HAMAMATSU

PHOTOMULTIPLIER TUBE
R329-02

For Scintillation Counting, Fast Time Response
51 mm (2 Inch) Diameter, Bialkali Photocathode, 12-stage Head-On Type

GENERAL

Parameter		Description/Value	Unit
Spectral Response		300 to 650	nm
Wavelength of Maximum Response		420	nm
Photocathode	Material	Bialkali	—
	Minimum Effective Area	46	mm dia.
Window	Material	Borosilicate glass	—
	Shape	Plano-concave	—
Dynode	Structure	Linear focused	—
	Number of Stages	12	—
Base		21-pin glass base	—
Suitable Socket		E678-21A (supplied)	—

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter		Value	Unit
Supply Voltage	Between Anode and Cathode	2700	Vdc
Average Anode Current		0.2	mA
Ambient Temperature		-80 to +50	°C

CHARACTERISTICS (at 25°C)

Parameter		Min.	Typ.	Max.	Unit
Cathode Sensitivity	Luminous (2856K)	60	90	—	μA/lm
	Blue (CS 5-58 filter)	—	10.5	—	μA/lm-b
	Radiant at 420nm	—	85	—	mA/W
Anode Sensitivity	Luminous (2856K)	30	100	—	A/lm
	Radiant at 420nm	—	9.4×10^4	—	A/W
Gain		—	1.1×10^6	—	—
Anode Dark Current (after 30min. storage in darkness)		—	6.0	40	nA
Time Response	Anode Pulse Rise Time	—	2.6	—	ns
	Electron Transit Time	—	48	—	ns
	Transit Time Spread (T.T.S.)	—	1.1	—	ns
Pulse Linearity	at 2% Deviation	—	100	—	mA
	at 5% Deviation	—	200	—	mA

NOTE: Anode characteristics are measured with the voltage distribution ratio shown below.

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	G	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	Dy12	P
Ratio	4	0	1	1.4	1	1	1	1	1	1	1	1	1	1	

Supply Voltage: 1500Vdc, K: Cathode, Dy: Dynode, P: Anode, G: Grid

* The shield pin should be connected to Dy5.

SPECIAL VOLTAGE DISTRIBUTION RATIO FOR PULSE LINEARITY MEASUREMENTS

Electrodes	K	G	Dy1	Dy2	Dy3	Dy4	Dy5	Dy6	Dy7	Dy8	Dy9	Dy10	Dy11	Dy12	P
Ratio	4.3	0	1	1.6	1	1	1	1.2	1.5	2	2.4	3	3.9	3	

Supply Voltage: 2000Vdc, K: Cathode, Dy: Dynode, P: Anode, G:Grid

PHOTOMULTIPLIER TUBE R329-02

Figure 1: Typical Spectral Response

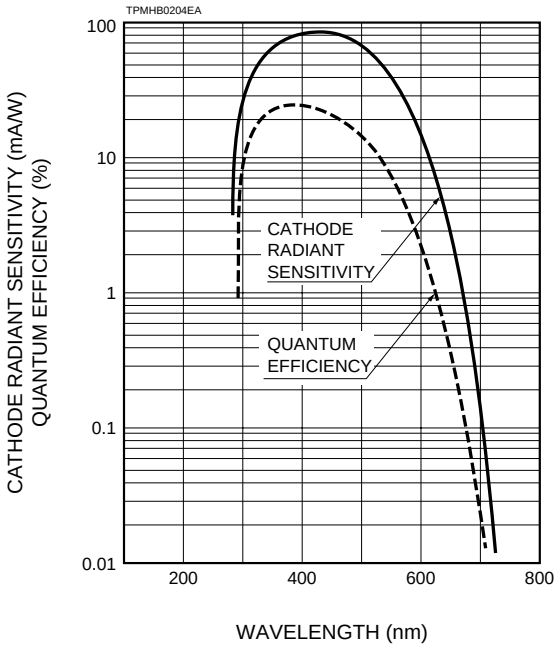


Figure 2: Typical Gain Characteristics

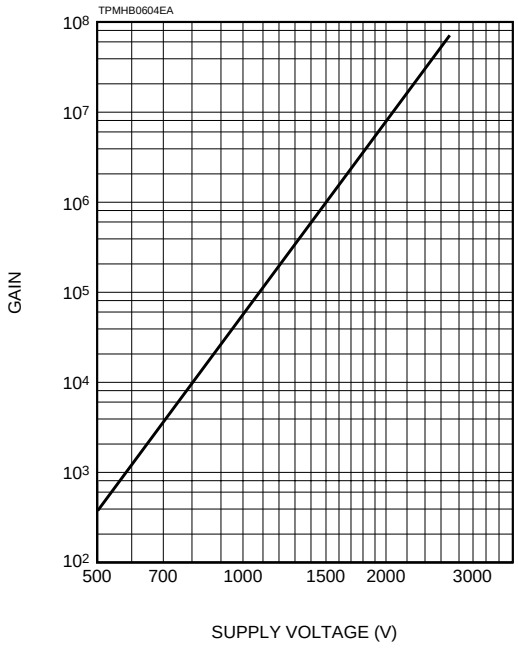
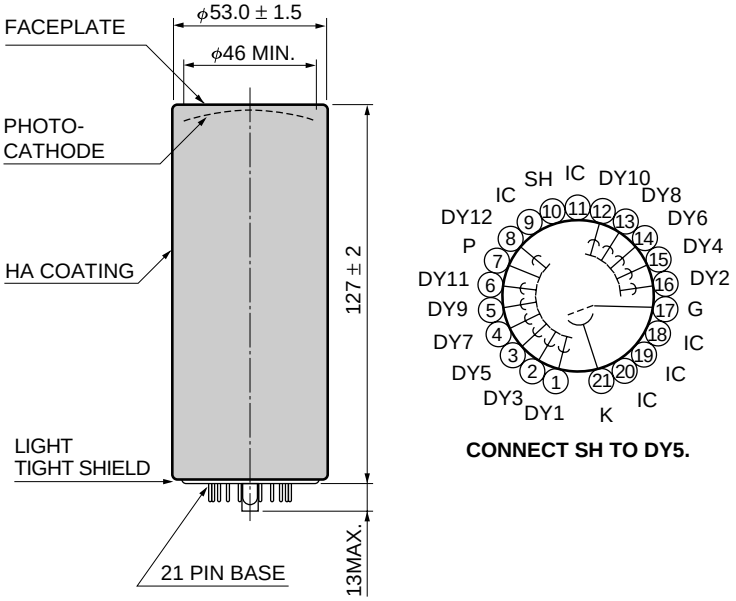
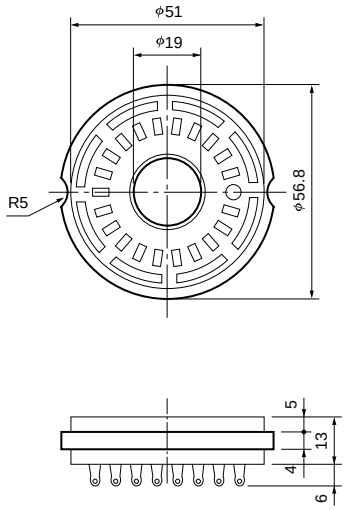


Figure 3: Dimensional Outline and Basing Diagram (Unit: mm)



CONNECT SH TO DY5.

Socket (E678-21A)



TPMHA0123ED

TACCA0011EA

HAMAMATSU

HAMAMATSU PHOTONICS K.K., Electron 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 Trapu, 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: Smidesvägen 12, SE-171-41 SOLNA, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01
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

TPMH1254E01
MAR. 1999