

23DQP4

Television Picture Tube

PHILCO CORPORATION - LANSDALE DIVISION

CATHODE RAY TUBE

DATA SHEET

Tentative

Description

The 23DQP4 is a 23" - 92° direct view rectangular glass picture tube having an aluminized screen, spherical faceplate, bonded shield, non ion trap gun, internal shielding and is designed to operate with electrostatic focus and magnetic deflection.

It is a "HiGm" tube designed to operate in cathode drive service under low G2 voltage conditions. The tube base is short and provides straight through leads oriented by an indexing lug.

Electrical Data

Focusing Method	Electrostatic
Deflection Method	Magnetic
Deflection Angle, approximate	
Horizontal	81 Degrees
Vertical	66 Degrees
Diagonal	92 Degrees
Direct Interelectrode Capacitance, approximate	
Cathode to All	4.0uuf
Grid #1 to All	8.0uuf
External Coating Capacitance	2000 Min. uuf 2500 Max. uuf
Heater Voltage	6.3 Volts
Heater Current at 6.3 volts	0.60 ⁺ _{5%} Amperes
Heater Warm-up Time (Note 1)	11 Seconds

Optical Data

Phosphor Number	Aluminized P4
Fluorescent Color	White
Persistence	Medium Short
Faceplate (Bonded Shield)	FP198A1
Light Transmission at Center, approximate	40 Percent

Continued:

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Mechanical Data

Overall Length 18 11/16±3/8 Inches
Neck Length 5 7/8±1/8 Inches
Greatest Dimensions of Bulb
 Diagonal 24.797 Inches
 Width 21.438 Inches
 Height 17.500 Inches
Minimum Useful Screen Dimensions 282 Sq. Inches
 (maximum assured dimensions)
 Diagonal 22 5/16 Inches
 Width 19 5/16 Inches
 Height 15 1/4 Inches
Bulb J187D1
Base B7-208
Basing 8HR
Anode Contact J1-21
Anode Contact Aligns with Pin #4 ±30°

CATHODE DRIVE SERVICE

Voltages are positive with respect to Grid #1 unless indicated otherwise.

Maximum Ratings (Design Maximum Values)

Anode Voltage (Note 2) 25,000 Volts DC
Grid #4 Voltage -550 Min. to +1100 Max. Volts DC
Grid #2 Voltage 80 Volts DC
Cathode Voltage
 Positive-Bias Value 154 Max. Volts DC
 Positive-Peak Value 220 Max. Volts
 Negative-Bias Value 0 Max. Volts DC
 Negative-Peak Value 2 Max. Volts
Peak-Heater-Cathode Voltage
 Heater Negative with Respect to Cathode
 During Warm-up Period not to exceed
 15 seconds 450 Max. Volts
 After Equipment Warm-up Period 200 Max. Volts
 Heater Positive with Respect to
 Cathode 200 Max. Volts

Typical Operating Conditions

Anode Voltage	20,000 Volts DC
Grid #4 Voltage for Focus	-100 to +300 Volts DC
Grid #2 Voltage	65 Volts DC
Cathode Voltage (Note 3)	+41 to +56 Volts

Maximum Circuit Values

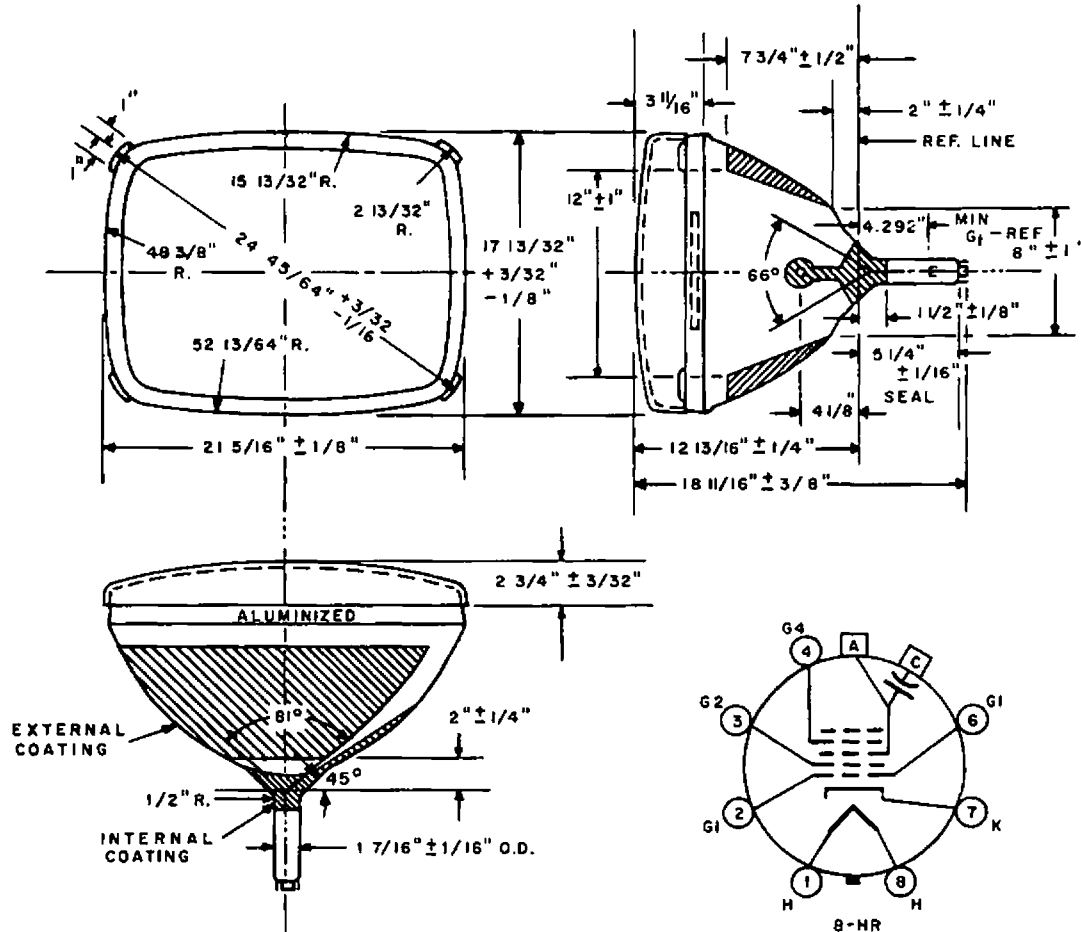
Grid #1 Circuit Resistance	1.5 Max. Megs
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Notes

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 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.
2. Anode, Grid #3, and Grid #5 are connected together within the tube and are referred to herein as anode.
3. For visual extinction of the focused raster. For cutoff of undeflected focus spot, and absolute value of the bias between cathode and grid will increase by about 4 volts.

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Outline Drawing
23DQP4
Television Picture Tube



MECHANICAL NOTES

1. The reference line is determined by reference line gauge JEDEC # 116.
2. The area around the button is covered with an insulating coating.
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 the base wafer will fall within a circle concentric with bulb axis and having a diameter of $1 \frac{3}{4}$ ".

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 anode voltages higher than 16,000 volts.