

# Technical Information

## CK1381 P-

### CATHODE RAY TUBE

The type CK1381P- is a 16-inch electrostatic focus and magnetic deflection cathode-ray tube suitable for radar applications. A low-voltage electrostatic focus lens is employed, designed to operate at or near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. In addition, the CK1381P- employs a high resolution electron gun. The faceplate is of gray filter glass.

This type has a metallized hi-efficiency screen for greater light output, improved contrast, and minimizing screen charging effects.

#### MECHANICAL DATA

BASE. . . Small Shell Duodecal 7-Pin  
CAP . . . . . Recessed Small Cavity  
MOUNTING POSITION. . . . . Any

#### GENERAL DATA

Phosphor	#2	#7	#25
Fluorescence	Blue-Green	Blue	Orange
Phosphorescence	Green	Yellow	Orange
Persistence	Medium	Long	Long
Focusing Method	Electrostatic		
Deflecting Method	Magnetic		
Deflection Angle (Approx.)	52°		

#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS:

Heater Voltage . . . . .	6.3 ± 10% volts
Heater Current . . . . .	0.6 amps.
Peak Heater-Cathode Voltage: (Max.):♦	
Heater Negative with Respect to Cathode . . . . .	180 volts DC
Heater Positive with Respect to Cathode . . . . .	180 volts DC

##### DIRECT INTERELECTRODE CAPACITANCES: (μFds.) (approx.)

Grid #1 to all other electrodes. . . . .	6
Cathode to all other electrodes . . . . .	5

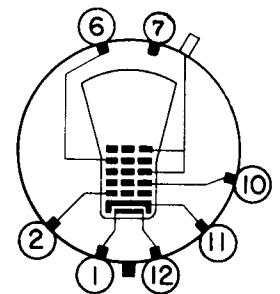
##### DESIGN CENTER MAXIMUM RATINGS:

Collector Voltage ▲. . . . .	18,000 volts DC
Grid #4 Voltage (Focusing Electrode). . . . .	-500 to + 1000 volts DC
Grid #2 Voltage . . . . .	700 volts DC
Grid #1 Voltage:	
Negative-Bias Value. . . . .	180 volts DC
Positive-Bias Value* . . . . .	0 volts DC
Positive-Peak Value . . . . .	0 volts DC

##### CHARACTERISTICS AND TYPICAL OPERATION:

Collector Voltage ▲. . . . .	14,000 volts DC
Grid #4 Voltage (Focusing Electrode) ●. . . . .	0 to 350 volts DC
Grid #4 Current . . . . .	
Grid #2 Voltage . . . . .	350 volts DC
Grid #1 Voltage ⊕ . . . . .	-40 to -70 volts DC

BASING



BOTTOM VIEW

#### TERMINAL CONNECTIONS

- Pin 1 Heater
- Pin 2 Grid #1
- Pin 6 Grid #4
- Pin 7 No Connection
- Pin 10 Grid #2
- Pin 11 Cathode
- Pin 12 Heater
- Cap Grids #3 and #5  
Collector



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### CHARACTERISTICS AND TYPICAL OPERATION (Cont'd.):

Line Width ■ . . . . .	.015 inch max.
Light Output ★ . . . . .	75 F.L. (P2 only)
Spot Position (undeflected) □ . . . . .	5/8 inch

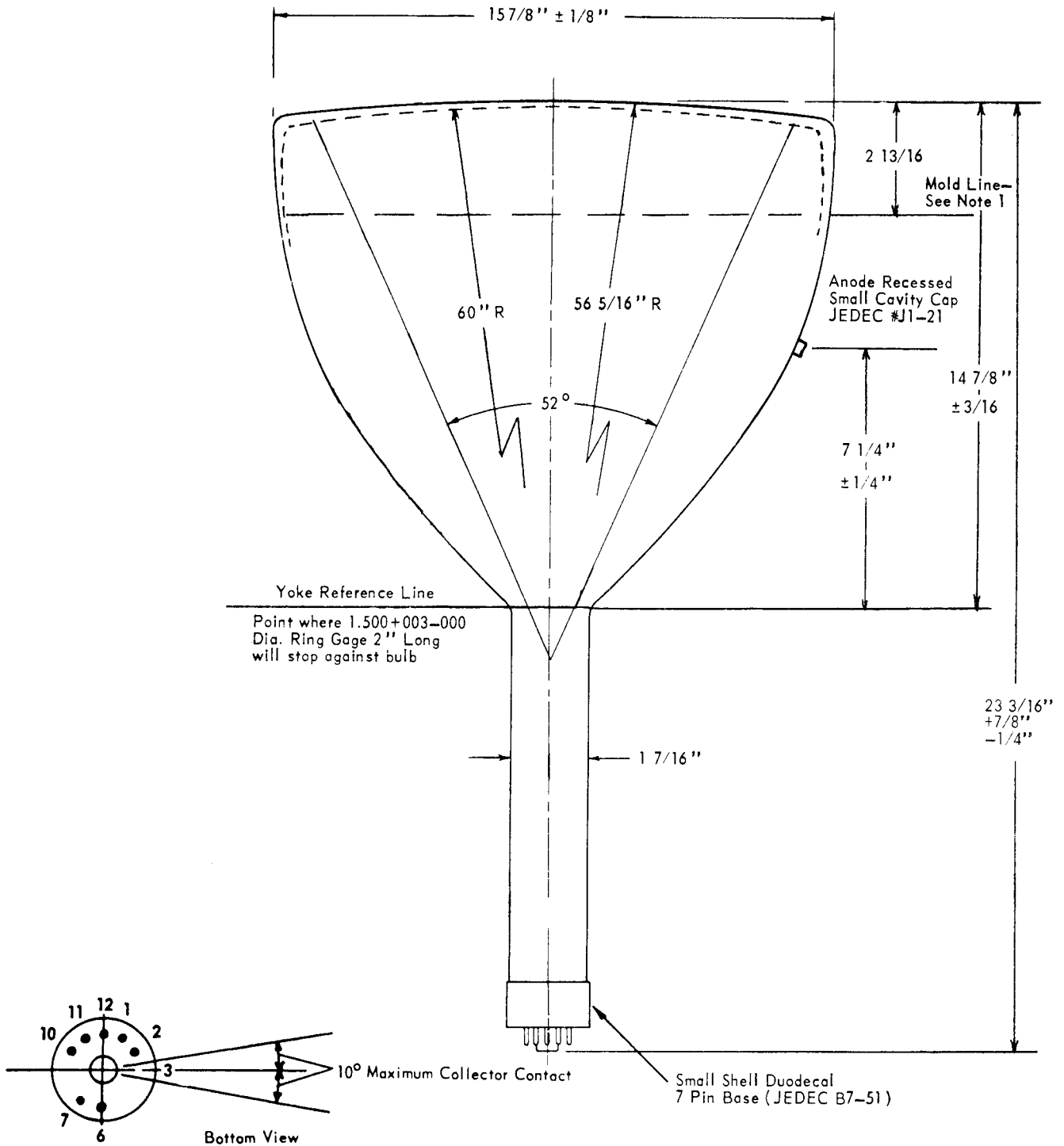
### MAXIMUM CIRCUIT VALUES:

Grid #1 Circuit Resistance . . . . .	1.5 max. megohms
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- \* At or near this rating, the effective resistance of the collector supply should be adequate to limit the collector input power to 6 watts.
- ▲ Collector grids #3 and #5 are connected internally and are referred to as collectors. Brilliance and definition decrease with decreasing collector voltages. In general, collector voltage should not be less than 7000 volts.
- ◆ Cathode should be returned to one side or to the mid-tap of the heater transformer winding.
- With grid #1 voltage adjusted to produce a collector current of 250  $\mu$ A, with the pattern adjusted for best overall focus. Measured with a 525-line interlaced and synchronized 14 X 14 inch pattern.
- ⊕ Spot cutoff (undeflected focused spot).
- 525 line raster 14" wide  $I_{A2} = 250 \mu$ A.
- The center of the undeflected, focused spot will fall within a circle of 5/8 inch radius concentric with the center of the tube face, with tube shielded.
- ★ 525 line raster, retrace blanked, 14" square  $I_{A2}$  will be no more than 250  $\mu$ A to reach 75 F.L. at screen.

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NOTE 1: It is recommended that the tube mounting clamps not be positioned on the mold line.