



# 927 GAS PHOTOTUBE

WITH S-1 RESPONSE

## DATA

**General:**

Spectral Response . . . . .	S-1
Wavelength of Maximum Response. . . . .	8000 ± 1000 angstroms
Cathode:	
Shape . . . . .	Semi-Cylindrical
Minimum Projected Length* . . . . .	11/16"
Minimum Projected Width*. . . . .	7/16"
Direct Interelectrode Capacitance . . . . .	2 μmf
Maximum Overall Length. . . . .	2-13/32" ←
Maximum Seated Length . . . . .	1-15/16" ←
Seated Length to Center of Cathode. . . . .	1-1/4" ± 3/32"
Maximum Diameter. . . . .	0.669" ←
Bulb. . . . .	T-5-1/4" ←
Mounting Position . . . . .	Any
Base. . . . .	Small-Shell Peewee 3-Pin
Basing Designation for BOTTOM VIEW. . . . .	2F

Pin 1 - No  
Connection

DIRECTION OF LIGHT



Pin 2 - Anode  
Pin 3 - Cathode

**Maximum Ratings, Absolute Values:**

ANODE-SUPPLY VOLTAGE (DC or Peak AC)	90 max. . . . .	volts
PEAK CATHODE CURRENT. . . . .	6 max. . . . .	μamp
PEAK CATHODE-CURRENT DENSITY. . . . .	100 max. . . . .	μamp/sq. in.
AVERAGE CATHODE CURRENT <sup>o</sup> . . . . .	2 max. . . . .	μamp
AMBIENT TEMPERATURE . . . . .	100 max. . . . .	°C

**Characteristics:**

	<u>Min.</u>	<u>Av.</u>	<u>Max.</u>	
DC Dark Current <sup>■</sup> . . . . .	-	-	0.1 . . . .	μamp
Sensitivity:				
At 8000 angstroms . . . . .	-	0.0125	-	μamp/μwatt
Luminous:				
At 0 cps. . . . .	75	125	185	μamp/lumen
At 5000 cps . . . . .	-	110	-	μamp/lumen
At 10000 cps. . . . .	-	100	-	μamp/lumen
Gas Amplification Factor. . . . .	-	-	10	

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

o Averaged over any interval of 30 seconds maximum. Average current may be doubled when anode-supply voltage is limited to 70 volts.

■ At 25°C and 90 volts.

← Indicates a change.

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# 927 GAS PHOTOTUBE

## Minimum Circuit Values:

DC Load Resistance:

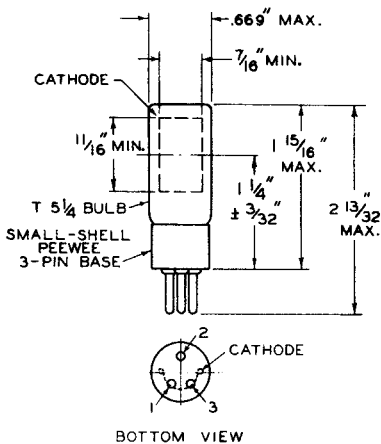
*With anode-supply voltage of 70 volts or less:*

For dc currents { above  $2 \mu\text{amp}$  . . . 0.1 . . . megohm  
below  $2 \mu\text{amp}$  . . . No Minimum

*With anode-supply voltage of 90 volts:*

For dc currents { above  $1.0 \mu\text{amp}$  . . . 2.5 . . . megohms  
below  $1.0 \mu\text{amp}$  . . . 0.1 . . . megohm

SPECTRAL-SENSITIVITY CHARACTERISTIC  
of Phototube having S-1 Response  
and  
FREQUENCY-RESPONSE CHARACTERISTICS  
of Gas Phototubes  
are shown at the front of this Section



92CM-6053R4

→ Indicates a change.

SEPT. 1, 1950

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

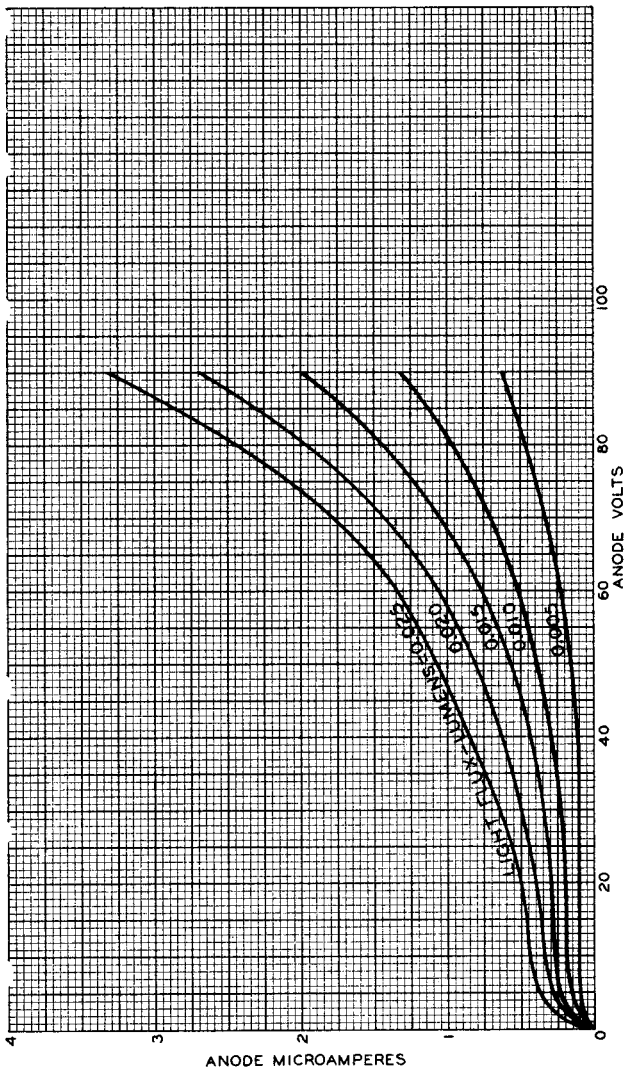
DATA



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### AVERAGE ANODE CHARACTERISTICS



APRIL 5, 1950

TUBE DEPARTMENT  
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-6258R2

## Gas Phototube

## SIDE-ON TYPE HAVING S-1 RESPONSE

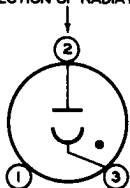
## DATA

## General:

Spectral Response . . . . .	S-1
Wavelength of Maximum Response. . . . .	8000 ± 1000 angstroms
Cathode:	
Shape . . . . .	Semicylindrical
Minimum projected length <sup>a</sup> . . . . .	11/16"
Minimum projected width <sup>a</sup> . . . . .	7/16"
Direct Interelectrode Capacitance (Approx.) . . . . .	2 μμf
Maximum Overall Length. . . . .	2-13/32"
Maximum Seated Length . . . . .	1-15/16"
Seated Length to Center of Cathode. . . . .	1-1/4" ± 3/32"
Maximum Diameter. . . . .	0.669"
Operating Position. . . . .	Any
Weight (Approx.) . . . . .	0.3 oz ←
Bulb. . . . .	T5-1/4
Socket. . . . .	Amphenol No. 78S3S-T, or equivalent ←
Base. . . . .	Small-Shell Peewee 3-Pin (JEDEC No. A3-1)
Basing Designation for BOTTOM VIEW. . . . .	2F

## DIRECTION OF RADIATION

Pin 1 - No Internal  
Connection



Pin 2 - Anode  
Pin 3 - 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.	μa/sq.in.
AVERAGE CATHODE CURRENT <sup>b</sup> . . . . .	4 max.	2 max.	μa
AMBIENT TEMPERATURE . . . . .	100 max.	100 max.	°C

## Characteristics: ←

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

	Min.	Median	Max.
Sensitivity:			
Radiant, at 8000 angstroms . . . . .	-	0.012	- amp/watt

← Indicates a change.



	<i>Min.</i>	<i>Median</i>	<i>Max.</i>	
Luminous: <sup>c</sup>				
At 0 cps. . . . .	75	125	185	$\mu\text{a/lumen}$
At 5000 cps. . . . .	-	110	-	$\mu\text{a/lumen}$
At 10000 cps. . . . .	-	100	-	$\mu\text{a/lumen}$
Gas Amplification Factor <sup>d</sup> . . . . .	-	-	10	
Anode Dark Current at 25° 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 2 $\mu\text{a}$ .	0.1 min.	-	megohm
For dc currents below 2 $\mu\text{a}$ .	0 min.	-	megohm
For dc currents above 1 $\mu\text{a}$ .	-	2.5 min.	megohms
For dc currents below 1 $\mu\text{a}$ .	-	0.1 min.	megohm

<sup>a</sup> on plane perpendicular to indicated direction of 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° K. A dc anode supply 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 10000-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.

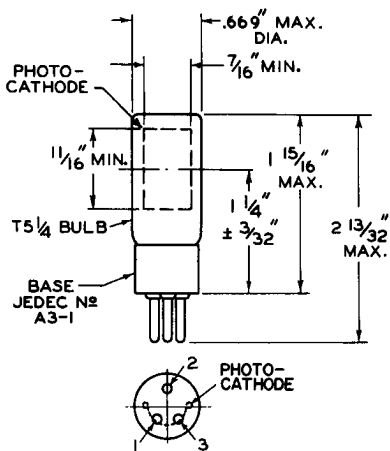
<sup>d</sup> The ratio of luminous sensitivity at an anode-supply voltage of 90 volts to luminous sensitivity at an anode-supply voltage of 25 volts. In each case, sensitivity is obtained under conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870° K, the light input is 0.1 lumen, and the load resistor has a value of 1 megohm.

**SPECTRAL-SENSITIVITY CHARACTERISTIC  
OF PHOTOSENSITIVE DEVICE HAVING S-1 RESPONSE**

and

**FREQUENCY-RESPONSE CHARACTERISTICS  
OF GAS PHOTOTUBES**

are shown at the front of this section

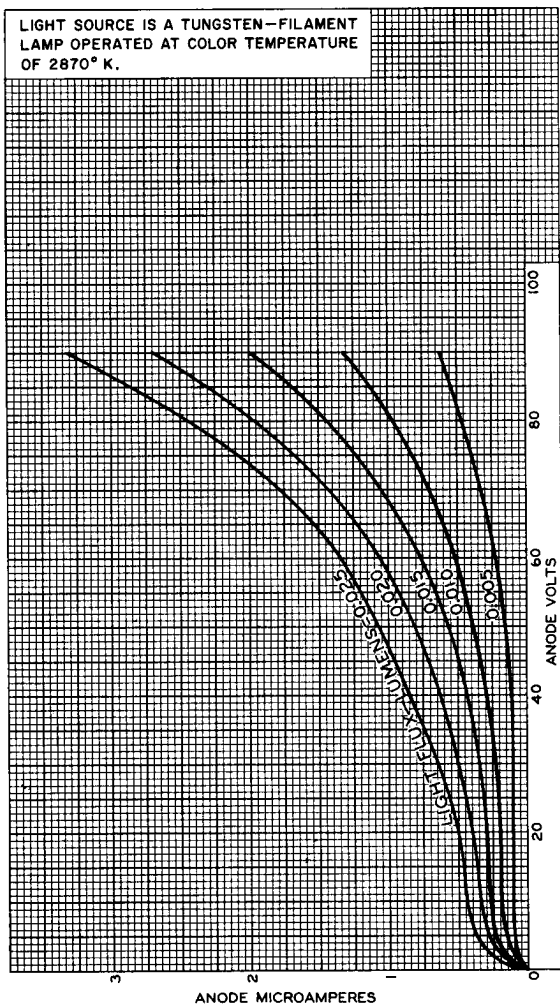


92CM-6053R5



## AVERAGE ANODE CHARACTERISTICS

LIGHT SOURCE IS A TUNGSTEN-FILAMENT  
LAMP OPERATED AT COLOR TEMPERATURE  
OF 2870° K.



92CM-6258R3

