The 23GBP4 is a 23"-110° banded picture tube without cloth. This tube has a 5 1/8" neck length, a straight gun which requires no ion trap and a 450 milliampere 6.3 volt filament.

ELECTRICAL DATA

Focusing Method
Deflection Method
Deflection Angles (Approximate)
  Diagonal  110 Degrees
  Horizontal  99 Degrees
  Vertical  82 Degrees
Direct Interelectrode Capacitance
  Cathode to all other electrodes (approx.)  5 uuf
  Grid No. 1 to all other electrodes (approx.)  6 uuf
  External conductive coating to anode (Note 1) 2,500 max. uuf
                                               1,700 min. uuf
Resistance Between External Conductive Coating and Implosion Protection Hardware
Heater Current at 6.3 Volts  450 ±20 ma
Heater Warm-up Time  11 seconds

OPTICAL DATA

Phosphor Number  P4 Aluminized
Light Transmittance at Center (Approximate)  42 Per cent
Antireflection Treatment  No

MECHANICAL DATA

Over-all Length  14 7/8 +1/4 Inches
Neck Length  5 1/8 +1/8 Inches
Greatest Dimensions of Tube
  Diagonal  23 1/2 +1/8 Inches
  Width  20 5/8 +1/8 Inches
  Height  16 5/8 +1/8 Inches
Minimum Useful Screen Dimensions (Projected)
  Diagonal  22 5/16 Inches
  Horizontal Axis  19 1/4 Inches
  Vertical Axis  15 1/8 Inches
  Area  282 Sq. Inches
Implosion Protection  Banded

from JEDEC release #4683, April 27, 1964
MECHANICAL DATA (Cont.)

Bulb JEDEC Designation J-187-K1
Bulb Contact JEDEC Designation J1-21
Base JEDEC Designation B7-208
Basing JEDEC Designation 8HR
Bulb Contact Alignment
J1-21 contact aligns with Pin Position No. 4 ±30°.

RATINGS (Design Maximum System)

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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Anode Voltage</td>
<td>23,000 Volts</td>
</tr>
<tr>
<td>Minimum Anode Voltage</td>
<td>12,000 Volts</td>
</tr>
<tr>
<td>Maximum Grid No. 4 (Focusing Electrode) Voltage</td>
<td>+1,000 -500 Volts</td>
</tr>
<tr>
<td>Maximum Grid No. 2 Voltage</td>
<td>500 Volts</td>
</tr>
<tr>
<td>Minimum Grid No. 2 Voltage</td>
<td>200 Volts</td>
</tr>
<tr>
<td>Grid No. 1 Voltage</td>
<td></td>
</tr>
<tr>
<td>Maximum negative value</td>
<td>154 Volts dc</td>
</tr>
<tr>
<td>Maximum negative peak value</td>
<td>220 Volts</td>
</tr>
<tr>
<td>Maximum positive value</td>
<td>0 Volts dc</td>
</tr>
<tr>
<td>Maximum positive peak value</td>
<td>2 Volts</td>
</tr>
<tr>
<td>Maximum Heater Voltage</td>
<td>6.9 Volts</td>
</tr>
<tr>
<td>Minimum Heater Voltage</td>
<td>5.9 Volts</td>
</tr>
<tr>
<td>Maximum Heater-Cathode Voltage</td>
<td></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>450 Volts</td>
</tr>
<tr>
<td>After equipment warm-up period.</td>
<td>200 Volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>200 Volts</td>
</tr>
</tbody>
</table>

TYPICAL OPERATING CONDITIONS

GRID DRIVE SERVICE

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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anode Voltage</td>
<td>16,000 Volts dc</td>
</tr>
<tr>
<td>Grid No. 4 Voltage (Focusing Electrode) (Notes 3 &amp; 4)</td>
<td>0 to +400 Volts dc</td>
</tr>
<tr>
<td>Grid No. 2 Voltage</td>
<td>400 Volts dc</td>
</tr>
<tr>
<td>Grid No. 1 Voltage (Note 2)</td>
<td>39 to 94 Volts dc</td>
</tr>
</tbody>
</table>

MAXIMUM CIRCUIT VALUES

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Grid No. 1 Circuit Resistance</td>
<td>1.5 megohms</td>
</tr>
</tbody>
</table>

GRAPHS AND DRAWINGS

Tube Outline with Essential Dimensions and Tolerances
**ULTOR RECESSED SMALL CAVITY CAP JEDEC J1-21**

**NOTE 1**

**SCREEN WIDTH**

19 1/4 MIN.

**HEIGHT**

15 1/8 MIN.

15 8

20.076

19.851

**EXTERNAL CONDUCTIVE COATING NOTE 4**

**RIM BAND**

**TENSION BAND**

**REF LINE**  (NOTE 2)

20 5 1/8-8

5 1/8

5 11/16

1/4 DIA. MIN.

+0.031

1.125 DIA.

-0.025

**SMALL BUTTON NEOLIGHTAR 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. 6

**PIN 6:** CATHODE

**PIN 7:** HEATER

**CAP:** ULTOR (GRID NO. 3 GRID NO. 5 COLLECTOR)

**C:** EXTERNAL CONDUCTIVE COATING

<table>
<thead>
<tr>
<th>DRAWN BY</th>
<th>SCALE</th>
<th>EFFECTIVE</th>
<th>DISTRIBUTION</th>
<th>DRAWING NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>W.C. G. R.</td>
<td>3/30</td>
<td>3-30-64</td>
<td></td>
<td>23 GBP4</td>
</tr>
</tbody>
</table>
Graphs and Drawings (Cont.)

Pin Connections:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Connection</th>
<th>Pin</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heater</td>
<td>6</td>
<td>Grid #1</td>
</tr>
<tr>
<td>2</td>
<td>Grid #1</td>
<td>7</td>
<td>Cathode</td>
</tr>
<tr>
<td>3</td>
<td>Grid #2</td>
<td>8</td>
<td>Heater</td>
</tr>
<tr>
<td>4</td>
<td>Grid #4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

1. Measured with implosion protection hardware 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 19 1/4" by 15 1/8" 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 uler terminal by angular tolerance (measured about the tube axis) of ±30°. Ulter 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.

6. Measured to include rimband and tension strap.