The 19EBP4 is a 19"-1140 cathode ray tube with filled rim implosion protection and a 4 3/8" neck length. This tube has a straight gun which requires no ion trap and a 600 milliampere 6.3 volt filament.

**ELECTRICAL DATA**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focusing Method</td>
<td>Electrostatic</td>
</tr>
<tr>
<td>Deflection Method</td>
<td>Magnetic</td>
</tr>
<tr>
<td>Deflection Angles (Approximate)</td>
<td></td>
</tr>
<tr>
<td>Diagonal</td>
<td>114 Degrees</td>
</tr>
<tr>
<td>Horizontal</td>
<td>102 Degrees</td>
</tr>
<tr>
<td>Vertical</td>
<td>85 Degrees</td>
</tr>
<tr>
<td>Direct Interelectrode Capacitances</td>
<td></td>
</tr>
<tr>
<td>Cathode to all other electrodes (approximate)</td>
<td>5 uuf</td>
</tr>
<tr>
<td>Grid No. 1 to all other electrodes (approximate)</td>
<td>6 uuf</td>
</tr>
<tr>
<td>External conductive coating to anode (Note 1)</td>
<td>1,500 max. uuf</td>
</tr>
<tr>
<td></td>
<td>1,000 min. uuf</td>
</tr>
<tr>
<td>Resistance Between External Conductive Coating and Implosion Protection Hardware</td>
<td>50 min. megohms</td>
</tr>
<tr>
<td>Heater Current at 6.3 Volts</td>
<td>600 ± 30 ma</td>
</tr>
<tr>
<td>Heater Warm-up Time</td>
<td>11 Seconds</td>
</tr>
</tbody>
</table>

**OPTICAL DATA**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphor Number</td>
<td>P4 Aluminized</td>
</tr>
<tr>
<td>Light Transmittance at Center (Approximate)</td>
<td>49 Per cent</td>
</tr>
</tbody>
</table>

**MECHANICAL DATA**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over-all Length</td>
<td>11 5/8 +1/4 Inches</td>
</tr>
<tr>
<td>Neck Length</td>
<td>4 3/8+1/8 Inches</td>
</tr>
<tr>
<td>Greatest Dimensions of Shell</td>
<td></td>
</tr>
<tr>
<td>Diagonal</td>
<td>20 7/8 +3/32 Inches</td>
</tr>
<tr>
<td>Width</td>
<td>17 1/8 +1/16 Inches</td>
</tr>
<tr>
<td>Height</td>
<td>14 5/64 +1/16 Inches</td>
</tr>
<tr>
<td>Minimum Useful Screen Dimensions (Projected)</td>
<td></td>
</tr>
<tr>
<td>Diagonal</td>
<td>17 9/16 Inches</td>
</tr>
<tr>
<td>Horizontal Axis</td>
<td>15 1/8 Inches</td>
</tr>
<tr>
<td>Vertical Axis</td>
<td>12 Inches</td>
</tr>
<tr>
<td>Area</td>
<td>172 Sq. Inches</td>
</tr>
<tr>
<td>Implosion Protection</td>
<td>Filled Rim</td>
</tr>
<tr>
<td>Bulb</td>
<td>JEDEC Designation J-149-F1</td>
</tr>
<tr>
<td>Bulb Contact</td>
<td>JEDEC Designation JL-21</td>
</tr>
<tr>
<td>Base</td>
<td>JEDEC Designation B7-208</td>
</tr>
<tr>
<td>Basing</td>
<td>JEDEC Designation 8HR</td>
</tr>
</tbody>
</table>
Bulb Contact Alignment
J1-21 contact aligns with Pin Position No. 4  ± 30 Degrees

RATINGS (Design Maximum System)

Unless otherwise specified, voltage values are positive and measured with respect to cathode.

- Maximum Anode Voltage 23,000 Volts
- Minimum Anode Voltage 12,000 Volts
- Maximum Grid No. 4 (Focusing Electrode) Voltage +1,000 -500 Volts
- Maximum Grid No. 2 Voltage 550 Volts
- Minimum Grid No. 2 Voltage 220 Volts
- Grid No. 1 Voltage
  - Maximum negative value 154 Volts dc
  - Maximum negative peak value 220 Volts
  - Maximum positive value 0 Volts dc
  - Maximum positive peak value 2 Volts
- Maximum Heater Voltage 6.9 Volts
- Minimum Heater Voltage 5.7 Volts
- Maximum 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 200 Volts
  - Heater positive with respect to cathode 200 Volts

GRID DRIVE SERVICE

Unless otherwise specified, all voltage values are positive with respect to cathode.

- Anode Voltage 16,000 Volts dc
- Grid No. 4 Voltage (Focusing Electrode) (Notes 3 and 4)
  - 0 to +400 Volts dc
- Grid No. 2 Voltage 400 Volts dc
- Grid No. 1 Voltage (Note 2)
  - -39 to -94 Volts dc

MAXIMUM CIRCUIT VALUES

- Maximum Grid No. 1 Circuit Resistance 1.5 megohms

GRAPHS AND DRAWINGS

Tube Outline with Essential Dimensions and Tolerances

Pin Connections
- Pin 1 Heater
- Pin 2 Grid #1
- Pin 3 Grid #2
- Pin 4 Grid #4
- Pin 6 Grid #1
- Pin 7 Cathode
- Pin 8 Heater
ULTOR RECESSED SMALL CAVITY CAP JEDEC J1-21
NOTE 1

SCREEN HEIGHT

12 MIN.

32.6 R.

15.1

48 R.

15 R.

4 R.

46.9 R.

SCREEN WIDTH

15 1/8 MIN.

17/8-16 (NOTE 6)

21 R

102 R

+ .031

1.125-.025 DIA.

EXTERNAL CONDUCTIVE COATING NOTE 4

NOTE 6 SCREEN DIAGONAL

20 7/32

17 9/16

NOTICE:

SMALL BUTTON NEOEIGHTAR 7 PIN BASE
ARRANGEMENT 1 JEDEC #87-208 NOTE 3

PIN 1: HEATER
PIN 2: GRID NO. 1
PIN 3: GRID NO. 2
PIN 4: GRID NO. 4
PIN 5: GRID NO. 1
PIN 6: GRID NO. 1
PIN 7: CATHODE
PIN 8: HEATER
CAP: ULTOR (GRID NO. 3 GRID NO. 5 COLLECTOR)
C: EXTERNAL CONDUCTIVE COATING.

DRAWN BY
W. C. GRAF

SCALE
12-5-63

EFFECTIVE

DISTRIBUTION

DRAWING NO.

19 EBP4
NOTES

1. Measured with implosion protection hardware (if any) connected to external coating.

2. Visual extinction of focused raster.

3. With the combined Grid No. 1 bias voltage and video-signal voltage adjusted to give an anode current of 100 microamperes on a 15 1/8" by 12" pattern from RCA 2F21 monoscope or equivalent.

4. Individual tubes will have satisfactory focus at some value between 0 and +400 volts.

NOTES FOR DIMENSIONAL OUTLINE

1. The plane through the tube axis and Pin No. 4 may vary from the plane through the tube axis and ultor terminal by angular tolerance (measured about the tube axis) of ±30°. Ultor terminal is on same side as Pin No. 4.

2. With tube neck inserted through flared end of reference-line gauge JEDEC No. G-126 and with tube seated in gauge, the reference-line is determined by the intersection of the Plane CC' of the gauge with the glass funnel.

3. Socket for this base should not be rigidly mounted; it should have flexible leads and be allowed to move freely. The design of the socket should be such that the circuit wiring cannot impress lateral strains through the socket contacts on the base pins. Bottom circumference of base wafer will fall within a circle concentric with bulb axis and having a diameter of 1 3/4".

4. External conductive coating must be grounded.

5. To clean this area, wipe only with soft dry lint-less cloth.