

November 1, 1964

TWIN PANEL TELEVISION PICTURE TUBE TYPE 23SP4

110° Magnetic Deflection
Rectangular Glass
Aluminized
Gray Filter Glass

Twin Face Panel, Integral Safety Glass
Electrostatic Focus
5¹/₈" Neck Length

External Conductive Coating
Spherical Faceplate
No Ion Trap
19⁵/₁₆" × 15¹/₄" Screen Size

GENERAL

Deflection Method Magnetic
Focusing Method Electrostatic
Deflection Angles (Approx.):
Diagonal 110°
Horizontal 99°
Vertical 82°
Screen:
Phosphor Aluminized P4
Fluorescence White
Persistence Short
Faceplate Spherical Gray Filter Glass
Laminated Panel FP198A1
Light Transmission (Approx.) 40%
Weight 31 Pounds

ELECTRICAL

Heater:
Voltage 6.3 Volts
Current 0.3 Ampere
Warm-up Time (Note 1) 11 Seconds
Direct Interelectrode Capacitances:
Grid 1 to all other electrodes 6 pf
Cathode to all other electrodes 5 pf
External Conductive Coating:
Maximum 2500 pf
Minimum 2000 pf

MECHANICAL

Mounting Position Any
Screen Dimensions:
Screen Area 282 sq. in. Min.
Height 15-1/4" Min.
Width 19-5/16" Min.
Diagonal 22-5/16" Min.
Bulb Dimensions:
Bulb J187A1
Height 17-5/16" + 3/32" - 1/8"
Width 21-5/16" ± 1/8"
Diagonal 24-45/64" + 3/32" - 1/16"
Overall Length 15-3/16" ± 3/8"
Neck Length 5-1/8" ± 1/8"
Anode Terminal Recessed Small Cavity Cap (JEDEC J1-21)
Base Small Button 7-Pin (JEDEC B7-208)
Basing 8HR

MAXIMUM RATINGS

Design Maximum Values
Anode Voltage (Note 2) 22000 max. Volts
Grid 4 Voltage:
Positive Value 1100 max. Volts
Negative Value -550 max. Volts
Grid 2 Voltage 550 max. Volts
Grid 1 Voltage:
Negative Peak Value 220 max. Volts
Negative Bias Value 154 max. Volts
Positive Bias Value 0 max. Volts
Positive Peak Value 0 max. Volts
Peak Heater-Cathode Voltage:
Heater Negative with Respect to Cathode
During Warm-up Period of 15 Sec. Max. 450 max. Volts
After Equipment Warm-up Period 200 max. Volts
Heater Positive with Respect to Cathode 200 max. Volts

TYPICAL GRID DRIVE OPERATING CONDITIONS

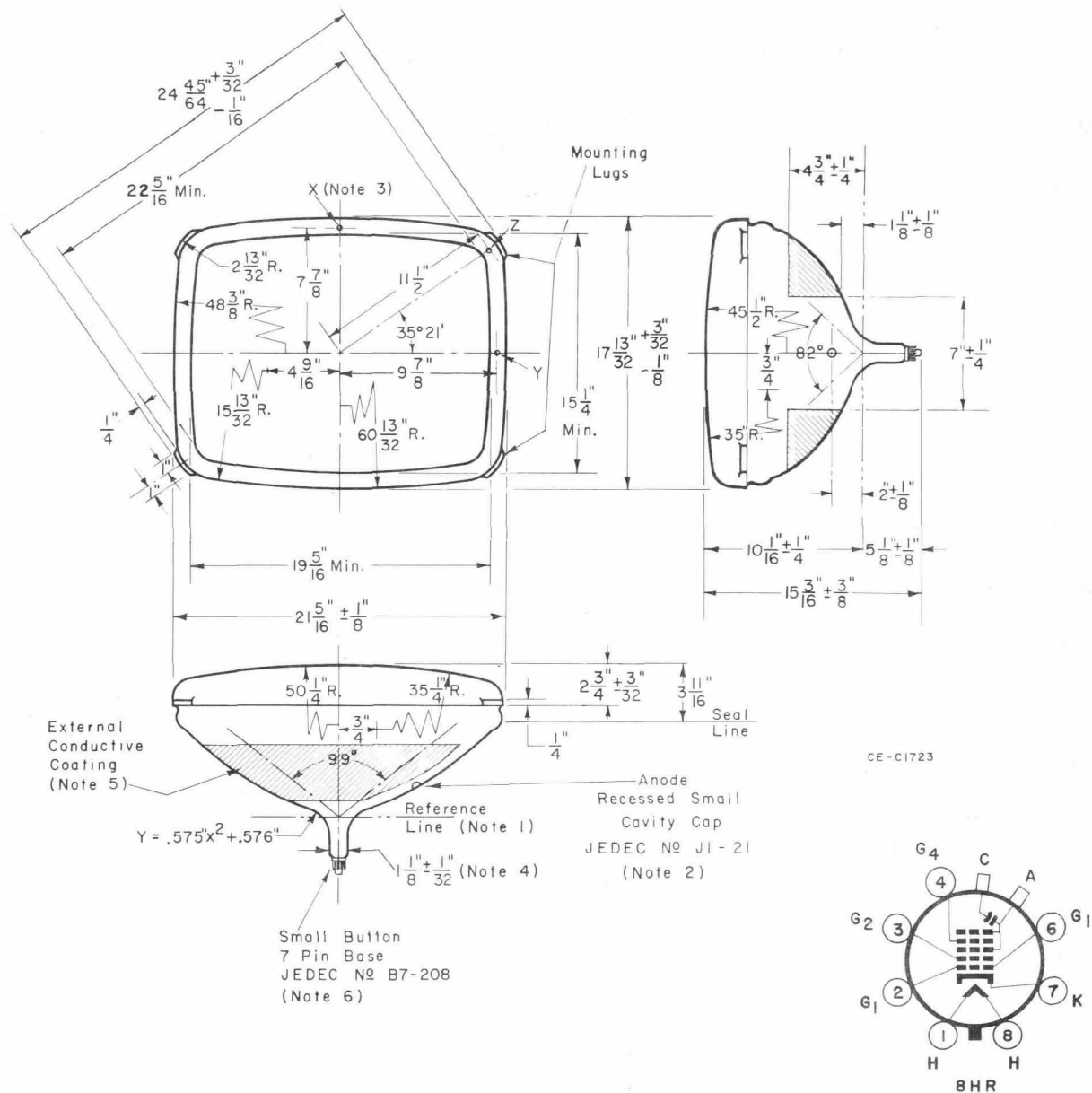
Anode Voltage 16000 Volts
Grid 4 Voltage 0 to + 400 Volts
Grid 2 Voltage 300 Volts
Grid 1 Voltage for Raster Cutoff -35 to -72 Volts

LIMITING CIRCUIT VALUES

Grid 1 Circuit Resistance 1.5 max. Megohms
Grid 2 Circuit Resistance (Note 3) 10000 min. Ohms
Grid 4 Circuit Resistance (Note 3) 10000 min. Ohms

NOTES

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.
2. Operation with voltage in excess of 16 KV may require shielding to limit radiation of very soft X-rays. Brilliance and definition decrease with decreasing anode voltage. In general, anode voltage should not be less than 12,000 volts.
3. Protective resistance in the G2 and G4 circuits is advisable to prevent damage to the tube.



CE-C1723

NOTE 1: Yoke Reference Line is determined by plane surface of flared end of JEDEC Reference-Line Gauge No. 126 when seated on funnel of tube. With a minimum neck length tube, the PM centering magnet (0 to 8 gauss) should extend no more than $2\frac{1}{8}$ " from Yoke Reference Line.

NOTE 2: Base pin 4 aligns with major axis within 30° and is on same side as anode terminal.

NOTE 3: Planes perpendicular to the axis and passing through points X, Y and Z are determined as follows:

Plane tangent to crown of face, to plane of X = 0.758 " nom.

Plane of X to plane of Y = 0.463 ± 0.030 ".

Plane of X to plane of Z = 0.970 ± 0.030 ".

NOTE 4: Neck diameter may be a maximum of 1.168 " at the splice.

NOTE 5: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 6: The socket should not be mounted rigidly, but should be allowed to move freely and have flexible leads. The associated wiring should not impress lateral strains on the base pins. The bottom circumference of the base wafer will lie within a circle concentric with the bulb axis and having a diameter of $1\frac{3}{4}$ ".

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