5557 THYRATRON
MERCURY-VAPOR TRIODE

DATA

Electrical:

Filament:
- Voltage*: 2.5 volts
- Current: 5.0 amp

Direct Interelectrode Capacitance:
- Grid to Anode (Approx.): 4.4 µf

Peak Voltage Drop (Approx.): 16 volts

Approximate Control Characteristics:
- Anode Voltage: 40, 100, 1000 volts
- Grid Voltage: 0, -2.25, -6.5 volts
- Ionization Time (Approx.): 10 microseconds
- Deionization Time (Approx.): 1000 microseconds

Mechanical:

Mounting Position: Vertical, base down
- Overall Length: 6-3/8" ± 1/4"
- Seated Length: 5-3/4" ± 1/4"
- Maximum Diameter: 2-7/16"
- Bulb: S-19
- Cap: Medium
- Base: Medium 4-Pin, Bayonet

Maximum Ratings, Absolute Values:

PEAK FORWARD ANODE VOLTAGE: 2500 max. volts
PEAK INVERSE ANODE VOLTAGE: 5000 max. volts

GRID VOLTAGE:
- Before Conduction: -500 max. volts
- During Conduction: -10 max. volts

INSTANTANEOUS ANODE CURRENT:
- Below 25 Cycles: 1.0 max. amp
- 25 Cycles and Higher: 2.0 max. amp

AVERAGE ANODE CURRENT**: 0.5 max. amp

SURGE ANODE CURRENT for 0.1 sec. max.: 40 max. amp

INSTANTANEOUS GRID CURRENT: 0.25 max. amp

AVERAGE GRID CURRENT**: 0.05 max. amp

COND.-MERCURY TEMP. RANGE: 40 to 80 °C

* Filament voltage must be applied at least 5 seconds before anode voltage is applied.

** Averaged over any 15-second interval.

▲ Recommended condensed-mercury temperature 40°C.
THYRATRON

Medium Cap Anode Terminal

Medium 4-Pin Base with Bayonet

Filament Terminals

No Connection

Grid Terminal

92CS-6700

Operational Region of Critical Grid Voltage

D-C Grid Voltage at Start of Discharge in Volts

D-C Anode Voltage in Volts

Critical

Conducting

Non-Conducting

2600

2200

1800

1400

1000

600

200

-20

-16

-12

-8

-4

92CS-6744

MAY 1, 1946

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-6700-6744
MERCURY-VAPOR THYRATRON
NEGATIVE-CONTROL TRIODE TYPE

GENERAL DATA

Electrical:
Filament, Coated:

\[
\begin{array}{cccc}
\text{Min.} & \text{Av.} & \text{Max.} \\
\text{Voltage} & 2.38 & 2.5 & 2.62 & \text{ac or dc volts} \\
\text{Current at 2.5 volts} & - & 5.0 & 5.5 & \text{amp} \\
\text{Minimum heating time prior to} \\
\hspace{1cm} \text{tube conduction} & \text{5 sec} \\
\text{Direct Interelectrode Capacitances (Approx.)} & \text{6} & \mu\text{f} \\
\text{Grid to anode} & 2.5 & \mu\text{f} \\
\text{Grid to cathode} & 7 & \mu\text{f} \\
\text{Ionization Time (Approx.)} & 10 & \mu\text{sec} \\
\text{Deionization Time (Approx.)} & 1000 & \mu\text{sec} \\
\text{Anode Voltage Drop (Approx.)} & 16 & \text{volts} \\
\end{array}
\]

Mechanical:
Operating Position: Vertical, base down
Maximum Overall Length: 6–1/8"
Seated Length: 5–1/4" ± 1/4"
Maximum Diameter: 2–1/16"
Weight (Approx.): 3 oz
Bulb: ST16
Cap.: Medium (JETEC No.C1–5)
Base: Medium-Shell Small 4-Pin with Bayonet (JETEC No.A4–10)

Basing Designation for BOTTOM VIEW: 2G

Pin 1—Filament
Pin 2—No Connection
Pin 3—Grid
Pin 4—Filament Cap—Anode

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 ranges 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.):
No load: 17.5 °C

* Without external shield.
* With filament volts = 2.38 and no heat-conserving enclosure.
MERCURY-VAPOR THYRATRON

CONTROL SERVICE

Maximum Ratings, Absolute Values:

For anode-supply frequency of 60 cps

Operating Condensed-Mercury-
Temperature Range
40° to 90° C  40° to 80° C  40° to 60° C

PEAK ANODE VOLTAGE:
Forward . . . . . . 1250 max.  2500 max.  5000 max.  volts
Inverse . . . . . . 1250 max.  5000 max.  10000 max. volts

GRID VOLTAGE:
Peak or DC, before
  tube conduction.  -500 max.  -500 max.  -500 max. volts
Average*, during
  tube conduction.  -10 max.   -10 max.   -10 max. volts

ANODE CURRENT:
Peak . . . . . . .  3 max.  2 max.  1 max.  amp
Average# . . . . . 1 max.  0.5 max.  0.25 max. amp
Fault, for duration
  of 0.1 second
  maximum. . . .  40 max.  40 max.  40 max. amp

GRID CURRENT:
Average*, positive
  with anode
  positive . . .  0.05 max.  0.05 max.  0.05 max. amp

* Averaged over one conducting period.
# Averaged over any interval of 15 seconds maximum.
↓ Averaged over period of grid conduction.

DIMENSIONAL OUTLINE

for Type 5557 is the same as that shown for Type 3C23

⇒ Indicates a change.
$E_F = 2.38 \text{ VOLTS}$

NO LOAD.
OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

RANGE IS FOR CONDITIONS WHERE:
\[ E_f = 2.5 \text{ VOLTS AC} \pm 5\% \]
CIRCUIT RETURNS TO FILAMENT TRANSFORMER CENTER-TAP.
FILAMENT VOLTAGE AT PIN 1 IS (+) WHEN ANODE VOLTAGE IS (+).
THE RANGE INCLUDES INITIAL AND LIFE VARIATIONS OF INDIVIDUAL TUBES.
GRID RESISTOR (OHMS) = 1000
CONDENSED-MERCURY-TEMPERATURE RANGE = 40 TO 80°C
AVERAGE GRID CHARACTERISTICS
DURING TUBE CONDUCTION

$E_f = 2.5$ VOLTS AC
CIRCUIT RETURNS TO FILAMENT
TRANSFORMER CENTER-TAP,
GRID RESISTOR (OHMS) = 0
CONDENSED-MERCURY TEMPERATURE ($^\circ$C) = 40

DC GRID MILLIAMPERES

DC ANODE AMP = 0.25
0.50

DC GRID VOLTS

-12 -10 -8 -6 -4 -2 0 2

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-9302T