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" ± 7/16"
  Minimum Projected Width* .......... 2 μm
  Direct Interelectrode Capacitance .. 2 μf
  Maximum Overall Length ............ 2-13/32" ± 1-1/16"
  Maximum Seated Length ............. 2-13/32" ± 1-1/16"
  Seated Length to Center of Cathode.. 1-1/4" ± 3/32"
  Maximum Diameter .......................... 0.669" ± T-5-1/4"
  Bulb ................................ T-5-1/4"
  Mounting Position ..................... Any
  Base ................................ Small-Socket Feewee 3-Pin
  Basing Designation for BOTTOM VIEW .. 2F

   Pin 1—No Connection
   Pin 2—Anode
   Pin 3—Cathode

DIRECTION OF LIGHT

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° ............ 2 max. ... μamp
AMBIENT TEMPERATURE ................... 100 max. ... °C

Characteristics:

   Min.     Av.     Max.

DC Dark Current* .................. 0.1 ... μamp
Sensitivity:
   At 8000 angstroms ... 0.0125 ... μamp/μwatt
   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.
° 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.

 indicatess a change.

SEPT. 1, 1950
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
Minimum Circuit Values:

DC Load Resistance:

*With anode-supply voltage of 70 volts or less:*
- For dc currents above 2 μamp ... 0.1 ... megohm
- For dc currents below 2 μamp ... No Minimum

*With anode-supply voltage of 90 volts:*
- For dc currents above 1.0 μamp ... 2.5 ... megohms
- For dc currents below 1.0 μamp ... 0.1 ... megohms

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

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92CM-6053R4

*Indicates a change.

SEPT. 1, 1950

DATA

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
SIDExON TYPE HAVING S-I RESPONSE

DATA

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

Cathode:
Shape ......................................................... Semicylindrical
Minimum projected lengtha ......................... 11/16"
Minimum projected widtha .............................. 7/16"
Direct Interelectrode Capacitance (Approx.) .... 2 µf
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. 78535-T, or equivalent
Base. ......................................................... Small-Shell Pee Gee 3-Pin (JEDEC No.A3-1)
Basing Designation for BOTTOM VIEW. ....... 2F

Pin 1—No Internal Connection
Pin 2—Anode
Pin 3—Photocathode

Maximum Ratings, Absolute-Maximum Values:

<table>
<thead>
<tr>
<th></th>
<th>Rating I</th>
<th>Rating II</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANODE—SUPPLY VOLTAGE (DC or Peak AC)</td>
<td>70 max.</td>
<td>90 max.</td>
</tr>
<tr>
<td>AVERAGE CATHODE-CURRENT DENSITYb</td>
<td>60 max.</td>
<td>30 max.</td>
</tr>
<tr>
<td>AVERAGE CATHODE CURRENTb</td>
<td>4 max.</td>
<td>2 max.</td>
</tr>
<tr>
<td>AMBIENT TEMPERATURE</td>
<td>100 max.</td>
<td>100 max.</td>
</tr>
</tbody>
</table>

Characteristics:

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

Min. Median Max.

Sensitivity:
Radiant, at 8000 angstroms .... 0.012 amp/watt
<table>
<thead>
<tr>
<th>Luminous:</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>At 0 cps.</td>
<td>75</td>
<td>125</td>
<td>185</td>
</tr>
<tr>
<td>At 5000 cps</td>
<td>–</td>
<td>110</td>
<td>–</td>
</tr>
<tr>
<td>At 10000 cps</td>
<td>–</td>
<td>100</td>
<td>–</td>
</tr>
<tr>
<td>Gas Amplification Factor</td>
<td>–</td>
<td>–</td>
<td>10</td>
</tr>
<tr>
<td>Anode Dark Current at 25°C</td>
<td>–</td>
<td>–</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Minimum Circuit Values:**

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

**DC Load Resistance:**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Time</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>For dc currents above 2 µA</td>
<td>0.1 min.</td>
<td>–</td>
</tr>
<tr>
<td>For dc currents below 2 µA</td>
<td>0 min.</td>
<td>–</td>
</tr>
<tr>
<td>For dc currents above 1 µA</td>
<td>–</td>
<td>2.5 min.</td>
</tr>
<tr>
<td>For dc currents below 1 µA</td>
<td>–</td>
<td>0.1 min.</td>
</tr>
</tbody>
</table>

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*a On plane perpendicular to indicated direction of 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° 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.  
d 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-I RESPONSE**

and

**FREQUENCY-RESPONSE CHARACTERISTICS OF GAS PHOTOTUBES**

are shown at the front of this section.
AVERAGE ANODE CHARACTERISTICS

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