



Thomas

ENGINEERING DATA

23HP4

Phototron
Picture
Tube

CHARACTERISTICS

GENERAL DATA

Focusing Method..... Electrostatic
Deflecting Method..... Magnetic
Deflecting Angle-Diagonal (Approx.)..... 110 Degrees
 Horizontal 99 Degrees
 Vertical 82 Degrees
Phosphor P4 Aluminized
 Fluorescence White
 Persistence Medium
Faceplate Gray Filter Glass
 Light Transmission (including twin panel)..... 40% (Approx.)

ELECTRICAL DATA

Heater Voltage 6.3 Volts
Heater Current 6 Ampere $\pm$ 5%
Direct Interelectrode Capacitances (Approx.)
 Cathode to All Other Electrodes..... 5 muf
 Grid No. 1 to All Other Electrodes..... 6 muf
Ion Trap Magnet..... None

MECHANICAL DATA

Minimum Useful Screen Dimensions..... 19 5/16" x 15 1/4" Inches
Minimum Useful Screen Area (Approx.)..... 282 Sq.In.
Bulb Contact (Recessed Small Cavity Cap)..... J1-21
Base (Small Wafer Eightar 7 Pin)..... B7-208 or B7-183
Basing..... 8 HR
 J1-21 Contact Aligns with Pin Position No. 4 $\pm$ 30 Degrees

RATINGS

MAXIMUM RATINGS (Design Maximum Values)

Anode Voltage (Note 1). 20,000 Volts dc
Grid No. 4 Voltage (focusing electrode)..... -500 to + 2000 Volts dc
Grid No. 2 Voltage..... 550 Volts dc
Grid No. 1 Voltage
 Negative Bias Value..... 154 Volts dc
 Positive Bias Value..... 0 Volts dc
 Positive Peak Value 2 Volts
Peak Heater-Cathode Voltage (Note 2)
 Heater Negative with Respect to Cathode
 During Warm-up Period Not to exceed.. 15 sec. 450 Volts dc
 After Equipment Warm-up Period..... 200 Volts dc
 Heater Positive with Respect to Cathode..... 200 Volts dc

RECOMMENDED OPERATING CONDITIONS

Anode Voltage 16,000 Volts dc
Grid No. 4 Voltage (Note 3) 0 to + 400 Volts dc
Grid No. 2 Voltage..... 300 Volts dc
Grid No. 1 Voltage (Note 4) -35 To -72 Volts dc

CIRCUIT VALUES

Grid No. 1 Circuit Resistance..... 1.5 Max. Megohm
External Conductive Coating to Anode
 Capacitance- 2500 muf. Max.
 2000 muf. Min.

THE 23HP4 IS A DIRECT-VIEW PICTURE TUBE FOR USE IN TELEVISION RECEIVERS AND INCLUDES SUCH FEATURES AS:

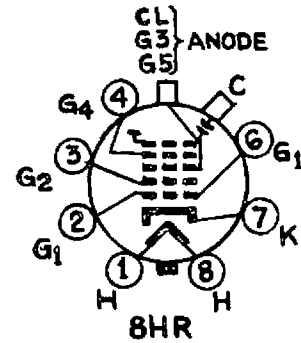
- A short straight electron gun not requiring an ion trap.
- A short neck.
- Integral implosion panel.
- A diagonal deflection angle of 110°
- A gray tinted face
- Rectangular Glass Type.
- Spherical face.
- Electrostatic Focus.
- Metal Backed Screen.

NOTES

1. Grid No. 5, Grid No. 3, and the collector are connected together within the tube, and referred to herein as anode.
2. Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
3. For focus with anode current of 100 ua and 19 5/16" x 15 1/4" raster.
4. Visual extinction of focused raster. Extinction of stationary focused spot will require that these values be about 5 volts more negative.

THOMAS ELECTRONICS, INC
118 9th Street,
Passaic, N. J.

SOCKET CONNECTIONS BOTTOM VIEW



- PIN 1 : HEATER
 PIN 2 : GRID N° 1
 PIN 3 : GRID N° 2
 PIN 4 : GRID N° 4
 PIN 6 : GRID N° 1
 PIN 7 : CATHODE
 PIN 8 : HEATER
 CAP : ANODE (GRID N° 3,
 GRID N° 5, COLLECTOR)
 C : EXTERNAL CONDUCTIVE
 COATING

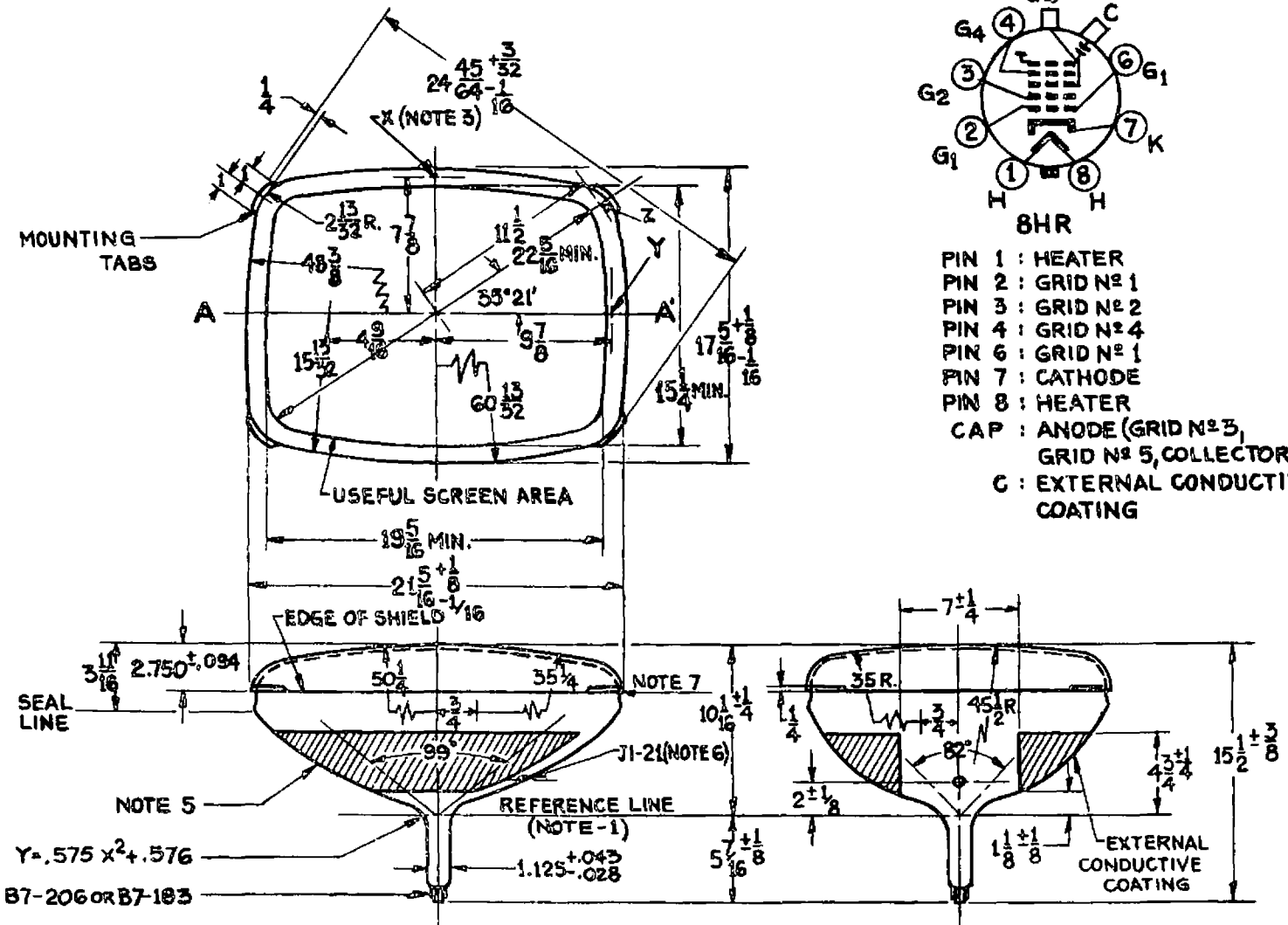


DIAGRAM NOTES:

- Reference line is determined by plane C-C⁰ of JEDEC No. 126 Reference Line Gauge, when the gauge is seated against the bulb.
- Base Pin No. 4 aligns with horizontal centerline (A-A⁰) within 30° and is on same side as anode contact, J1-21.
- Planes perpendicular to tube axis and passing through points X, Y, and Z are located as follows:

Plane tangent to crown of face to plane of X = .758" Nom.

Plane of X to plane of Y = .463" ± .030"

Plane of X to plane of Z = .970" ± .030"

Plane of X to the bottom of ear = 1.960"

- Dimensions are in inches.
- External Conductive Coating must be grounded.
- Anti-corona coating around connector.
- Panel edge flatness: .075" maximum out of plane.