CHARACTERISTICS

GENERAL DATA

Focusing Method ........................................... Tri-Potential Electrostatic
Deflection Method ......................................... Magnetic
Deflection Angles (Approx.)
Horizontal ...................................................... 99 Degrees
Diagonal ....................................................... 110 Degrees
Vertical ....................................................... 82 Degrees
Phosphor ....................................................... Aluminized P4
Fluorescence .................................................. White
Persistence ..................................................... Short to Medium
Faceplate ...................................................... Bonded Shield
(Gray Filter Glass Safety Plate Laminated
Directly to Face of Tube)
Light Transmittance of Faceplate Assembly
(Approx.) ....................................................... 40 Percent
23BRP4: External surface of safety plate treated to reduce specular reflection.

ELECTRICAL DATA

Heater Voltage ................................................. 6.3 Volts
Heater Current ............................................... 0.50 ± 5% Ampere
Heater Warm-up Time\[1\] ................................ 11 Seconds
Direct Interelectrode Capacitance (Approx.)
Cathode to All Other Electrodes ................................ 5 \(\mu\)F
Grid No. 1 to All Other Electrodes ............................. 6 \(\mu\)F
External Conductive Coating to Anode\[2\] ............... 2500 \(\mu\)F Max.
................................................................. 2000 \(\mu\)F Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions
(Maximum Assured)
Height ........................................................... 15 1/8 Inches
Width ........................................................... 19 3/8 Inches
Diagonal ........................................................ 22 5/8 Inches
Area ............................................................. 282 Sq. Inches
Neck Length ................................................... 3 3/16 ± 1/8 Inches
Overall Length ............................................... 13 3/8 ± 1/8 Inches
Bulb ............................................................. J187A
Safety Plate (23RP4) ........................................ FP198A
Safety Plate (23BRP4) ....................................... FP198B
Bulb Contact (Recessed Small Cavity Cap) ........... J1-21
Base ............................................................. B7-208
Basing .......................................................... 8JR
Weight (Approx.) ............................................. 32 1/2 Pounds

RATINGS

MAXIMUM RATINGS (Design Maximum Values) Grid Drive Service

Anode Voltage .................................................. 22,000 Volts dc
Grid No. 3 Voltage (Focusing Electrode) ................. 700 Volts dc
Grid No. 2 Voltage ............................................ 600 Volts dc
Grid No. 1 Voltage
Negative Bias Value .......................................... 155 Volts dc
Negative Peak Value ......................................... 220 Volts
Positive Bias Value ........................................... 0 Volts 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 ......................... 200 Volts
Heater Positive with Respect to Cathode .................. 200 Volts
TYPICAL OPERATING CONDITIONS (Grid Drive Service)

Anode Voltage ........................................ 16,000 Volts dc
Grid No. 3 Voltage for Focus ......................... 0 to +400 Volts dc
Grid No. 2 Voltage .................................... 500 Volts dc
Grid No. 1 Voltage Required for Cutoff .......... −43 to −78 Volts dc

CIRCUIT VALUES

Grid No. 1 Circuit Resistance ....................... 1.5 Megohms Max.

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 must be grounded.

3. Brightness and resolution improve with increase in Grid No. 2 Voltage. A minimum value of 400 volts is recommended.

4. Visual extinction of focused raster. Extinction of stationary focused spot will require that these values be about 5 volts more negative.

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.
DIAGRAM NOTES:

1. Reference line is determined by plane C-G 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 same side as anode contact, J1-12.

3. Planes perpendicular to the tube axis and passing through points X, Y and Z are located as follows:
   Plane Tangent to crown of face, to plane of X = 0.7358" Nom.
   Plane of X to plane of Y = 0.465" ± .030".
   Plane of X to plane of Z = 0.970" ± .030".