

CHARACTERISTICS

GENERAL DATA

Focusing Method	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
(Grey Filter Glass Safety Plate Laminated	
Directly to Face of Tube)	
Light Transmittance of Faceplate Assembly (Approx.)	40 Percent
Type 23CBP4 has external surface of safety plate treated to reduce specular reflection.	

ELECTRICAL DATA

Heater Voltage	6.3 Volts	
Heater Current	$0.45 \pm 5\%$ Ampere	
Heater Warm-up Time ¹	11 Seconds	
Direct Interelectrode Capacitances (Approx.)		
Cathode to All Other Electrodes	5 μf	
Grid No. 1 to All Other Electrodes	6 μf	
External Conductive Coating to Anode ²	2500 μf	Max.
	2000 μf	Min.

MECHANICAL DATA

Minimum Useful Screen Dimensions (Maximum Assured)	
Height	15 1/4 Inches
Width	19 5/16 Inches
Diagonal	22 5/16 Inches
Area	282 Sq. Inches
Neck Length	5 1/8 $\pm$ 1/8 Inches
Overall Length	15 3/16 $\pm$ 3/8 Inches
Bulb	J187A
Safety Plate (23UP4, 23BQP4)	EP198A
Safety Plate (23CBP4)	FP198B
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Base	B7-208
Basing	8HR
Weight	32 1/2 Pounds

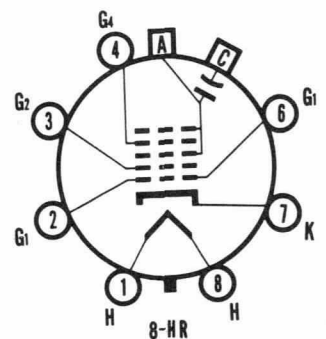
RATINGS

MAXIMUM RATINGS (Design Maximum Values)

	23BQP4	23CBP4	23UP4	
Grid Drive Service ⁴				
Maximum Anode Voltage	23,000	18,000	Volts	dc
Minimum Anode Voltage	12,000	10,000	Volts	dc
Grid No. 4 Voltage (Focusing Electrode)	-550 to +1100	Volts		dc
Maximum Grid No. 2 Voltage	550	Volts		dc
Minimum Grid No. 2 Voltage	200	Volts		dc
Grid No. 1 Voltage				
Negative Bias Value	155	Volts		dc
Negative Peak Value	220	Volts		dc
Positive Bias Value	0	Volts		dc
Positive Peak Value	2	Volts		dc
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		

QUICK REFERENCE DATA

Television Picture Tube
23" Direct Viewed
Rectangular Glass Type
Spherical Faceplate
Bonded Shield
Gray Filter Glass
Aluminized Screen
Electrostatic Focus
110 Magnetic Deflection
No Ion Trap
External Conductive Coating
6.3 Volts, 450 Ma Heater



SYLVANIA ELECTRONIC TUBES

A Division of
Sylvania Electric Products Inc.

PICTURE TUBE OPERATIONS SENECA FALLS, NEW YORK

Prepared and Released By The
TECHNICAL PUBLICATIONS SECTION
EMPORIUM, PENNSYLVANIA

OCTOBER, 1961

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File Under
TELEVISION PICTURE TUBES

MAXIMUM RATINGS (Design Maximum Values) (Continued)

	23BQP4 23CBP4	23UP4	
Cathode Drive Service ³			
Maximum Anode Voltage	23,000	18,000 Volts	dc
Minimum Anode Voltage	12,000	10,000 Volts	dc
Grid No. 4 Voltage (Focusing Electrode)	-400 to +1250	Volts	dc
Grid No. 2 Voltage		700 Volts	dc
Cathode Voltage			
Positive Bias Value		155 Volts	dc
Positive Peak Value		220 Volts	
Negative Bias Value		0 Volts	dc
Negative 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 ⁴			
Anode Voltage		16,000 Volts	dc
Grid No. 4 Voltage for Focus		0 to 400 Volts	dc
Grid No. 2 Voltage		400 Volts	dc
Grid No. 1 Voltage Required for Cutoff ⁵		-46 to -94 Volts	dc
Cathode Drive Service ³			
Anode Voltage		16,000 Volts	dc
Grid No. 4 Voltage for Focus		0 to 400 Volts	dc
Grid No. 2 Voltage		400 Volts	dc
Cathode Voltage Required for Cutoff ⁵		42 to 78 Volts	dc

CIRCUIT VALUES

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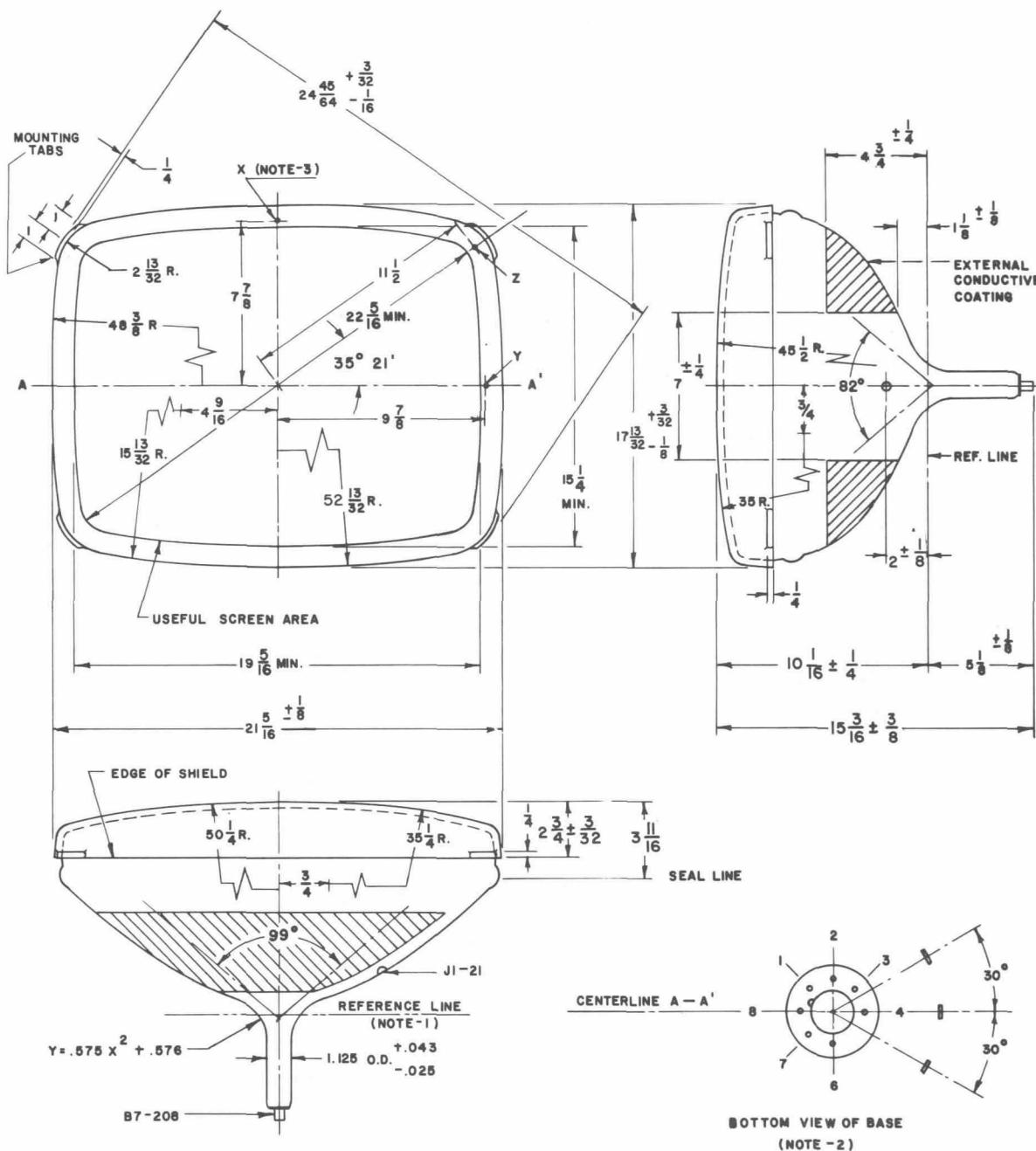
NOTES:

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 four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times rated heater voltage divided by rated heater current.
2. External conductive coating must be grounded.
3. Voltages are positive with respect to Grid No. 1 unless indicated otherwise.
4. Voltages are positive with respect to Cathode unless indicated otherwise.
5. Visual extinction of focused raster. For cutoff of the undeflected spot, the absolute value of the bias between cathode and grid will increase by about 5 volts.

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.

OUTLINE



D59028A

DIAGRAM NOTES:

- Reference line is determined by plane C-C' of JEDEC No. 126 Reference Line Gauge, when the gauge is seated against the bulb.
- Base Pin No. 4 aligns with horizontal centerline (A-A') 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 X to plane of Y = .463" $\pm .030$ "
 Plane X to plane of Z = .970 $\pm .030$ "
- Dimensions are in inches.