GENERAL DATA

CHARACTERISTICS

Electrostatic
Magnetic
101 Degrees
114 Degrees
86 Degrees
Aluminized P4
White
Medium Short
Gray Filter Glass
49 Percent

ELECTRICAL DATA

Heater Voltage
6.3 Volts
Heater Current
0.45 ± 5% Ampere
Heater Warm-up Time
11 Seconds
Direct Intercapacitance Capacitances (Approx.)
Cathode to All Other Electrodes
5 pF
Grid No. 1 to All Other Electrodes
6 pF
External Conductive Coating and
Rimbands to Anode
1500 pF Max.
1000 pF Min.
Resistance Between External Conductive Coating
and Metal Bands
50 Megohms Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)
Height
12 Inches
Width
15½ Inches
Diagonal
17½ Inches
Minimum Useful Screen Area
172 Sq. Inches
Neck Length
4½ ± ½ Inches
Overall Length
11½ ± ¼ Inches
Bulb
J149P
Bulb Contact (Recessed Small Cavity Cap)
J1-21
Base
B7-208
Basing
8HR
Weight (Approx.)
15 Pounds

RATINGS

MAXIMUM RATINGS (Design Maximum Values)

Grid Drive Service
Maximum Anode Voltage
23,000 Volts dc
Minimum Anode Voltage
11,000 Volts dc
Grid No. 4 Voltage (Focusing Electrode) −550 to +1100 Volts dc
Maximum Grid No. 2 Voltage
550 Volts dc
Minimum Grid No. 2 Voltage
200 Volts dc
Grid No. 1 Voltage
Negative Bias Value
154 Volts dc
Negative Peak Value
220 Volts dc
Positive Bias Value
0 Volt dc
Positive Peak Value
2 Volts
Peak Heater-Cathode Voltage
Heater Negative with Respect to Cathode
During Warm-up Period not to Exceed
15 Seconds
450 Volts
After Equipment Warm-up Period
300 Volts
Heater Positive with Respect to Cathode
200 Volts
DC Component
100 Volts
MAXIMUM RATINGS (Design Maximum Values) (Continued)

Cathode Drive Service¹

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Anode Voltage</td>
<td>23,000 Volts dc</td>
</tr>
<tr>
<td>Minimum Anode Voltage</td>
<td>11,000 Volts dc</td>
</tr>
<tr>
<td>Grid No. 4 Voltage (Focusing Electrode)</td>
<td>-400 to +1250 Volts dc</td>
</tr>
<tr>
<td>Maximum Grid No. 2 Voltage</td>
<td>700 Volts dc</td>
</tr>
<tr>
<td>Minimum Grid No. 2 Voltage</td>
<td>350 Volts dc</td>
</tr>
<tr>
<td>Cathode Voltage</td>
<td></td>
</tr>
<tr>
<td>Positive Bias Value</td>
<td>154 Volts dc</td>
</tr>
<tr>
<td>Positive Peak Value</td>
<td>220 Volts dc</td>
</tr>
<tr>
<td>Negative Bias Value</td>
<td>0 Volt dc</td>
</tr>
<tr>
<td>Negative Peak Value</td>
<td>2 Volts</td>
</tr>
</tbody>
</table>

Peak Heater-Cathode Voltage

<table>
<thead>
<tr>
<th>Condition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Negative with Respect to Cathode</td>
<td></td>
</tr>
<tr>
<td>During Warm-up Period Not to Exceed 15 Seconds</td>
<td>450 Volts</td>
</tr>
<tr>
<td>After Equipment Warm-up Period</td>
<td>300 Volts</td>
</tr>
<tr>
<td>Heater Positive with Respect to Cathode</td>
<td>200 Volts</td>
</tr>
<tr>
<td>DC Component</td>
<td>100 Volts</td>
</tr>
</tbody>
</table>

TYPICAL OPERATING CONDITIONS

Grid Drive Service³

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode Voltage</td>
<td>20,000 Volts dc</td>
</tr>
<tr>
<td>Grid No. 4 Voltage for Focus</td>
<td>-200 to +200 Volts dc</td>
</tr>
<tr>
<td>Grid No. 2 Voltage</td>
<td>-400 Volts dc</td>
</tr>
<tr>
<td>Grid No. 1 Voltage Required for Cutoff³</td>
<td>-50 to -98 Volts dc</td>
</tr>
</tbody>
</table>

Cathode Drive Service⁴

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<tr>
<td>Anode Voltage</td>
<td>20,000 Volts dc</td>
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<tr>
<td>Grid No. 4 Voltage for Focus</td>
<td>-200 to +200 Volts dc</td>
</tr>
<tr>
<td>Grid No. 2 Voltage</td>
<td>-400 Volts dc</td>
</tr>
<tr>
<td>Cathode Voltage Required for Cutoff³</td>
<td>48 to 82 Volts dc</td>
</tr>
</tbody>
</table>

CIRCUIT VALUES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid No. 1 Circuit Resistance</td>
<td>1.5 Megohms Max.</td>
</tr>
</tbody>
</table>

NOTES:

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of the rated heater voltage after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times the rated heater voltage divided by the rated heater current.

2. External conductive coating and rimbands must be grounded.

3. Voltages are positive with respect to cathode unless indicated otherwise.

4. Voltages are positive with respect to Grid No. 1 unless indicated otherwise.

5. Visual extinction of focused raster. For cutoff of the undeflected focused spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.

WARNING:

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.
OUTLINE

DIAGRAM NOTES:
1. Reference Line is determined by Plane C-C' of JEDEC No. 126 Reference Line Gauge when the gauge is seated against the bulb.
2. Base Pin No. 4 aligns with horizontal centerline (A-A') within 30° and is on the same side as anode contact (J1-21).