23 BULB

ZONE WHERE
CONDENSED-
MERCURY
TEMPERATURE
SHOULD BE
MEASURED

MEDIUM-SHELL
SMALL 4-PIN
BAYONET BASE
JETEC N°A4-10

3" DIA. MAX.

7"
MAX

6 1/8"
+ 1/4"

1"
4

92CS-670IR3

CATHODE REHEATING TIME REQUIRED
AFTER POWER-SUPPLY INTERRUPTION

HEATER VOLTS = 4.75
5.0
5.25

0 1 2 3 4
CATHODE REHEATING TIME - MINUTES

0 40 80 120 160 200
OUTAGE TIME - SECONDS

92CS-7965T

MARCH 1, 1954
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-6701R3
-7965T
RATE OF RISE OF COND.-
MERCURY TEMPERATURE

E_f = 4.75 VOLTS
NO LOAD

TEMP. RISE OF CONDENSED MERCURY
ABOVE AMBIENT TEMPERATURE - °C

HEATING TIME - MINUTES
92CS-7964T

OPERATIONAL RANGE
OF CRITICAL GRID VOLTAGE

RANGE IS FOR CONDITIONS WHERE:
E_f = 5.0 VOLTS AC ± 5%; CIRCUIT
RETURNS TO PIN NR 2. THE RANGE
INCLUDES INITIAL AND LIFE VARI-
ATIONS OF INDIVIDUAL TUBES, AS
WELL AS CHANGES IN CHARACTER-
ISTICS DUE TO HEATER PHASING,
GRID RESISTOR (OHMS) = 0.
CONDENSED-MERCURY TEMPERA-
TURE RANGE = 40° - 80°C

CONDUCTING

CRITICAL

NON-
CONDUCTING

DC GRID SUPPLY VOLTS
92CS-8108T

DC ANODE VOLTS
1000
800
600
400
200
-10 0 +10 +20

MARCH 1, 1954
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
CE-7964T
-8108T