5651
VOLTAGE-REFERENCE TUBE
MINIATURE GLOW-DISCHARGE TYPE

DATA

General:
Cathode ........................................... Cold
Maximum Overall Length ....................... 2-1/8"
Maximum Seated Length ......................... 1-7/8"
Length from Base Seat to Bulb Top (excluding tip) 1-1/2" ± 3/32"
Maximum Diameter ............................... 3/4"
Bulb ............................................... T-5-1/2
Mounting Position .............................. Any
Base ............................................... Small-Button Miniature 7-Pin
Basing Designation for BOTTOM VIEW .......... 580

Pin 1 - Anode
Pin 2 - Cathode
Pin 3 - Internal
Connection
Do Not Use
Pin 4 - Cathode
Pin 5 - Anode
Pin 6 - Internal
Connection
Do Not Use
Pin 7 - Cathode

Maximum Ratings, Absolute Values:
DC OPERATING CURRENT (Continuous) .... 3.5 max. ma
AMBIENT TEMPERATURE RANGE ............. -55 to +90 °C

Characteristics and Operation Range Values:

<table>
<thead>
<tr>
<th>Min.</th>
<th>Av.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Starting Voltage</td>
<td>107</td>
<td>115°</td>
</tr>
<tr>
<td>DC Operating Voltage</td>
<td>82</td>
<td>87</td>
</tr>
<tr>
<td>DC Operating Current</td>
<td>1.5</td>
<td>-</td>
</tr>
<tr>
<td>Regulation (1.5 ma to 3.5 ma)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stability</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Circuit Values:
Shunt Capacitor ................................ - - 0.02 μf
Series Resistor ............................... See NOTE Below

* A supply voltage of not less than this value should be provided to insure "starting" throughout tube life.

Defined as the maximum voltage fluctuation at any current level within the operating current range.

NOTE: A series resistor must always be used with the 5651. The resistance value must be chosen so that (1) the maximum current rating of 3.5 ma. is not exceeded at the highest anode-supply voltage employed, and (2) the minimum current rating of 1.5 ma. is always exceeded when the anode-supply voltage is at its lowest value.

MAR. 15, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
TENTATIVE DATA
SERIES TYPE OF STABILIZED VOLTAGE SUPPLY USING RCA-5651 AS VOLTAGE-REFERENCE TUBE

- $C_1 = 0.1 \mu F$, 400 volts
- $R_1 = 12000$ ohms, 2 watts
- $R_2 = R_4 = 470000$ ohms, 0.5 watt
- $R_5 = 12000$ ohms, 2 watts
- $R_6 = 48000$ ohms, 1 watt
- $R_7 = 1$ megohm, 0.5 watt
- $R_8 = 15000$ ohms, 2 watts
- $R_9 = 470000$ ohms, 0.5 watt
- $R_{10} = 10000$ ohms

**A** 375 volts approx. at zero load current; 325 volts approx. at 225 milliamperes load current.

The voltage regulation of this supply operated at a fixed line voltage of 115 volts and an output voltage of 250 volts is less than 0.2 volt over the current range of 0 to 225 milliamperes. At full current, the regulation for a variation of ± 10 per cent in line voltage is less than 0.1 volt. Socket connections for the 5651 are made so that removal of the 5651 from its socket opens the load.