

## Bialkali Photocathode 28 mm (1-1/8 Inch) Diameter, Side-on Type

### FEATURES

- High Sensitivity in UV to Visible Range
- High Quantum Efficiency  
40 % (at 350 nm)
- High Anode Sensitivity  
11.3 × 10<sup>5</sup> A/W (at 350 nm)  
12.0 × 10<sup>5</sup> A/W (at 420 nm)

### APPLICATIONS

- Fluorescence Spectrophotometer
- Emission Spectrophotometer
- Atomic Absorption Spectrophotometer

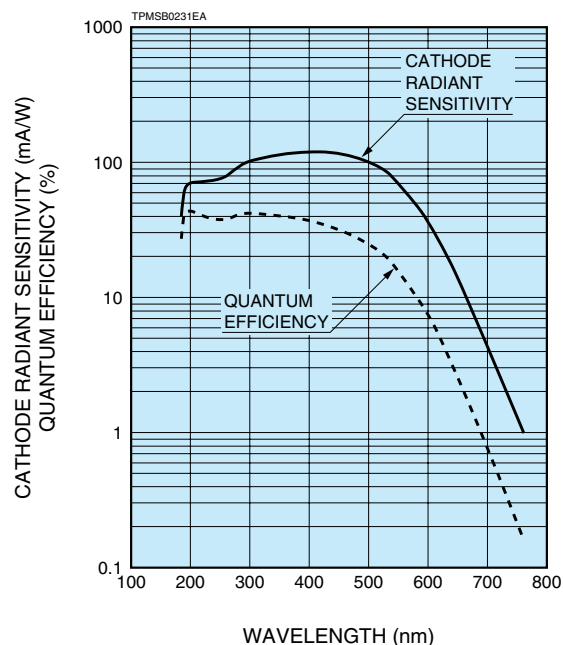


### SPECIFICATIONS

#### GENERAL

Parameter	Description / Value	Unit
Spectral Response	185 to 760	nm
Wavelength of Maximum Response	420	nm
Photocathode Material	Bialkali	—
Window Material	UV glass	—
Minimum Effective Area	8 × 24	mm
Dynode	Structure	Circular-cage
	Number of Stage	9
Direct Capacitance	Anode to Dynode No.9	4 pF
Interelectrode Capacitances	Anode to All Other Electrodes	6 pF
Base	11-pin base	—
Weight	45	g
Suitable Socket for Base	E678-11A	—

Figure 1: Typical Spectral Response



# PHOTOMULTIPLIER TUBES R11540

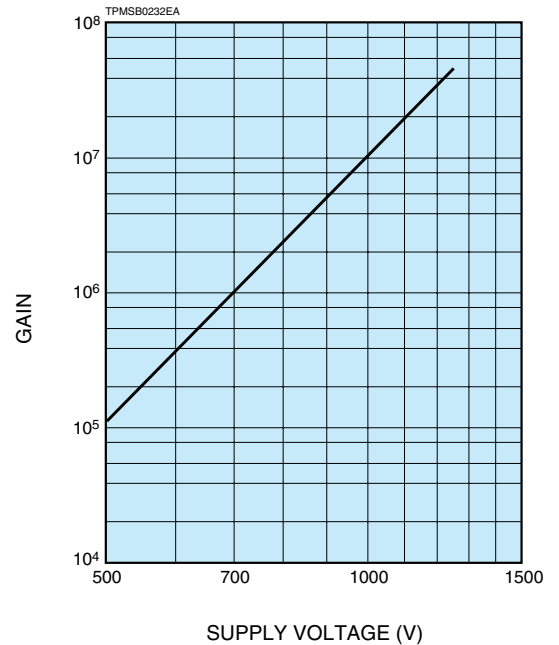
## MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	1250	V
	Between Each Succeeding Electrode	250	V
Average Anode Current		0.1	mA

## CHARACTERISTICS (at 25°C)

Parameter		Min.	Typ.	Max.	Unit	
Anode Sensitivity	Luminous Sensitivity (2856 K)	1300	1900	—	A/lm	
	Radiant	at 350 nm	—	$11.3 \times 10^5$	—	A/W
		at 420 nm	—	$12.0 \times 10^5$	—	A/W
Cathode Sensitivity	Luminous Sensitivity (2856 K)	160	190	—	$\mu\text{A/lm}$	
	Quantum Efficiency	at 350 nm	—	40	—	%
		at 420 nm	—	113	—	mA/W
	Radiant	at 350 nm	—	113	—	mA/W
		at 420 nm	—	120	—	mA/W
	Blue Sensitivity Index (CS 5-58 Filter)	13	16	—	—	
Red / White Ratio (R-68 Filter)	—	0.02	—	—		
Gain		—	$1.0 \times 10^7$	—	—	
Anode Dark Current (after 30 min storage in darkness)		—	5	50	nA	
Anode Current Stability	Light Hysteresis	—	0.1	—	%	
	Voltage Hysteresis	—	1.0	—	%	
ENI		—	$1.1 \times 10^{-16}$	—	W	
EADCl at 1000 V		—	$2.9 \times 10^{-12}$	—	lm	
Time Response	Anode Pulse Rise Time	—	2.2	—	ns	
	Electron Transit Time	—	22	—	ns	
Operating Ambient Temperature		—	-30 to +50	—	°C	
Storage Temperature		—	-30 to +50	—	°C	

Figure 2: Typical Gain Characteristics

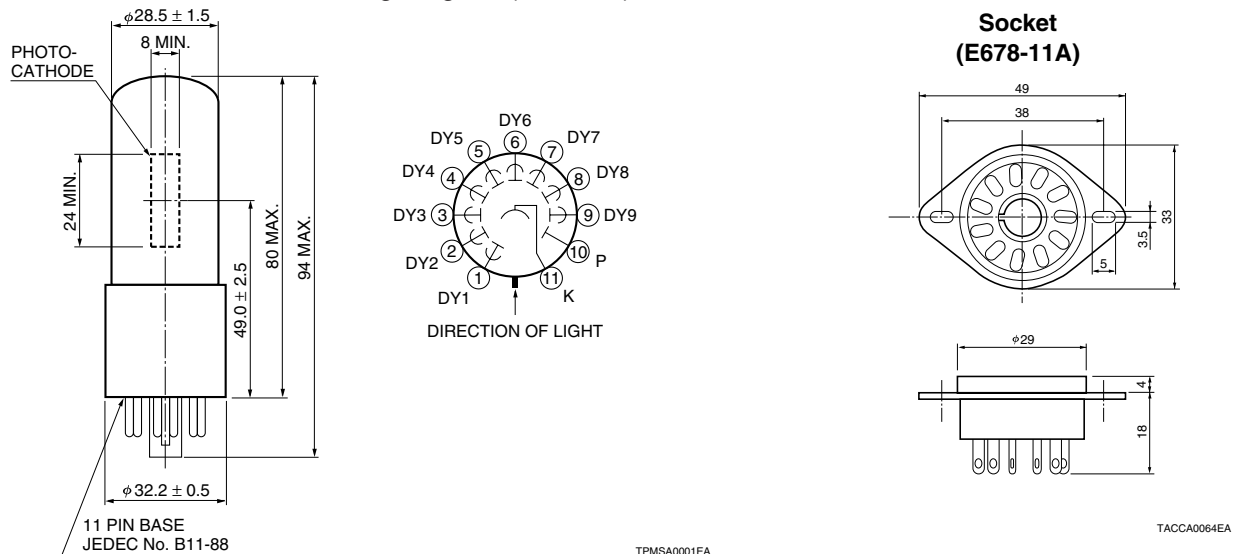


## VOLTAGE DISTRIBUTION RATIO

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

Supply Voltage: 1000 V, K: Cathode, Dy: Dynode, P: Anode

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



# HAMAMATSU

WEB SITE [www.hamamatsu.com](http://www.hamamatsu.com)

HAMAMATSU PHOTONICS K.K., Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 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 E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-2658 E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road Welwyn Garden City Hertfordshire AL7 1BW, United Kingdom, Telephone: 44-(0)1707-294888, Fax: 44-(0)1707-325777 E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171-41 SOLNA, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)

Italy: Hamamatsu Photonics Italia: S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39)02-935 81 733, Fax: (39)02-935 81 741 E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)

TPMS1077E01  
MAY 2010 IP