Dimensional Outline

Screen Dia.
- 68° min
(± 2 1/16” min)

76.24 ± 1.6
(± 3” ± 1/6”)

2” max
(0.050” max)

360°
(± 1/16” R)

150°
(± 5/64” R)

41 ± 3
(± 0.600” max)

125 ± 3
(± 0.100” max)

300 ± 5
(± 0.125” max)

Small - Shell
Duodecal
12-Pin Base
JETEC No. B12-43

J1-22 contact

Socket Connections
Bottom View

Pin 1: Heater
Pin 2: Grid No. 1
Pin 3: Cathode
Pin 4: Focusing Electrode
Pin 5: Internal Connection
Pin 6: Deflecting Electrode D1
Pin 7: Deflecting Electrode D2
Pin 8: Accelerator
Pin 9: Deflecting Electrode D3
Pin 10: Deflecting Electrode D4
Pin 11: Internal Connection
Pin 12: Heater

J1-22 contact aligns with trace of D1 D2 ± 10°
J1-22 contact on same side as pin No. 3
D1 D2 trace aligns with pin No. 3 and tube axis ± 10°
Positive voltage on D1 deflects beam approximately toward pin No. 3
Positive voltage on D3 deflects beam approximately toward pin No. 6
Angle between D3 D4 and D1 D2 traces 80° ± 1°

View of underside of base

J1-22 contact

16.6.1959

TELEFUNKEN

Cathode Ray Tube
3 ARP 1

M 26 377α

RKS 26 377α

R&WU
DATA FORM - CATHODE RAY TUBE

DESCRIPCITIVE PARAGRAPH

The Telefunken Type 3 ARP 1 is a three inch, flat face, single beam, electrostatic deflection and focus Cathode-Ray-Tube. Post-acceleration provides high light output, high deflection sensitivity and small spot size.

- Focusing Method: electrostatic
- Deflecting Method: electrostatic

<table>
<thead>
<tr>
<th>Capacitance Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathode to all other electrodes</td>
<td>6.0 μf</td>
</tr>
<tr>
<td>Grid 1 to all other electrodes</td>
<td>8.0 μf</td>
</tr>
<tr>
<td>D1 to D2</td>
<td>2.0 μf</td>
</tr>
<tr>
<td>D3 to D4</td>
<td>1.8 μf</td>
</tr>
<tr>
<td>D1 to all other electrodes</td>
<td>5.7 μf</td>
</tr>
<tr>
<td>D2 to all other electrodes</td>
<td>5.7 μf</td>
</tr>
<tr>
<td>D3 to all other electrodes</td>
<td>4.6 μf</td>
</tr>
<tr>
<td>D4 to all other electrodes</td>
<td>3.8 μf</td>
</tr>
</tbody>
</table>

OPTICAL DATA

- Phosphor Number: P₁
- Fluorescent Color: Green
- Phosphorescent Color: -
- Persistence: Medium

MECHANICAL DATA

- Overall Length: 11 13/16 ± 3/16 Inches
- Greatest Diameter of Bulb: 3 ± 1/16 Inches
- Minimum Useful Screen Diameter: 2 43/64 Inches

- Bulb Number: special Bulb
- Bulb Contact: J1-22
- Base (Small Shell 12-pin Duodecal): B12-43
- Basing: special

- Bulb Contact Alignment:
  - J1-22 contact aligns with trace of D1D2 ± 10 Degrees
  - J1-22 contact on same side as pin No. 3

- Base Alignment:
  - D1D2 trace aligns with pin No. 3 and tube axis ± 10 Degrees
  - Positive voltage on D1 deflects beam approximately toward pin No. 3
  - Positive voltage on D3 deflects beam approximately toward pin No. 6
  - Angle between D3D4 and D1D2 traces 90 ± 1 Degrees
### RATINGS (design Center Values)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage</td>
<td>6.3 Volts</td>
</tr>
<tr>
<td>Heater current at 6.3 volts</td>
<td>0.3 ± 10% Ampere</td>
</tr>
<tr>
<td>Post-accelerator Voltage</td>
<td>2000 Max Volts DC</td>
</tr>
<tr>
<td>Anode Voltage</td>
<td>1000 Max Volts DC</td>
</tr>
<tr>
<td>Ratio Post-accelerator Voltage to Anode Voltage</td>
<td>2 Max</td>
</tr>
<tr>
<td>Anode Input</td>
<td>1 Max Watt</td>
</tr>
<tr>
<td>Grid 3 (Focusing Electrode) Voltage</td>
<td>500 Max Volts DC</td>
</tr>
<tr>
<td>Grid 1 Voltage Positive-Bias Value</td>
<td>-250 Max Volts DC</td>
</tr>
<tr>
<td>Grid 1 Voltage Positive-Peak Value</td>
<td>0 Max Volts DC</td>
</tr>
<tr>
<td>Peak-Heater-Cathode Voltage</td>
<td>0 Max Volts</td>
</tr>
<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>180 Max Volts</td>
</tr>
<tr>
<td>After equipment warm-up period</td>
<td>180 Max Volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>180 Max Volts</td>
</tr>
<tr>
<td>Peak Voltage between Anode and any</td>
<td>500 Max Volts</td>
</tr>
<tr>
<td>Deflection Electrode</td>
<td></td>
</tr>
</tbody>
</table>

### TYPICAL OPERATING CONDITIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-accelerator Voltage</td>
<td>1000 Volts</td>
</tr>
<tr>
<td>Anode Voltage</td>
<td>500 Volts</td>
</tr>
<tr>
<td>Grid 3 Voltage (Focusing Electrode)</td>
<td>50 to 110 Volts</td>
</tr>
<tr>
<td>Grid 1 Voltage (Note 2)</td>
<td>-36 to -25 Volts</td>
</tr>
<tr>
<td>Deflection Factors:</td>
<td></td>
</tr>
<tr>
<td>D1 and D2</td>
<td>31.8 to 36.8 Volts DC per inch</td>
</tr>
<tr>
<td>D3 and D4</td>
<td>18 to 22.2 Volts DC per inch</td>
</tr>
<tr>
<td>Focusing Electrode Current for any operating condition</td>
<td>-10 to +10 Microamperes</td>
</tr>
<tr>
<td>Spot Position (undeflected) (Note 4)</td>
<td>3.5 Max Millimeters</td>
</tr>
</tbody>
</table>

For Anode Voltage not shown in the preceding table, the following can be used as a guide:

- Focusing electrode Voltage 10% to 22% of Anode Volts
- Grid 1 Voltage (Note 2) - 7.2% to -5.0% of Anode Volts

**Deflection Factors:**

- Post-accelerator = Twice Anode
- D1 and D2 63.6 to 73.6 Volts DC per inch per Kilovolt of Anode
- D3 and D4 36 to 44.4 Volts DC per inch per Kilovolt of Anode

### MAXIMUM CIRCUIT VALUES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid 1 Circuit Resistance</td>
<td>10 Max Megohms</td>
</tr>
<tr>
<td>Resistance in any Deflecting - Electrode Circuit (Note 3)</td>
<td>5 Max Megohms</td>
</tr>
</tbody>
</table>
Pin Connection

Pin No. 1  Heater
Pin No. 2  Grid No. 1
Pin No. 3  Cathode
Pin No. 4  Focusing Electrode
Pin No. 5  Internal Connection
Pin No. 6  Deflecting Electrode D1
Pin No. 7  Deflecting Electrode D2
Pin No. 8  Accelerator
Pin No. 9  Deflecting Electrode D3
Pin No. 10 Deflecting Electrode D4
Pin No. 11 Internal Connection
Pin No. 12 Heater

CATHODE RAY TUBE CHARACTERISTICS NOTES

1. Visual extinction of focused raster.
2. Visual extinction of undeflected focused spot.
3. It is recommended that the deflecting-electrode-circuit resistance be approximately equal.
4. Connect free deflecting electrodes to anode.

Telefunken G.m.b.H., Röhrenvertrieb
Ulm (Donau), Germany
Beam current (μA)

\[ V_{a1} = 500 \, V \]
\[ V_{a2} = 100 \, V \]

Cathode current (μA)

\[ V_{a1} = 500 \, V \]
\[ V_{a2} = 1000 \, V \]

Cathode Ray Tube
3 ARP 1