

**Fast Time Response, 51 mm (2 Inch) Diameter,  
12-Stage, Bialkali Photocathode Head-on Type**

**GENERAL**

Parameter		Description / Value	Unit
Spectral Response	R1828-01	300 to 650	nm
	R2059	160 to 650	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Bialkali	—
	Minimum Effective Area	φ46	mm
Window Material	R1828-01	Borosilicate glass	—
	R2059	Synthetic silica glass	—
Dynode	Structure	Linear focused	—
	Number of Stages	12	—
Operating Ambient Temperature		-30 to +50	°C
Storage Temperature		-30 to +50	°C
Base		20-pin glass base	—
Suitable Socket		E678-20B (supplied)	—

**MAXIMUM RATINGS (Absolute Maximum Values)**

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	3000	V
	Between Anode and Last Dynode	400	V
Average Anode Current		0.2	mA

**CHARACTERISTICS (at 25 °C)**

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856 K)	60	90	—	μA/lm
	Radiant at 420 nm	—	85	—	mA/W
	Blue Sensitivity Index (CS 5-58)	—	10.5	—	—
Anode Sensitivity	Luminous (2856 K)	200	1800	—	A/lm
	Radiant at 420 nm	—	1.7 × 10 <sup>6</sup>	—	A/W
Gain		—	2.0 × 10 <sup>7</sup>	—	—
Anode Dark Current (after 30 min. storage in darkness)		—	50	400	nA
Time Response	Anode Pulse Rise Time	—	1.3	—	ns
	Electron Transit Time	—	28	—	ns
Pulse Linearity	at 2 % Deviation	—	250	—	mA
	at 5 % Deviation	—	500	—	mA

**VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE**

Electrodes	K	G1	G2 & Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	Dy12	P
Ratio	1.2	2.8	1.2	1.8	1	1	1	1	1	1	1.5	1.5	3	2.5	

Supply Voltage: 2500 Vdc, K: Cathode, Dy: Dynode, P: Anode, G: Grid

**SPECIAL VOLTAGE DISTRIBUTION RATIO FOR PULSE LINEARITY MEASUREMENTS**

Electrodes	K	G1	G2 & Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	Dy12	P
Ratio	1.2	2.8	1.2	1.8	1	1	1.2	1.5	2	2.8	4	5.7	8	5	

Supply Voltage: 2500 Vdc, K: Cathode, Dy: Dynode, P: Anode, G: Grid

# PHOTOMULTIPLIER TUBES R1828-01, R2059

Figure 1: Typical Spectral Response

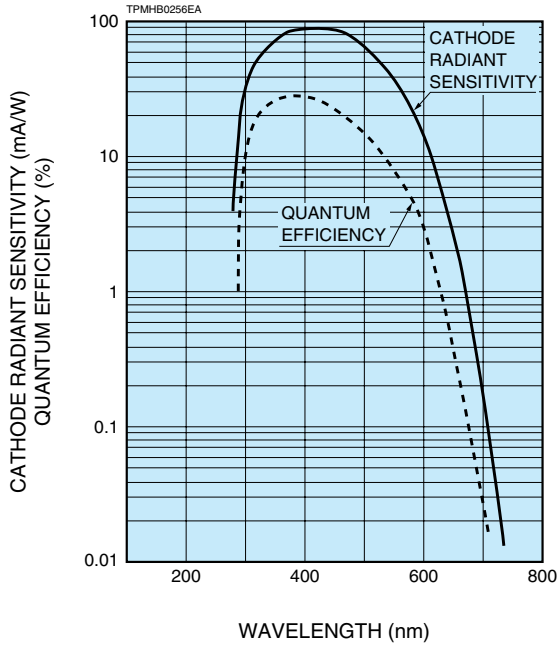


Figure 2: Typical Gain Characteristics

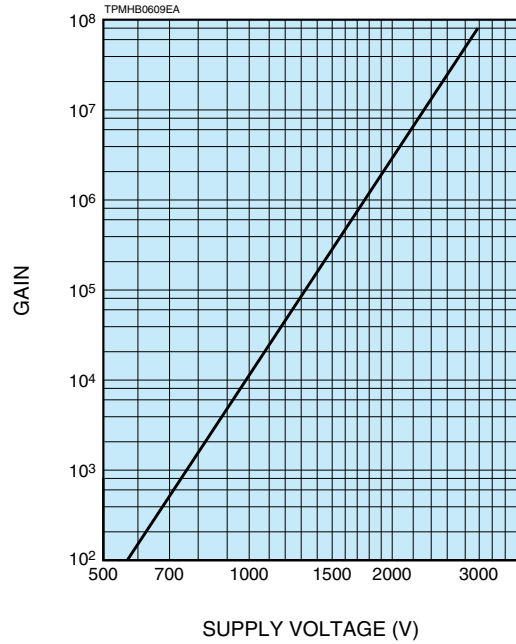
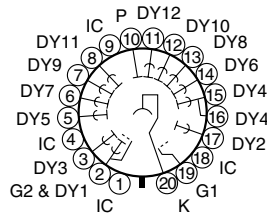
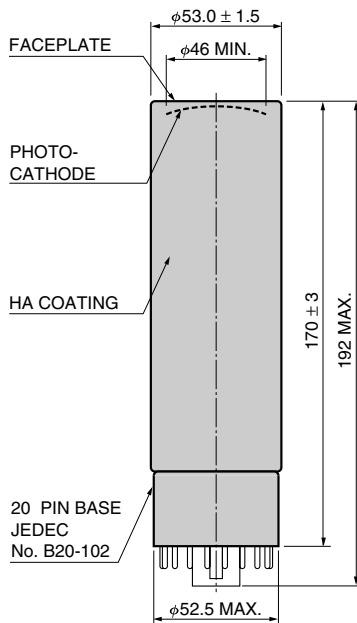
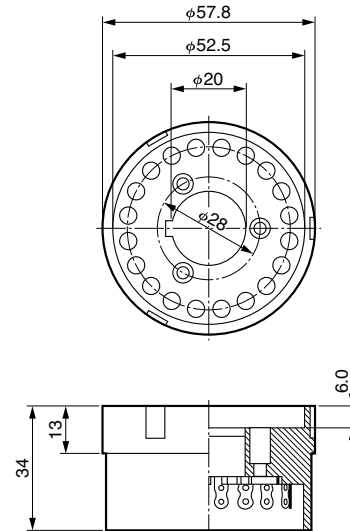


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



TPMHA0064EC

Socket E678-20B (Supplied)



TACCA0309EA

## HAMAMATSU PHOTONICS K.K. [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)

TPMH1259E04  
DEC. 2010 IP