

CATHODE-RAY TUBE

TYPE 22GP-

The Du Mont Type 22GP- is a 22-inch, metal envelope, magnetic deflection and electrostatic focus cathode-ray tube suitable for radar applications. This tube features an almost completely flat faceplate, minimizing parallax error. The screen is aluminized to increase light output and prevent build-up of spurious screen charges.

GENERAL CHARACTERISTICSElectrical Data

Focusing Method	Electrostatic	
Deflection Method	Magnetic	
Deflection Angle, Approximate	70	Degrees
Direct Interelectrode Capacitances, Approximate		
Cathode to all other electrodes	5	μf
Grid No. 1 to all other electrodes	6	μf

Optical Data

Phosphor Number	2
Fluorescence	Yellow-Green
Phosphorescence	Green
Persistence	Medium
Faceplate	Clear

Mechanical Data

Overall Length	23 3/4	Max. Inches
Greatest Diameter of Envelope	21 3/4 $\pm$ 1/8	Inches
Minimum Useful Screen Diameter	20	Inches
Envelope Contact	Metal Cone Lip	
Base	B7-51	
Basing	12M	



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RATINGS (Absolute Maximum Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 $\pm$ 10%	Ampere
Accelerator Voltage	24,000	Max. Volts DC
Accelerator Input	6	Max. Watts
Focusing Electrode Voltage	-1500 to +1500	Max. Volts DC
Grid No. 2 Voltage	800	Max. Volts DC
Grid No. 1 Voltage		
Negative Bias Value	125	Max. Volts DC
Positive Bias Value	0	Max. Volts DC
Positive Peak Value	2	Max. Volts
Peak Heater-Cathode Voltage		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds	410	Max. Volts
After equipment warm-up period	180	Max. Volts
Heater positive with respect to cathode	180	Max. Volts

TYPICAL OPERATING CONDITIONS

Accelerator Voltage	18,000	Volts DC
Grid No. 2 Voltage	400	Volts DC
Grid No. 1 Voltage ¹	-45 to -70	Volts DC
Focusing Voltage ^{2, 3}	0 to 400	Volts DC
Resolution ³		
Modulation ²	35	Volts Max.
Spot Position ⁴	20	MM

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
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N O T E S

1. Visual extinction of the undeflected, focused spot.
2. Drive voltage from cutoff to a light output of 100 foot lamberts, measured with a 20-inch square focused raster and using 840 (minimum) active lines. Measure anywhere within the usable tube diameter. Weston 759 Foot-Lambert Meter (or equivalent) used. Cathode current will not exceed 300 μ A.
3.
 - a. With optimum focus, 840 active lines will be resolved by the eye (without dynamic focusing).
 - b. A sine wave voltage is applied to the grid such that the frequency represents 500 (minimum) white dots across the central horizontal axis. The peak voltage of the sine wave is such that it establishes the same grid-cathode voltage relationship required for Note 2, above. Under these conditions the dots will be resolvable by the eye at any and all points within the usable surface area without refocusing. Peak-to-peak amplitude of the sine wave is to be 45 volts or less.
 - c. Tests made using a uniform field uncorrected yoke.
4. The center of the undeflected, focused spot will fall within a 20-mm radius circle concentric with the tube face center.

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Technical drawing of a small shell diode assembly, showing side and bottom views with dimensions and component identification.

Dimensions:

- Top diameter: $21 \frac{3}{4} \pm \frac{1}{8}$ O.D.
- Useful screen length: 20 MIN. USEFUL SCREEN
- Height: $23 \frac{3}{4}$ MAX.
- Base diameter: $1 \frac{7}{16} \pm \frac{1}{16}$ O.D.
- Angle: 70°
- Radius: 165 R.
- Detail dimensions: $\frac{1}{4}$ R., $\frac{7}{16}$

Component Identification (Bottom View):

PIN NO.	ELEMENT
1	HEATER
2	GRID NO. 1
6	FOCUSING ELECTRODE
10	GRID NO. 2
11	CATHODE
12	HEATER
CONE LIP	ACCELERATOR

NOTE: REF. LINE DETERMINED BY POSITION WHERE A $1.500 \pm .003$ DIA. RING GAGE (JEDEC #110) 2 INCHES LONG WILL STOP.