RAYTHEON

TECHNICAL INFORMATION SERVICE

Technical Information

5CEP–

HIGH RESOLUTION CATHODE RAY TUBE

The 5CEP– is a 5 inch, high resolution, electrostatic focus magnetic deflection cathode ray tube designed primarily for use in flying spot scanners. The 5CEP– has a spot size less than 0.0015 inches and can therefore attain a resolution of approximately 3000 TV lines across the useful screen diameter. The tube is designed with an aluminized screen, and has a neutral gray face plate to improve contrast.

GENERAL DATA

	5CEP11	5CEP16
Phosphor	P11	P16
Fluorescence	Blue	Violet + Near U–V
Phosphorescence	Blue	Violet + Near U–V
Persistence	Short	Extremely Short
Focusing Method	Electrostatic	Electrostatic
Deflection Method	Magnetic	Magnetic
No-Ion Trap Gun	No Magnet Required	No Magnet Required
Deflection Angle (Approx.)	42°	42°

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 volts
Heater Current	.6 amps.
Peak Heater - Cathode Voltage ♦	
Heater Negative with Respect to Cathode	180 volts
Heater Positive with Respect to Cathode	180 volts

DIRECT INTERELECTRODE CAPACITANCE (μμfds.)

Grid #1 to all other electrodes	9
Grid #2 to all other electrodes	7
Cathode to all other electrodes	7

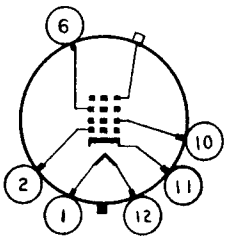
ABSOLUTE MAXIMUM RATINGS

Collector Voltage	22,000 volts
Grid #3 Voltage (focusing electrode)	5,000 volts
Grid #2 Voltage	600 volts
Grid #1 Voltage	
Negative Bias Value	180 volts
Positive Bias Value	0 volts
Positive Peak Value	0 volts
Line Width	.0015 inch

MECHANICAL DATA

BASE ..... JEDEC B6–63
BASING 12Q
MIN. SCREEN DIAMETER ..... 4.25"
MOUNTING POSITION.... Any
FACE PLATE.....Ground Polished Flat
Thickness = 0.245 ± .005"

BASING



BOTTOM VIEW

TERMINAL CONNECTIONS

Pin 1	Heater
Pin 2	Grid #1
Pin 6	Grid #3
Pin 10	Grid #2
Pin 11	Cathode
Pin 12	Heater
Cap	Grid #4 (Collector)

ELECTRICAL DATA (Cont'd)

CHARACTERISTICS AND TYPICAL OPERATION:

Collector Voltage	10,000	20,000	volts
Grid #3 Voltage (focusing electrode) □	2070–2370	4140–4740	volts
Grid #2 Voltage	300	300	volts
Grid #1 Cutoff Voltage ⊕	−40 to −65	−40 to −65	volts
Line Width ●	.0015	.0015	inch
Face Plate (Neutral Gray) Glass Transmission	75	75	%
Spot Position (See Note ▲)			

MAXIMUM CIRCUIT VALUES

Grid #1 Circuit Resistance	1.5	meg. max.

NOTES:

♦ *Cathode should be returned to one side or to the mid-tap of the heater transformer winding.*

⊕ *Visual extinction of an undeflected focused spot.*

□ *For optimum and uniform focus over the entire useful screen it is recommended that dynamic focus be used. The waveshape of the dynamic focus voltage will depend on the type of scan used. However a variation of 100 volts on the focus electrode will maintain optimum focus across the diameter of the screen.*

● *Line Width is defined as the width at the half amplitude point of the light energy distribution of the line. The line width is measured at a peak current of 10 μa and a 30 μsec./inch scanning rate. The line width remains essentially constant over a wide range of brightness and current.*

▲ *The center of the undeflected, focused spot falls within a circle of 15 mm diameter centered on faceplate.*

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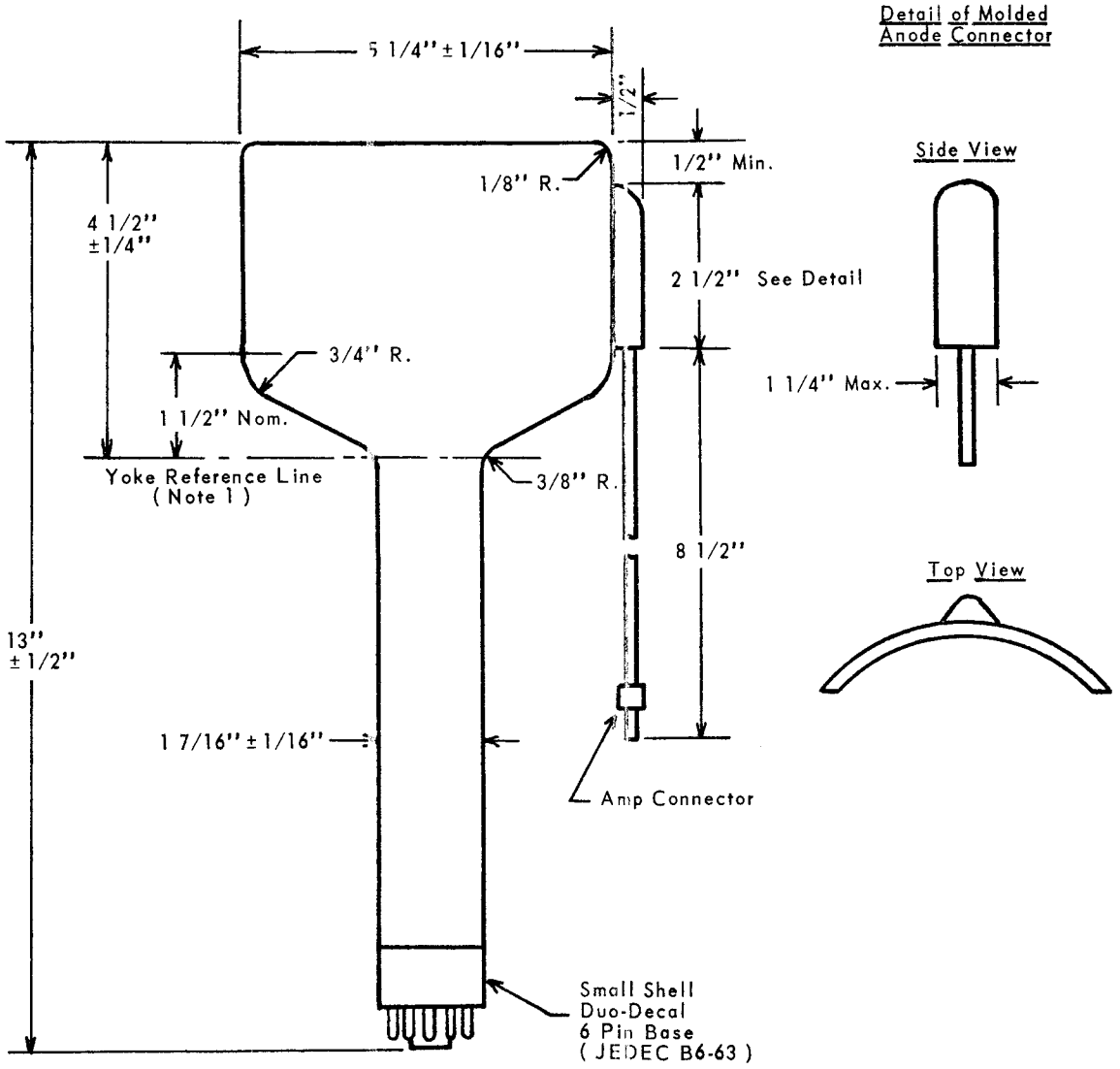

Note 1: Yoke Reference Line is the plane where a 1.500" + 0.003", –0.000" I.D. Ring Gauge will stop.

Note 2: Molded Anode Connector alignment with vacant pin position No. 3 has angular tolerance of = 10° measured about the tube axis.