

**CHARACTERISTICS**

**GENERAL DATA**

Focusing	Electrostatic
Deflection Method	Magnetic
Deflection Angles (Approx.)	
Horizontal	101 Degrees
Diagonal	114 Degrees
Vertical	86 Degrees
Phosphor	Aluminized P4
Fluorescence	White
Persistence	Medium Short
Faceplate	Bonded Shield
(Gray Filterglass Safety Plate Laminated Directly to Face of Tube)	
Light Transmittance of Faceplate Assembly (Approx.)	
19DKP4	45 Percent
19DNP4	60 Percent

**ELECTRICAL DATA**

Heater Voltage	6.3 Volts
Heater Current	0.60 ± 5 % Ampere
Heater Warm-up Time <sup>1</sup>	11 Seconds
Direct Interelectrode Capacitances (Approx.)	
Cathode to All Other Electrodes	5 pf
Grid No. 1 to All Other Electrodes	6 pf
External Conductive Coating to Anode <sup>2</sup>	1500 pf
	1000 pf

**MECHANICAL DATA**

Minimum Useful Screen Dimensions (Maximum Assured)	
Height	12 <sup>1</sup> / <sub>16</sub> Inches
Width	15 <sup>1</sup> / <sub>4</sub> Inches
Diagonal	17 <sup>5</sup> / <sub>8</sub> Inches
Minimum Useful Screen Area	172 Sq. Inches
Neck Length	4 <sup>1</sup> / <sub>8</sub> ± 1 <sup>1</sup> / <sub>8</sub> Inches
Overall Length	11 <sup>9</sup> / <sub>16</sub> ± 5 <sup>1</sup> / <sub>16</sub> Inches
Bulb	J149C
Safety Plate	
19DKP4	FP149B2
	(1 <sup>1</sup> / <sub>8</sub> Inches Thick, 55 % Transmittance)
19DNP4	FP149B1
	(1 <sup>1</sup> / <sub>8</sub> Inches Thick, 70 % Transmittance)
Bulb Contact (Recessed Small Cavity Cap)	J1-21
Base	B7-208
Basing	8HR
Weight (Approx.)	15 1/2 Pounds

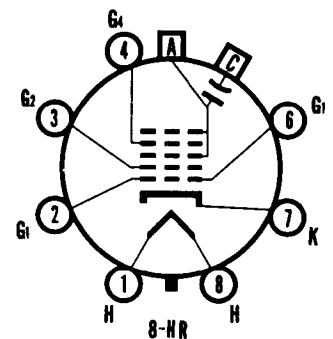
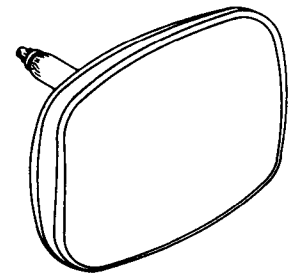
**RATINGS**

**MAXIMUM RATINGS (Design Maximum Values)**

Grid Drive Service <sup>3</sup>	19DNP4	19DKP4	
Maximum Anode Voltage	18,000	23,000	dc
Minimum Anode Voltage	10,000	15,000	dc
Grid No. 4 Voltage (Focusing Electrode)		-550 to +1100	dc
Maximum Grid No. 2 Voltage		550	dc
Minimum Grid No. 2 Voltage		200	dc
Grid No. 1 Voltage			
Negative Bias Value		155	dc
Negative Peak Value		220	dc
Positive Bias Value		0	dc
Positive Peak Value		2	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  
 19" Direct Viewed  
 Rectangular Glass Type  
 Bonded Shield  
 Gray Filter Glass  
 Aluminized Screen  
 Electrostatic Focus  
 114° Magnetic Deflection  
 1 1/8" Neck Diameter  
 No Ion Trap  
 External Conductive Coating  
 19DKP4—High Anode Voltage  
 19DNP4—Low Anode Voltage



**SYLVANIA ELECTRIC PRODUCTS INC.**

Electronic Components Group  
**ELECTRONIC TUBE DIVISION**  
 SENECA FALLS, NEW YORK

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**MAXIMUM RATINGS (Design Maximum Values) Continued**

**Cathode Drive Service<sup>4</sup>**

	19DNP4	19DKP4	
Maximum Anode Voltage . . . . .	18,000	23,000 Volts	dc
Minimum Anode Voltage . . . . .	10,000	15,000 Volts	dc
Grid No. 4 Voltage (Focusing Electrode) . . . . .		-400 to +1250 Volts	dc
Maximum Grid No. 2 Voltage . . . . .		700 Volts	dc
Minimum Grid No. 2 Voltage . . . . .		350 Volts	dc
<b>Cathode Voltage</b>			
Positive Bias Value . . . . .		155 Volts	dc
Positive Peak Value . . . . .		220 Volts	
Negative Bias Value . . . . .		0 Volt	dc
Negative Peak Value . . . . .		2 Volts	
<b>Peak Heater-Cathode Voltage</b>			
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<sup>3</sup>**

	19DNP4	19DKP4	
Anode Voltage . . . . .	16,000	20,000 Volts	dc
Grid No. 4 Voltage for Focus . . . . .	0 to 400	0 to 400 Volts	dc
Grid No. 2 Voltage . . . . .	400	400 Volts	dc
Grid No. 1 Voltage Required for Cutoff <sup>5</sup> . . . . .	40 to 76	-46 to -94 Volts	dc

**Cathode Drive Service<sup>4</sup>**

	19DNP4	19DKP4	
Anode Voltage . . . . .	16,000	20,000 Volts	dc
Grid No. 4 Voltage for Focus . . . . .	0 to 400	0 to 400 Volts	dc
Grid No. 2 Voltage . . . . .	400	400 Volts	dc
Cathode Voltage Required for Cutoff <sup>5</sup> . . . . .	40 to 76	42 to 78 Volts	dc

**CIRCUIT VALUES**

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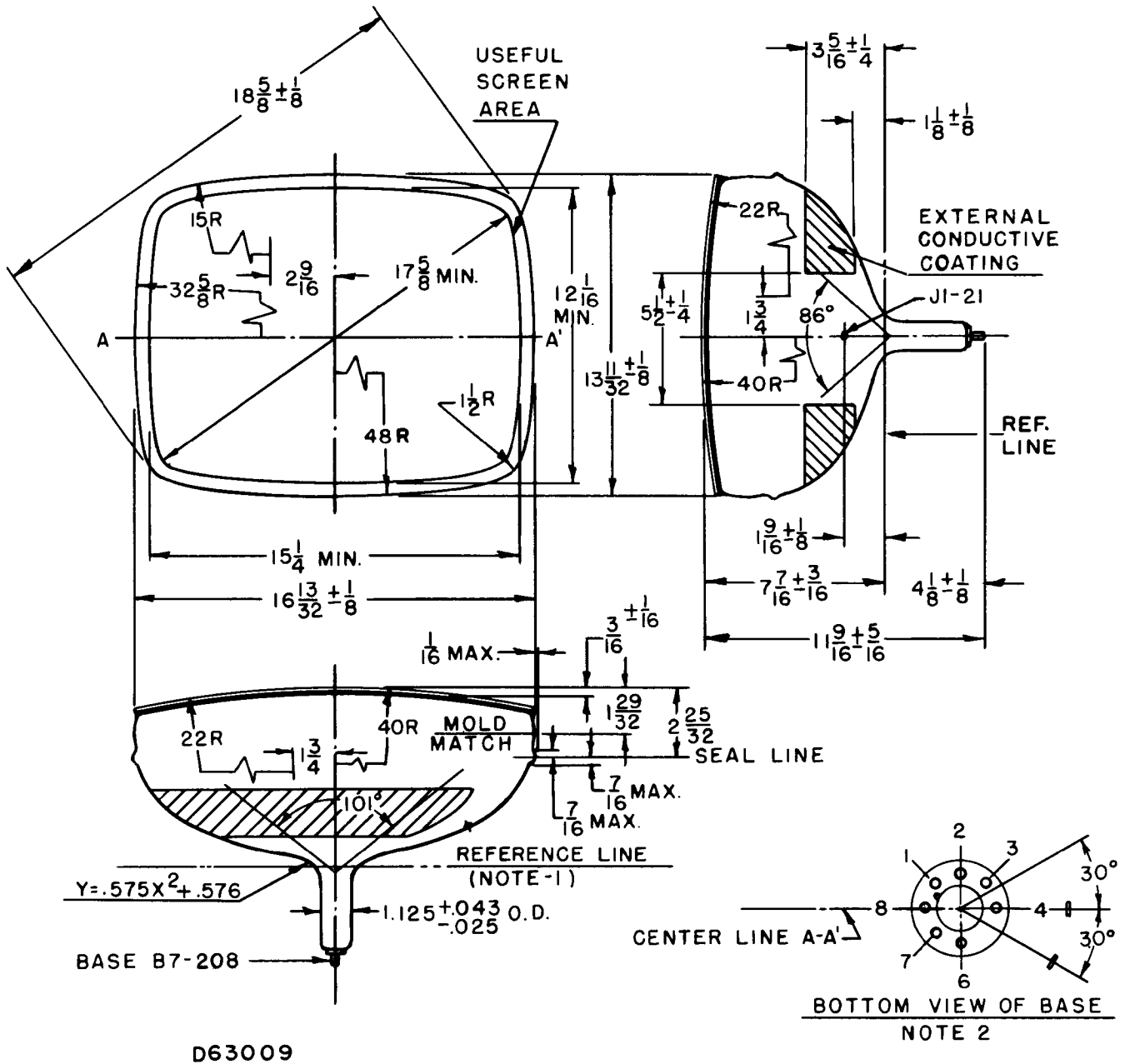
**NOTES:**

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80 % of 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. Voltages are positive with respect to cathode unless indicated otherwise.
4. Voltages are positive with respect to Grid No. 1 unless indicated otherwise.
5. Visual extinction of focused raster. For cutoff of the undeflected focused 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



D63009

DIAGRAM NOTES:

1. Reference Line is determined by plane C-C' 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  $30^\circ$  and is on same side as anode contact (J1-21).
3. Dimensions are in inches.