



IP42

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# VACUUM PHOTOTUBE

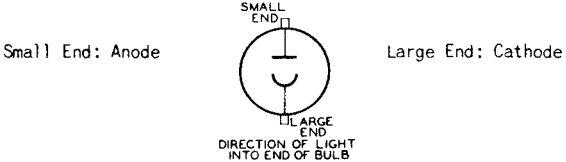
END TYPE WITH S-9 RESPONSE

## DATA

### General:

Spectral Response . . . . .	S-9	←
Wavelength of Maximum Response. . . . .	4800 ± 500 angstroms	←
Cathode:		
Shape . . . . .	Circular	
Window Area . . . . .	0.030 sq.in.	
Minimum Diameter. . . . .	0.19"	
Direct Interelectrode Capacitance . . . . .	1.9 μmf	←
Overall Length. . . . .	1-11/32" ± 1/16"	
Maximum Diameter. . . . .	1/4"	
Bulb. . . . .	T-2	
Mounting Position . . . . .	Any	

### TERMINAL CONNECTIONS



### Maximum Ratings, Absolute Values:

ANODE-SUPPLY VOLTAGE (DC or Peak AC)	180 max. . . . .	volts
PEAK CATHODE CURRENT. . . . .	1.5 max. . . . .	μamp
PEAK CATHODE-CURRENT DENSITY. . . . .	100 max. . . . .	μamp/sq.in.
AVERAGE CATHODE CURRENT <sup>o</sup> . . . . .	0.4 max. . . . .	μamp
AMBIENT TEMPERATURE . . . . .	75 max. . . . .	°C

### Characteristics:

	<u>Min.</u>	<u>Average</u>	<u>Max.</u>	
Dark Current at 180 Volts . . . . .	-	-	0.005	μamp
Sensitivity:				
At 4800 Angstroms . . . . .	-	0.020	-	μamp/μwatt ←
Luminous <sup>▲</sup> . . . . .	20	30	50	μamp/lumen ←

<sup>o</sup> Averaged over any interval of 30 seconds maximum.

<sup>▲</sup> Measured under conditions specified on sheet "PHOTOTUBE SENSITIVITY and SENSITIVITY MEASUREMENTS", at the front of this Section, except that the anode supply is 180 volts and the light flux is 0.015 lumen.

SPECTRAL-SENSITIVITY CHARACTERISTIC  
of Phototube having S-9 Response  
is shown at the front of this Section

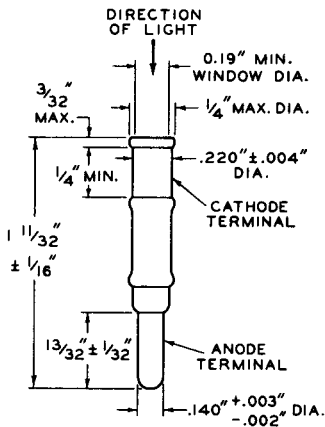
← Indicates a change.

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## VACUUM PHOTOTUBE



**NOTE:** WHEN TUBE IS ROTATED ABOUT THE LONGITUDINAL AXIS OF ITS CATHODE TERMINAL, NO PART OF THE ANODE TERMINAL WILL FALL OUTSIDE OF A 0.241"-DIAMETER CIRCLE CONCENTRIC WITH THE LONGITUDINAL AXIS OF THE CATHODE TERMINAL.

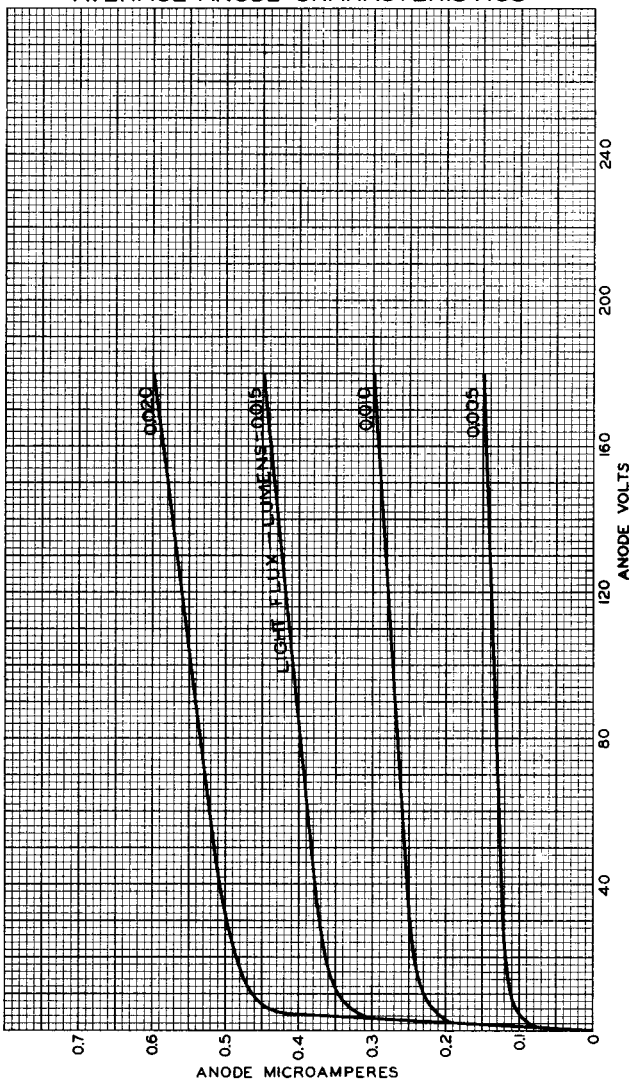
92CS-6791R2



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### AVERAGE ANODE CHARACTERISTICS



APRIL 7, 1950

ANODE MICROAMPERES

ANODE VOLTS

TUBE DEPARTMENT

92CM-6783R2

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

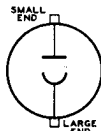
## Vacuum Phototube

### HEAD-ON TYPE WITH S-9 RESPONSE

#### DATA

#### General:

Spectral Response . . . . .	S-9
Wavelength of Maximum Response . . . . .	4800 ± 500 angstroms
Cathode, Semitransparent:	←
Shape . . . . .	Circular
Window:	
Area . . . . .	0.03 sq. in.
Minimum diameter . . . . .	0.19"
Direct Interelectrode Capacitance . . . . .	1.9 μf
Maximum Overall Length . . . . .	1-11/32" ± 1/16"
Maximum Diameter . . . . .	1/4"
Operating Position . . . . .	.Any
Weight (Approx.) . . . . .	0.1 oz ←
Bulb . . . . .	T2 ←
Terminal Diagram (See <i>Dimensional Outline</i> ) . . . . .	.2AT ←



Small End: Anode

Large End: Cathode

DIRECTION OF LIGHT:  
INTO END OF BULB

#### Maximum Ratings, Absolute-Maximum Values:

ANODE-SUPPLY VOLTAGE (DC or PEAK AC) . . . . .	180 max.	volts
AVERAGE CATHODE-CURRENT DENSITY <sup>•</sup> . . . . .	25 max.	μa/sq. in.
AVERAGE CATHODE CURRENT <sup>•</sup> . . . . .	0.4 max.	μa
AMBIENT TEMPERATURE . . . . .	75 max.	°C

#### Characteristics:

With an anode-supply voltage of 180 volts unless otherwise specified

Min.    Median    Max.

Sensitivity:			
Radiant, at 4800 angstroms . . . . .	-	0.025	-    μa/μW
Luminous <sup>#</sup> . . . . .	20	37	70    μa/lumen
Anode Dark Current at 25° C. . . . .	-	-	0.005    μa

<sup>•</sup> Averaged over any interval of 30 seconds maximum.

<sup>#</sup> For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870° K. The supply voltage is 180 volts, the load resistor is 1 megohm, and the light input is 0.015 lumen.

← indicates a change.

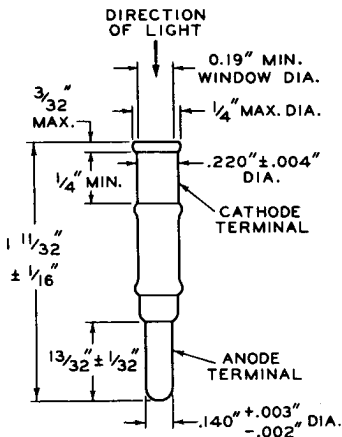


## OPERATING CONSIDERATIONS

Exposure to intense illumination, such as direct sunlight, may decrease the sensitivity of the 1P42 even though no voltage is applied to the tube. The magnitude and duration of the decrease depend on the length of the exposure.

Shielding of the 1P42 and its leads to the amplifier is recommended when amplifier gain is high or when the phototube load resistance is high. Whenever frequency response is important in a phototube circuit, the leads from the phototube to the amplifier should be made short so as to minimize capacitance shunting of the phototube load. It is important that insulation of associated circuit parts and wiring be adequate.

### SPECTRAL-SENSITIVITY CHARACTERISTIC of Phototube having S-9 Response is shown at front of this Section

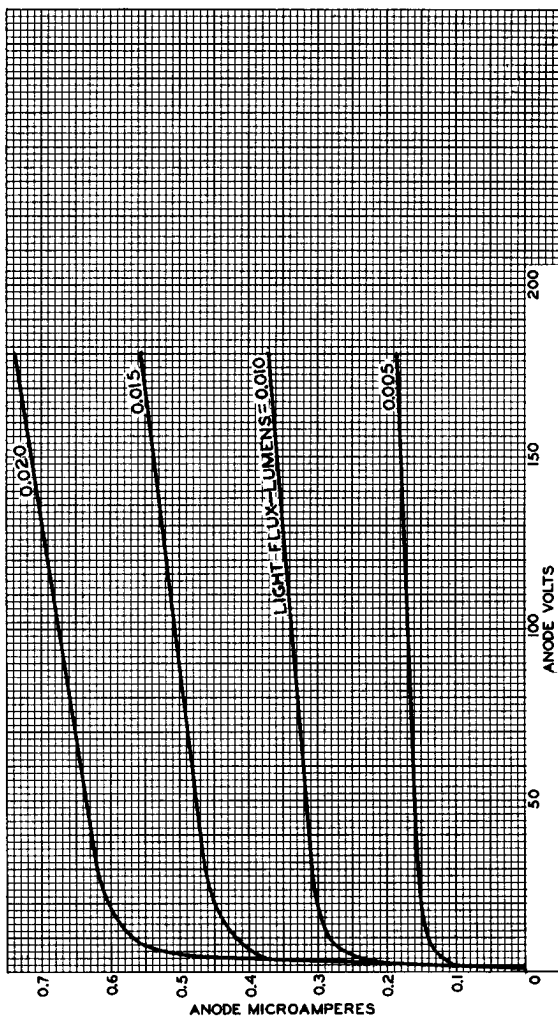


**NOTE:** WHEN TUBE IS ROTATED ABOUT THE LONGITUDINAL AXIS OF ITS CATHODE TERMINAL, NO PART OF THE ANODE TERMINAL WILL FALL OUTSIDE OF A 0.241"-DIAMETER CIRCLE CONCENTRIC WITH THE LONGITUDINAL AXIS OF THE CATHODE TERMINAL.

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→ Indicates a change.

## AVERAGE ANODE CHARACTERISTICS



92CM-10757

