CATHODE RAY TUBE CHARACTERISTIC SHEET

Type 12FP7

Physical Characteristics

Focusing Method
Electrostatic
Deflecting Method
Electrostatic
Phosphor
P7
Overall Length
24" + 1/8"
Diameter of Bulb
12" + 3/16"
Bulb Type
J96D
Base
12 Pin Diheptal
Bulb Contact
Medium Metal Cap
Basing
RMA Designation
14E
Base Alignment
D1-D2 trace aligns with Pin #5 and the tube axis ±10°.
Angle between traces is 90° ± 4°
Positive voltage on D1 (Pin #11) deflects beam approximately toward Pin #5.
Positive voltage on D3 (Pin #7) deflects beam approximately toward Pin #2.

Bulb contact alignment
Anode #3 contact is on same side as Pin #5 and aligns with Pin #5 and the tube axis ±10°.

Spot centering is within 35 mm square

Direct Interelectrode Capacitances (Maximum)

<table>
<thead>
<tr>
<th>Capacitance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathode to all other electrodes</td>
<td>10 mmf</td>
</tr>
<tr>
<td>Grid #1 to all other electrodes</td>
<td>10 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D1 to deflecting electrode D2</td>
<td>5 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D3 to deflecting electrode D4</td>
<td>5 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D1 to all other electrodes</td>
<td>11 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D3 to all other electrodes</td>
<td>10 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D1 to all other electrodes except D2</td>
<td>11 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D2 to all other electrodes except D1</td>
<td>11 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D3 to all other electrodes except D4</td>
<td>8 mmf</td>
</tr>
<tr>
<td>Deflecting electrode D4 to all other electrodes except D3</td>
<td>9 mmf</td>
</tr>
</tbody>
</table>

Electrical Characteristics

Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater voltage¹</td>
<td>6.3 volts</td>
</tr>
<tr>
<td>Heater current</td>
<td>0.6 amps</td>
</tr>
<tr>
<td>Anode #3 (Supplementary High Voltage Electrode) Voltage</td>
<td>8800 volts max.</td>
</tr>
</tbody>
</table>
Electrical Characteristics

Anode #2 (High Voltage Electrode) Voltage 4400 volts max.
Anode #1 (Focusing Electrode) Voltage 2200 volts max.
Grid #2 (accelerating Electrode) Voltage 2200 volts max.
Grid #1 (control Electrode) Voltage never positive
Peak voltage between Anode #2 and any deflecting electrode 1100 volts max.
D.C. Heater Cathode Potential 7 -125 volts max.
Impedance of any deflecting electrode supply circuit at heater supply frequency 1.0 megohm max.
Grid circuit Resistance 1.5 megohm max.

Typical Operation

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Anode #3 Voltage</th>
<th>Anode #2 Voltage</th>
<th>Anode #1 Voltage</th>
<th>Grid #2 Voltage</th>
<th>Grid #1 Voltage for cutoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage #5</td>
<td>4000</td>
<td>2000</td>
<td>625</td>
<td>2000</td>
<td>-60</td>
</tr>
<tr>
<td>Voltage #4</td>
<td>4000</td>
<td>4000</td>
<td>1250</td>
<td>2000</td>
<td>-60</td>
</tr>
<tr>
<td>Voltage #3</td>
<td>6000</td>
<td>3000</td>
<td>937</td>
<td>2000</td>
<td>-60</td>
</tr>
<tr>
<td>Voltage #2</td>
<td>8000</td>
<td>4000</td>
<td>1250</td>
<td>2000</td>
<td>-60</td>
</tr>
</tbody>
</table>

Deflection Factor

Electrodes D1 and D2 55 83 110
Electrodes D3 and D4 63 94 125

Notes

1. Heater voltage and heater current allowable variation ±10%.

2. Nominal voltage taken at 75% of grid voltage required for cut-off. Tolerances refer to variations of focusing voltage with grid voltage between 0 and cut-off.

3. Subject to verification.

4. Brilliance and definition decrease with decreasing anode voltages. In general anode #2 voltage should not be less than 2000 volts.

5. Cut-off voltage is voltage necessary for visual extinction of stationary focused spot.

6. The undeflected focused spot will fall within a square of given size centered at the geometric centre of the tube face, and having one side parallel to the trace produced by D1.

7. With heater negative. Cathode should be connected to the mid-tap or to one side of heater supply.