2050
THYRATRON
GAS TETRODE

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:  Min. Av.  Max.
Voltage (AC or DC) ..............  5.7  6.3  6.9 volts
Current, with heater volts = 6.3 ..............  0.54  0.60  0.66 amp
Cathode:
  Heating Time, prior to tube conduction ... 10 – – sec
Direct Interelectrode Capacitances (Approx.):
  Grid No.1 to Anode ..........  0.26 μf
  Input ..................  4.2 μf
  Output ..................  3.6 μf
Ionization Time (Approx.):
  For conditions: dc anode volts = 100; grid-No.1 square-pulse volts = 50; and peak anode amp. during conduction = 1.0 ..............  0.5 μsec
Deionization Time (Approx.):
  For conditions: dc anode volts = 125; grid-No.1 volts = -250; grid-No.1 resistor (ohms) = 1000; dc anode amp. = 0.1 ..............  50 μsec
  For conditions: dc anode volts = 125; grid-No.1 volts = -10; grid-No.1 resistor (ohms) = 1000; dc anode amp. = 0.1 ..............  100 μsec
Maximum Critical Grid : Current, with ac anode-supply volts (rms) = 450, and average anode amp. = 0.1 ..............  0.5 μamp
Tube Voltage Drop (Approx.) ..............  8 volts
Grid-No.1 Control Ratio (Approx.) with grid-No.1 resistor (megohms) = 0; grid-No.2 volts = 0 ..............  250
Grid-No.2 Control Ratio (Approx.) with grid-No.1 resistor (megohms) = 0; grid-No.2 resistor (megohms) = 0; grid-No.1 volts = 0 ..............  800

* Without external shield.

Mechanical:
Mounting Position .................. Any
Maximum Overall Length ..............  4-1/8"
Maximum Seated Length ..............  3-9/16"
Maximum Diameter ..................  1-9/16"
Bulb ................................ ST-12
Base ................................ Small-Shell Octal 8-Pin
Basing Designation for BOTTOM VIEW .................. 6BS

Pin 1 – No Connection  Pin 5 – Grid No.1
Pin 2 – Heater ..............  Pin 6 – Grid No.2
Pin 3 – Anode ..................  Pin 7 – Heater
Pin 4 – No Connection ..............  Pin 8 – Cathode

← Indicates a change.

JUNE 15, 1948
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
RELAY and GRID-CONTROLLED RECTIFIER SERVICE

Maximum Ratings, Absolute Values:

PEAK ANODE VOLTAGE:
- Forward: 180 max. 650 max. volts
- Inverse: 360 max. 1300 max. volts

GRID-No.2 (SHIELD-GRID) VOLTAGE:
- Peak, before anode conduction: -100 max. 100 max. volts
- Average, during anode conduction: -10 max. 10 max. volts

GRID-No.1 (CONTROL-GRID) VOLTAGE:
- Peak, before anode conduction: -250 max. 250 max. volts
- Average, during anode conduction: -10 max. 10 max. volts

CATHODE CURRENT:
- Peak: 1.0 max. 1.0 max. amp
- Average: 0.2 max. 0.1 max. amp
- Surge, for duration of 0.1 sec. max.: 10 max. 10 max. amp

GRID-No.2 CURRENT:
- Average: +0.01 max. +0.01 max. amp

GRID-No.1 CURRENT:
- Average: +0.01 max. +0.01 max. amp

PEAK HEATER-CATHODE VOLTAGE:
- Heater negative with respect to cathode: 100 max. 100 max. volts
- Heater positive with respect to cathode: 25 max. 25 max. volts

AMBIENT TEMPERATURE RANGE: -75 to +90 °C

Typical Operating Conditions for Relay Service:

RMS Anode Voltage: 117 .. 400 .. volts
Grid-No.2 Voltage: 0 .. 0 .. volts
RMS Grid-No.1 Bias Voltage: 5 .. volts
DC Grid-No.1 Bias Voltage: -6 .. volts
Peak Grid-No.1 Signal Voltage: 5 .. 6 .. volts
Grid-No.1-Circuit Resistance: 1.0 .. 1.0 .. megohms
Anode-Circuit Resistance: 1200 .. 2000 .. ohms

Maximum Circuit Values:

Grid-No.1-Circuit Resistance:
- For average anode current below 0.1 amp: 10 max. megohms
- For average anode current above 0.1 amp: 2 max. megohms

- Averaged over any interval of 30 sec. max.
- Approximately 180° out of phase with the anode voltage.
- Sufficient resistance, including the tube load, must be used under any conditions of operation to prevent exceeding the current ratings.
- Indicates a change.

JUNE 15, 1948

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
OPERATIONAL RANGE OF CRITICAL GRID VOLTAGE

TYPE 2050 GRID-N#2 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

Range for
10 Megohms

Range for
0.1 Megohm

AC ANODE VOLTS (RMS-60°C)

DC GRID-N#1 SUPPLY VOLTS

92CM-6540T1
$E_f = 6.3$ Volts
SHIELD-GRID RESISTOR = 0 OHMS
CONTROL-GRID RESISTOR = 0 OHMS