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930

# GAS PHOTOTUBE

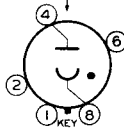
RED-IRRED SENSITIVE

## DATA

### General:

Spectral Response. . . . .	S-1
Wavelength of Maximum Response . . . . .	8000 Angstroms
<b>Cathode:</b>	
Shape. . . . .	Semi-Cylindrical
Minimum Projected Length* . . . . .	13/16"
Minimum Projected Width* . . . . .	5/8"
Center Length (from bottom edge of base) . . . . .	1-31/32" $\pm$ 3/32"
Direct Interelectrode Capacitance. . . . .	2.6 $\mu$ f
Mounting Position. . . . .	Any
Maximum Overall Length . . . . .	3-1/16"
Maximum Seated Length. . . . .	2-1/2"
Maximum Diameter . . . . .	1-5/16"
Bulb . . . . .	T-9
Base . . . . .	Intermediate Shell Octal 5-Pin

BOTTOM VIEW  
DIRECTION OF LIGHT



Pin 1 - No Connection  
 Pin 2 - No Connection  
 Pin 4 - Anode

Pin 6 - No Connection  
 Pin 8 - Cathode

### Maximum Ratings, Absolute Values:

ANODE-SUPPLY VOLTAGE (DC or Peak AC)	90 max. . . . .	volts
CATHODE-CURRENT DENSITY. . . . .	100 max. $\mu$ amp/sq.in.	
AVERAGE CATHODE CURRENT <sup>o</sup> . . . . .	20 max. . . . .	$\mu$ amp
AMBIENT TEMPERATURE. . . . .	100 max. . . . .	$^{\circ}$ C

### Characteristics:

Maximum Dark Current at 90 volts . . . . .	0.1 . . . . .	$\mu$ amp
<b>Sensitivity:</b>		
At 8000 Angstroms. . . . .	0.0135 . . . . .	$\mu$ amp/sq.in.
<b>Luminous:</b>		
At 0 Cycles. . . . .	135 . . . . .	$\mu$ amp/lumen
At 5000 Cycles . . . . .	111 . . . . .	$\mu$ amp/lumen
At 10000 Cycles. . . . .	101 . . . . .	$\mu$ amp/lumen
Max. Gas Amplification Factor. . . . .	10	

### Minimum Circuit Values:

#### Minimum DC Load Resistance:

With anode-supply voltage of 75 volts or less:

For dc currents {	above 3.5 $\mu$ amp. . . . .	0.1 . . . . .	megohm
	below 3.5 $\mu$ amp. . . . .	No Minimum	

With anode-supply voltage of 90 volts:

For dc currents {	above 2 $\mu$ amp. . . . .	2.5 . . . . .	megohm
	below 2 $\mu$ amp. . . . .	0.1 . . . . .	megohm

\* on plane perpendicular to indicated direction of incident light.

<sup>o</sup> on the basis of the use of a sensitive cathode area 1/2" in diameter.

930



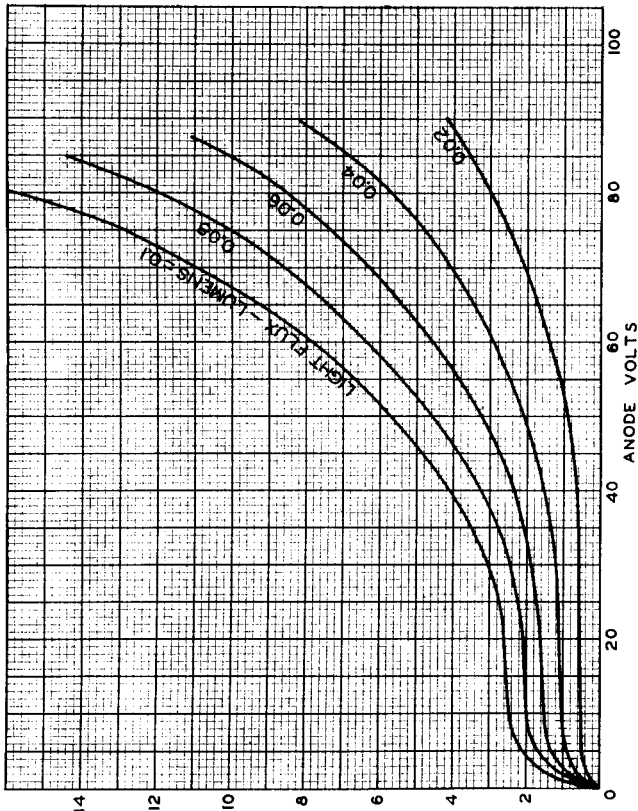
930

## GAS PHOTOTUBE

OUTLINE DIMENSIONS  
for the 930 are the same as those for the 929

Spectral Sensitivity Characteristic of Phototube having  
S-1 Response is shown at the beginning of this section

### AVERAGE ANODE CHARACTERISTICS



ANODE MICROAMPERES  
TUBE DEPARTMENT

AUG. 15, 1946

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

CE-4806R1

## Gas Phototube

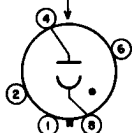
## SIDE-ON TYPE HAVING S-1 RESPONSE

## DATA

## General:

Spectral Response . . . . .	S-1
Wavelength of Maximum Response. . . . .	8000 $\pm$ 1000 angstroms
Cathode:	
Shape . . . . .	Semicylindrical
Minimum projected length <sup>a</sup> . . . . .	13/16"
Minimum projected width <sup>a</sup> . . . . .	5/8"
Direct Interelectrode Capacitance (Approx.) . . . . .	2.4 $\mu$ f
Maximum Overall Length. . . . .	3-1/16"
Maximum Seated Length . . . . .	2-1/2"
Seated Length to Center of Cathode. . . . .	1-5/8" $\pm$ 3/32"
Maximum Diameter. . . . .	1-9/32"
Operating Position. . . . .	Any
Weight (Approx.). . . . .	0.9 oz
Bulb. . . . .	T9
Socket. . . . .	Cinch No. 8JM-1, or equivalent ←
Base. . . . .	Intermediate-Shell Octal 5-Pin Arrangement 1, (JEDEC No. B5-10)
Basing Designation for BOTTOM VIEW. . . . .	3J

DIRECTION OF RADIATION



Pin 1 - No Connection  
Pin 2 - No Connection  
Pin 4 - Anode

Pin 6 - No Connection  
Pin 8 - Photocathode

## Maximum Ratings, Absolute-Maximum Values:

	Rating I	Rating II	
ANODE-SUPPLY VOLTAGE (DC or Peak AC) . . . . .	70 max.	90 max.	volts
AVERAGE CATHODE-CURRENT DENSITY <sup>b</sup> . . . . .	60 max.	30 max.	$\mu$ a/sq. in.
AVERAGE CATHODE CURRENT <sup>b</sup> . . . . .	6 max.	3 max.	$\mu$ a
AMBIENT TEMPERATURE . . . . .	100 max.	100 max.	$^{\circ}$ C

## Characteristics:

With an anode-supply voltage of 90  
volts unless otherwise specified

Min. Median Max.

## Sensitivity:

Radiant, at 8000 angstroms . . . . .	-	0.013	-	amp/watt ←
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← Indicates a change.



	Min.	Median	Max.	
Luminous: <sup>c</sup>				
At 0 cps. . . . .	90	135	205	$\mu\text{a/lumen}$
At 5000 cps. . . . .	-	111	-	$\mu\text{a/lumen}$
At 10000 cps. . . . .	-	101	-	$\mu\text{a/lumen}$
Gas Amplification Factor <sup>d</sup> . . . . .	-	-	10	
Anode Dark Current at 25 <sup>o</sup> C . . . . .	-	-	0.1	$\mu\text{a}$

**Minimum Circuit Values:**

With an anode-supply voltage of 70 or less 90 volts

**DC Load Resistance:**

For dc currents above 3 $\mu\text{a}$ . . . . .	0.1 min.	-	megohm
For dc currents below 3 $\mu\text{a}$ . . . . .	0 min.	-	megohms
For dc currents above 2 $\mu\text{a}$ . . . . .	-	2.5 min.	megohms
For dc currents below 2 $\mu\text{a}$ . . . . .	-	1 min.	megohm

- <sup>a</sup> On plane perpendicular to indicated direction of incident radiation.
- <sup>b</sup> Averaged over any interval of 30 seconds maximum.
- <sup>c</sup> For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870<sup>o</sup> K. A dc anode supply voltage of 90 volts and a 1-megohm load resistor are used. For the 0-cycle measurement, a light input of 0.1 lumen is used. For the 5000- and 10,000-cycle measurements, the light input is varied sinusoidally about a mean value of 0.015 lumen from zero to a maximum of twice the mean value.
- <sup>d</sup> The ratio of luminous sensitivity at an anode supply voltage of 90 volts to luminous sensitivity at an anode supply voltage of 25 volts. In each case, sensitivity is obtained under conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870<sup>o</sup> K, the light input is 0.1 lumen, and the load resistor has a value of 1 megohm.

**SPECTRAL-SENSITIVITY CHARACTERISTIC  
OF PHOTSENSITIVE DEVICE HAVING S-I RESPONSE**

and

**FREQUENCY-RESPONSE CHARACTERISTICS  
OF GAS PHOTOTUBES**

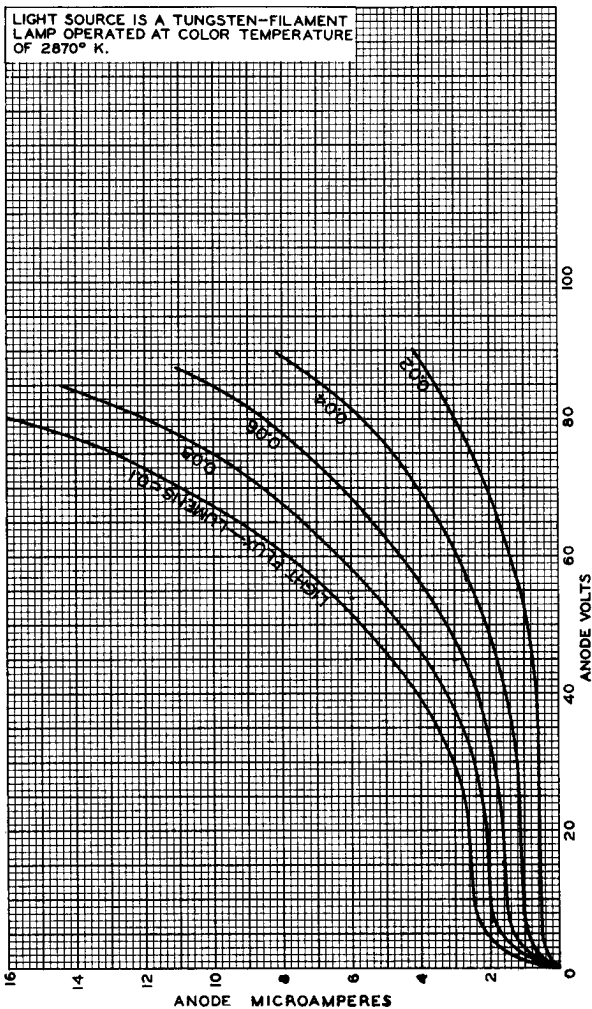
are shown at the front of this section

**DIMENSIONAL OUTLINE**

shown under Type 5581 also applies to the 930



## AVERAGE ANODE CHARACTERISTICS



92CM-4806R2

