



CATHODE-RAY TUBE

TYPE 10UP14B

The Du Mont Type 10UP14B is a 10-inch diameter, electrostatic focus and magnetic deflection cathode-ray tube. It is designed for specific applications where high resolution and minimum astigmatism are prime requirements. The neck and bulb alignments and screen blemishes are tightly controlled to assure good mechanical and screen qualities. The focus lens is designed to operate at or near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. For greater light output and to minimize screen charging effects, the screen is aluminized.

GENERAL CHARACTERISTICS

Electrical Data

Focusing Method	Electrostatic	
Deflecting Method	Magnetic	
Deflecting Angle, Approximate	50	Degrees
Direct Interelectrode Capacitances, Approximate		
Cathode to all other electrodes	5	μf
Grid No. 1 to all other electrodes	6.5	μf

Optical Data

Phosphor Number	14
Fluorescence	Purple
Phosphorescence	Orange
Persistence	Medium-Long
Faceplate	Gray Filter

Mechanical Data

Overall Length	17 $\frac{5}{8} \pm \frac{3}{8}$	Inches
Greatest Diameter of Bulb	10 $\frac{1}{2} \pm \frac{1}{16}$	Inches
Minimum Useful Screen Diameter	9	Inches
Bulb Contact	J1-21	
Base	B6-63	
Basing	12M	
Bulb Contact Alignment:		
J1-21 cap aligns with vacant Pin Position No. 3	± 10	Degrees

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Allen B. Du Mont Laboratories, ~~Inc.~~
Divisions of Fairchild Camera and Instrument Corp.
Clifton, New Jersey



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MAXIMUM RATINGS (Design Maximum Values)

Heater Voltage	6.3	Volts
Heater Current at 6.3 Volts	0.6 ± 10%	Ampere
Accelerator Voltage	13,200	Max. Volts DC
Accelerator Input	6	Max. Watts
Focusing Electrode Voltage	-500 to +1000	Max. Volts DC
Grid No. 2 Voltage	770	Max. Volts DC
Grid No. 1 Voltage		
Negative Bias Value	200	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	180	Max. Volts
Heater Positive with respect to cathode	180	Max. Volts

TYPICAL OPERATING CONDITIONS

Accelerator Voltage ¹	10,000	Volts DC
Focusing Electrode Voltage ²	-180 to +180	Volts DC
Focusing Voltage Spread ²	180	Volts Max.
Focusing Electrode Current	-15 to +15	μADC
Grid No. 2 Voltage	300	Volts DC
Grid No. 1 Voltage ³	-40 to -77	Volts DC
Line Width "A" ⁴	.43	mm Max.
Spot Position ⁵	Within an 8-mm radius circle	

MAXIMUM CIRCUIT VALUES

Grid No. 1 Circuit Resistance	1.5	Max. Megohms
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NOTES

1. Brilliance and definition decrease with decreasing accelerator voltage. In general, accelerator voltage should not be less than 7,000 volts.
2. As measured with an $I_{b2} = 60 \mu\text{ADC}$, using 35 - 105-line raster expanded with approximately 1/2-inch between lines. An individual line at tube face center is examined and focus voltage varied until the line is of minimum width consistent with the absence of background smear; this is determined as optimum focus, and focus voltage is measured. Focus voltage measurements are taken in each of three planes: 0° , 60° , and 120° through the longitudinal axis of the tube. The 0° reference plane is established with the accelerator cap horizontal and to the right. The focus voltage in each of the planes will be within the limits specified, and the focus voltage spread (astigmatism) will not exceed the specified limit.
3. Visual extinction of the undeflected, focused spot.
4. With an $I_{b3} = 60 \mu\text{ADC}$, and measured in accordance with MIL-E-1 specifications, the raster adjusted for optimum focus as described for the focus voltage test (see Note 2). The line width measurement in each of the three planes described shall not exceed the specified limit in any plane.
5. With the tube shielded against external influences, the center of the undeflected, focused spot will fall within a circle of 8-mm radius concentric with the center of the tube.

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