

Good Spatial Uniformity, Wide Angle of Radiant Input Multialkali Photocathode For UV-Visible Spectrophotometers and General Applications

R2386 is a 28mm (1-1/8 Inch) diameter, side-on photomultiplier tube having a transmission mode multialkali photocathode. The transmission mode photocathode offers better spatial uniformity and wider angle of radiation input than conventional side-on tubes which have opaque photocathodes (reflection mode photocathode). Also, this type of photocathodes is independent of polarized light.

The R2368 has a 9-stage dynode which provides high gain and employs an HA Coating for noise reduction and an "Anti-hysteresis design".

GENERAL

Parameter		Description/Value	Unit
Spectral Response		185 to 850	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Multialkali	—
	Useful Area (Minimum)	16 × 18	mm
Window Material		UV glass	—
Dynode	Structure	Circular-cage	—
	Number of Stages	9	—
Base		JEDEC No. B11-88	—
Suitable Socket		E678-11A	—
Suitable Socket Assembly		E717-05	—
Direct Interelectrode Capacitance	Anode to Last Dynode	1.2	pF
	Anode to All Other Electrodes	3.4	pF



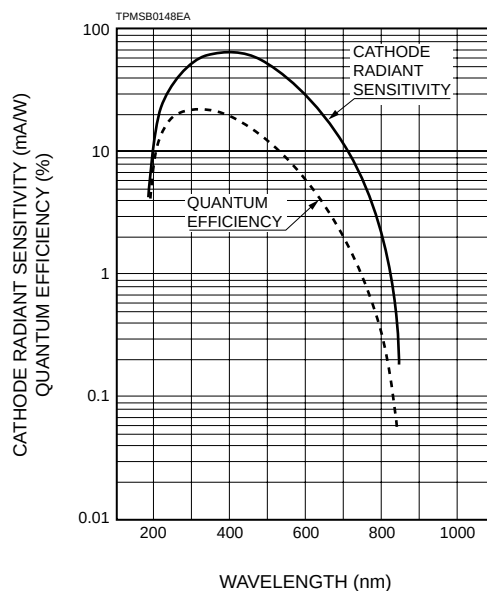
Figure 1: Typical Spectral Response

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Anode and Cathode	1250	V
	Anode and Last Dynode	250	V
Average Anode Current (NOTE 1)		0.1	mA
Ambient Temperature		-80 to +50	°C

CHARACTERISTICS (at 25°C)

Parameter	Min.	Typ.	Max.	Unit
Anode Luminous Sensitivity (NOTE 2, 3)	50	200	—	A/lm
Cathode Luminous Sensitivity (NOTE 4)	80	150	—	μA/lm
Cathode Red/White Ratio (NOTE 5)	—	0.15	—	—
Gain (NOTE 2)	—	1.3 × 10 ⁶	—	—
Anode Dark Current (NOTE 2)	—	5	50	nA
Anode Pulse Rise Time (NOTE 2, 6)	—	1.2	—	ns
Current Hysteresis (NOTE 7)	—	0.1	—	%
Voltage Hysteresis (NOTE 7)	—	1.0	—	%



PHOTOMULTIPLIER TUBE R2368

Figure 2: Typical Spatial Uniformity

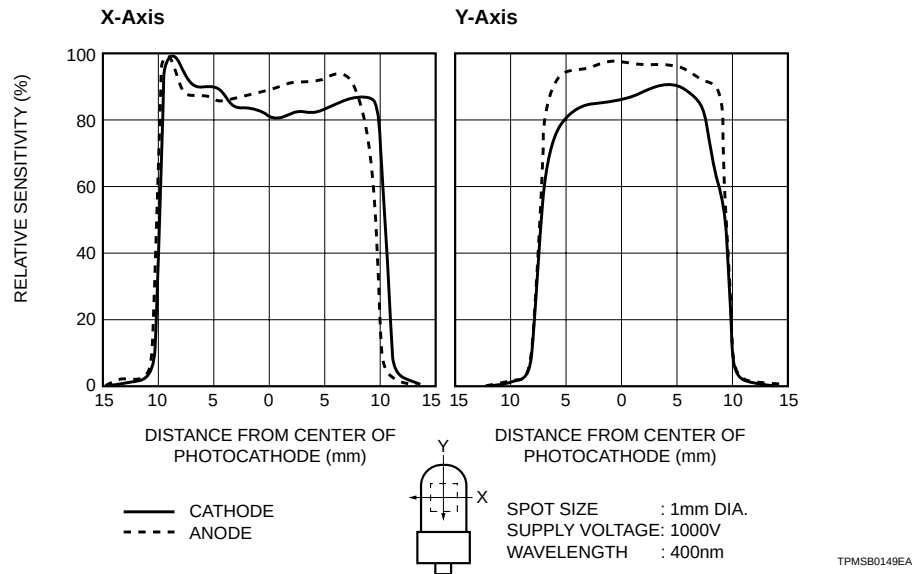
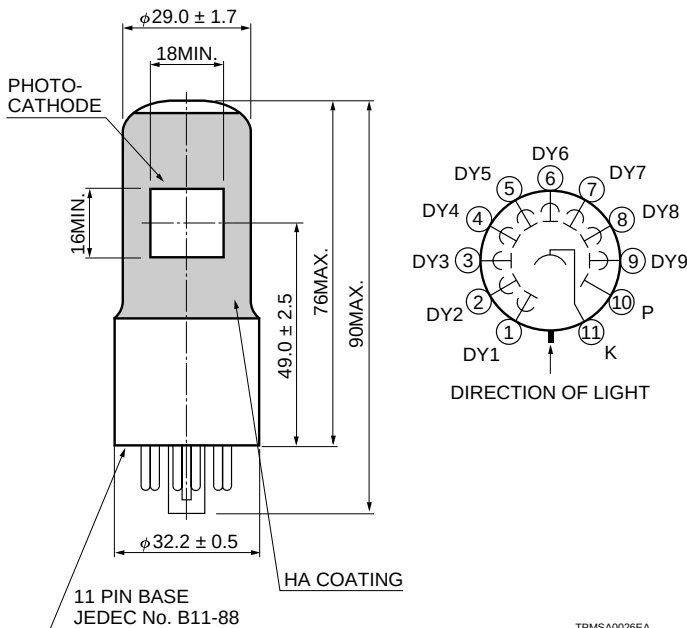


Figure 3: Dimensional Outline and Basing Diagram
(Unit: mm)



NOTES

1. Averaged over any interval of 30 seconds maximum.
2. Supply voltage of 1000 volts is applied between the cathode and the anode using the voltage distribution ratio shown below.

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	P
Distribution Ratio	1	1	1	1	1	1	1	1	1	1	1

K: Cathode, Dy: Dynode, P: Anode

3. The light source is a tungsten filament lamp operated at a distribution temperature of 2856K. The light input is 0.01 microlumen.
4. Under the same conditions as Note 3 except that the light input is 0.01 lumen and 100 volts are applied between the cathode and all other electrodes connected together as an anode.
5. The red/white ratio is the quotient of the cathode current measured using a red filter (Toshiba R-68) interposed between the light source and the tube by the cathode current measured with the filter removed under the same condition as Note 4.
6. The rise time is the time for the output pulse to rise from 10% to 90% of the peak amplitude when the entire photocathode is illuminated by a delta function light pulse.
7. Hysteresis is a temporary instability in anode current after light and voltage are applied.

Warning-Personal Safety Hazards
Electrical Shock — Operating voltage applied to this device presents shock hazard.

HAMAMATSU

HAMAMATSU PHOTONICS K.K., Eleetoron Tube Center
314-5, Shimokanzo, Toyooka-village, Iwata-gun, Shizuoka-ken, 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205
U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P. O. Box 6910 Bridgewater. N.J. 08807-0910, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218
Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658
France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trappu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10
United Kingdom: Hamamatsu Photonics UK Limited: Lough Point, 2 Gladbeck Way, Windmill Hill, Enfield, Middlesex EN2 7JA, United Kingdom, Telephone: (44)181-367-3560, Fax: (44)181-367-6384
North Europe: Hamamatsu Photonics Norden AB: Färögatan 7, S-164-40 Kista Sweden, Telephone: (46)8-703-29-50, Fax: (46)8-750-58-95
Italy: Hamamatsu Photonics Italia: S.R.L.: Via Della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)2-935 81 733, Fax: (39)2-935 81 741