Gas Phototube

SIDE-ON TYPE  S-1 RESPONSE

For Industrial Applications Critical as

to Microphonics and Sensitivity Gradient

DATA

General:
Spectral Response ....................................... S-1
Wavelength of Maximum Response .................. 8000 ± 1000 angstroms

Cathode:
Shape .................................................. Semicylindrical
Minimum projected length{a} ......................... 1-1/4"
Minimum projected width{a} .......................... 5/8"
Direct Interelectrode Capacitance (Approx.) .... 2.6 pf
Maximum Overall Length ............................. 4-7/16"
Maximum Seated Length ................................ 3-13/16"
Seated Length to Center of Cathode ............... 2-1/8" ± 3/32"
Maximum Diameter ..................................... 1-1/8"
Operating Position .................................... Any
Weight (Approx.) ....................................... 1.3 oz
Bulb ...................................................... T8
Socket .................................................... Amphenol No.77-MIP-4-T, or equivalent
Base ..................................................... Dwarf-Shell Small 4-Pin (JEDEC No.A4-26)

Basing Designation for BOTTOM VIEW ............. 2K

Pin 1-No Internal Connection
Pin 2-Anode

Pin 3-No Internal Connection
Pin 4-Photocathode

DIRECTION OF RADIATION

Maximum Ratings, Absolute-Maximum Values:

<table>
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<tr>
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<th>Rating I</th>
<th>Rating II</th>
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| ANODE SUPPLY VOLTAGE     | 70 max.  | 90 max.   | volts
| (DC or Peak AC)          |          |           |
| AVERAGE CATHODE-CURRENT  | 50 max.  | 25 max.   | µa/sq.in.|
| DENSITY{b}               |          |           |
| AVERAGE CATHODE CURRENT{b} | 10 max. | 5 max.    | µa        |
| AMBIENT TEMPERATURE      | 100 max. | 100 max.  | °C        |

Characteristics:

With an anode-supply voltage of 50
volts unless otherwise specified

Min. Typical Max.

Sensitivity:
Radiant, at 8000 angstroms ........ 0.0033 – a/w –

← indicates a change.
Min. Typical Max.

Luminous:

At 0 cps. 17.5 35 70 \( \mu \)a/lumen
At 5000 cps. – 30 – \( \mu \)a/lumen
At 10000 cps. – 26 – \( \mu \)a/lumen

Sensitivity Difference between highest value and lowest value along cathode length \( d \):

– – 1.1 \( \mu \)a/lumen

Gas amplification Factor \( g \):

– – 2.5

Anode Dark Current at 25\( ^\circ \) C:

– – 0.1 \( \mu \)a

Minimum Circuit Values:

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

DC Load Resistance:

For dc currents above 5 \( \mu \)a. 0.1 min. – megohm
For dc currents below 5 \( \mu \)a. 0 min. – megohm
For dc currents above 3 \( \mu \)a. – 2.5 min. megohms
For dc currents below 3 \( \mu \)a. – 0.1 min. megohm

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\( a \) On plane perpendicular to indicated direction of incident radiation.

\( b \) Averaged over any interval of 30 seconds maximum.

\( c \) For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870\( ^\circ \) K. A dc anode supply of 50 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.

\( d \) Measured under the same conditions as indicated under \( c \) with light input of 0.1 lumen and a rectangular light spot having a width of 0.315 inch and a length sufficient to cover the length of the cathode.

\( e \) The ratio of luminous sensitivity at an anode-supply voltage of 50 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\( ^\circ \) 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-I RESPONSE and FREQUENCY-RESPONSE CHARACTERISTICS OF GAS PHOTOTUBES are shown at the front of this section.
AA' IS PLANE PASSING THROUGH CENTER OF BOTTOM OF BASE PARALLEL TO PLANE THROUGH PINS 1 & 4

PLANE PASSING THROUGH SIDE RODS OF CATHODE WILL NOT DEVIATE FROM PLANE AA' BY MORE THAN 12°
AVERAGE ANODE CHARACTERISTICS

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