

8 mm × 8 mm Multianode, High Speed Response, Low Cross-talk 30 mm Square, 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	18.1 × 18.1	mm
Window Material		Borosilicate glass	—
Dynode	Structure	Metal channel dynode	—
	Number of Stages	12	—
Anode Size		2 × 2	mm
Weight		Approx. 60	g
Suitable Socket (Supplied)		SD-108-T-22, SS-101-T-22, ASP-24307-02	—
Operating Ambient Temperature		-30 to +50	°C
Storage Temperature		-30 to +50	°C

MAXIMUM RATINGS (Absolute Maximum Values)

Parameter	Description / Value	Unit
Supply Voltage Between Anode and Cathode	-1000	V
Average Anode Output Current in Total	23	μA

CHARACTERISTICS (at 25 °C)

Parameter		Value			Unit
		Min.	Tye.	Max.	
Cathode Sensitivity	Luminous (2856 K)	60	80	—	μA/lm
	Blue Sensitivity Index (CS 5-58)	6.5	8.5	—	—
Quantum Efficiency at 390 nm		—	21	—	%
Anode Sensitivity	Luminous (2856 K)	8	24	—	A/lm
Gain		—	3.0 × 10 ⁵	—	—
Anode Dark Current per Channel (after 30 min storage in darkness)		—	0.2	2	nA
Anode Dark Current in Total (after 30 min storage in darkness)		—	12	60	nA
Time Response (per channel)	Anode Pulse Rise Time	—	1.0	—	ns
	Transit Time Spread (FWHM)	—	0.3	—	ns
Pulse Linearity per Channel (±5 % deviation)		—	0.6	—	mA
Cross-talk (with φ 1 mm optical fiber)		—	2	—	%
Uniformity Among All Anodes		—	1:3	1:5	—

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

VOLTAGE DISTRIBUTION RATIO AND SUPPLY VOLTAGE

Electrodes	K	Dy1	Dy2	Dy3	Dy4	Dy5	...	Dy9	Dy10	Dy11	Dy12	P
Ratio	3	2	2	1	1	1	...	1	1	2	5	

Supply Voltage: -800 V, K: Cathode, Dy: Dynode, P: Anode

MULTIANODE PHOTOMULTIPLIER TUBE ASSEMBLY H7546B

Figure 1: Typical Spectral Response

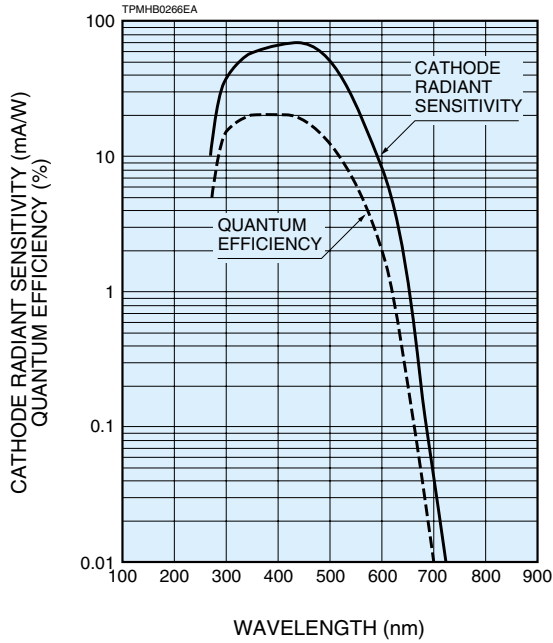


Figure 2: Typical Gain and Dark Current

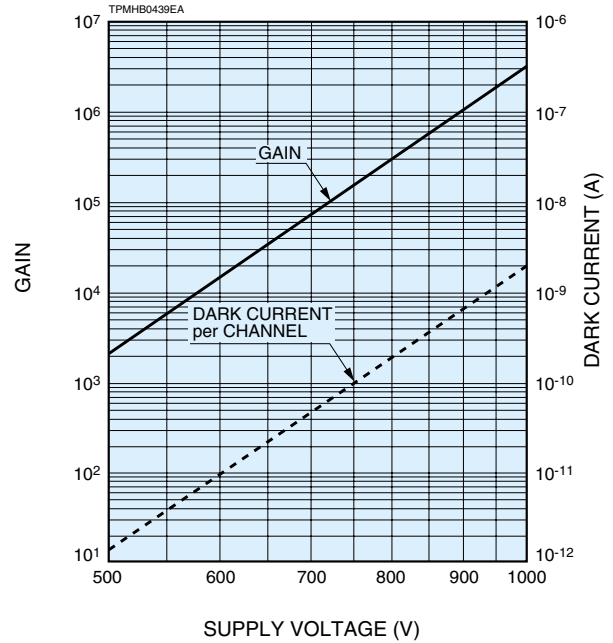


Figure 3: Typical Time Response

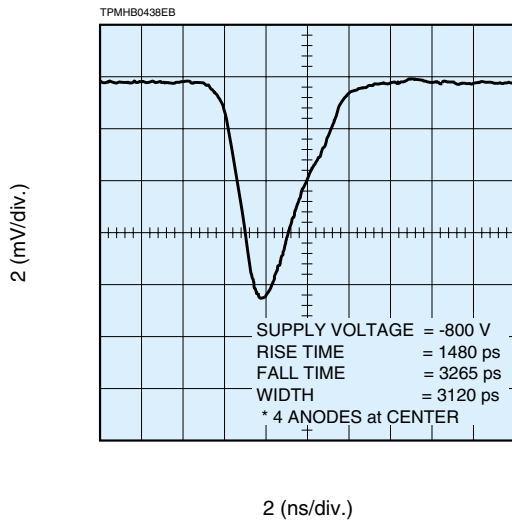


Figure 4: Single Photoelectron PHD per Channel (Example)

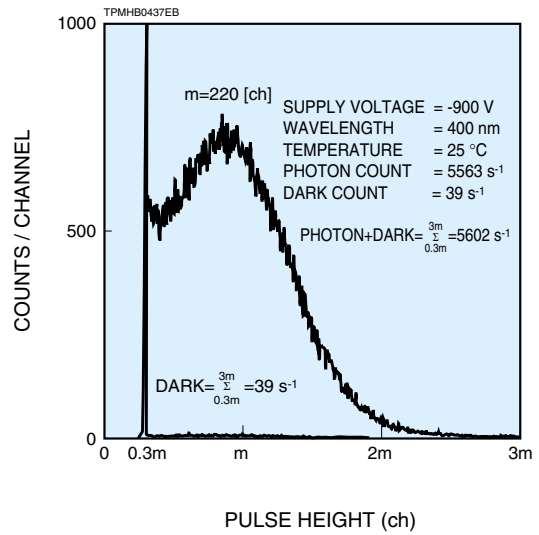
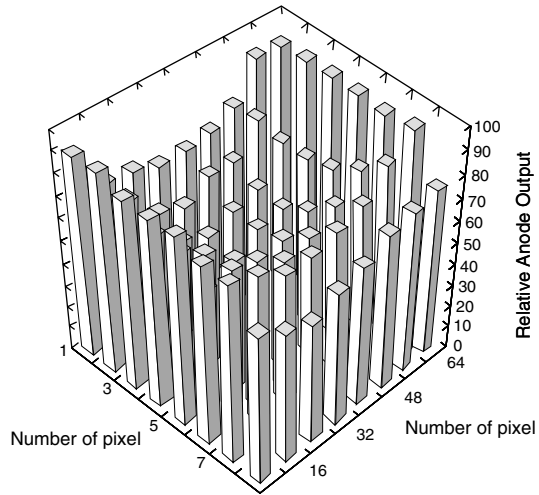


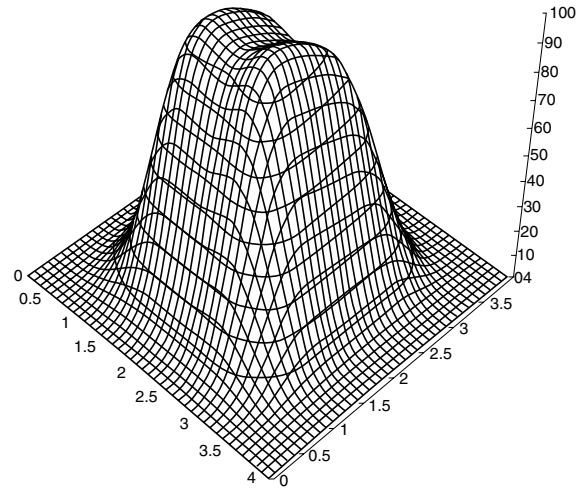
Figure 5: Typical Anode Uniformity



Each pole corresponds to each pixel of 64 anodes.
 APPLIED VOLTAGE = -800 V
 LIGHT SOURCE = W LAMP (DC LIGHT)
 (Full Illumination on Photocathode)

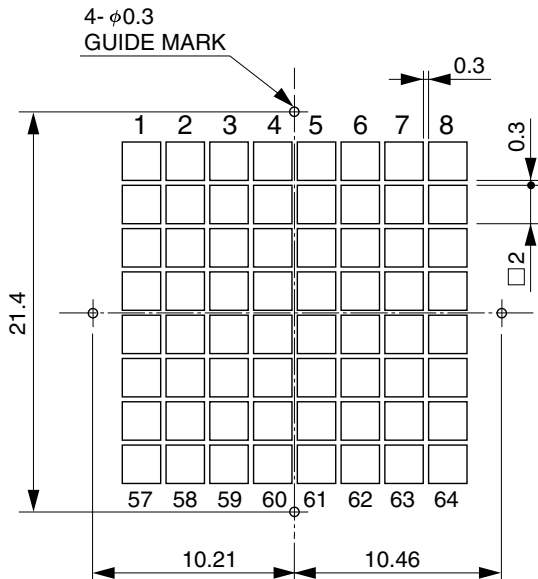
TPMHB0472EB

Figure 6: Anode Uniformity of One Pixel



TPMHB0587EA

Figure 7: Anode Matrix and Guide Mark



Anode Pattern

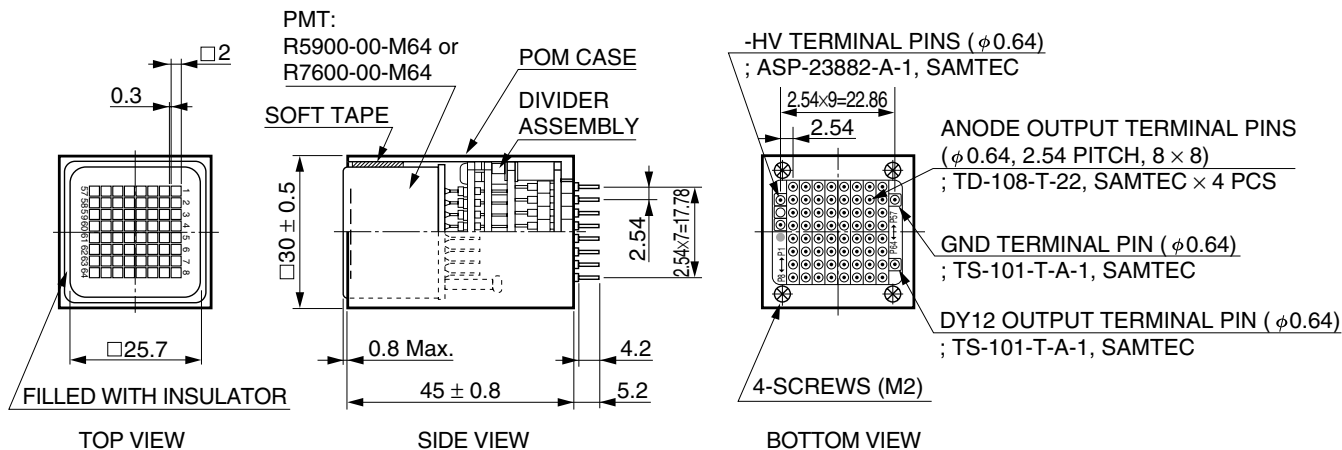
TPMHA0404ED

GUIDEMARK

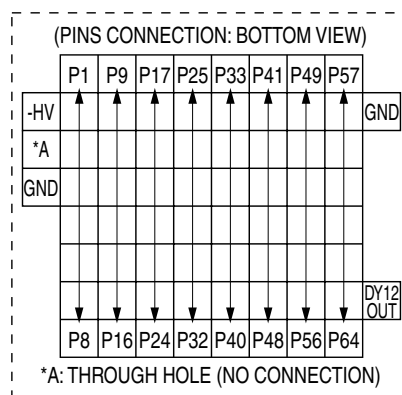
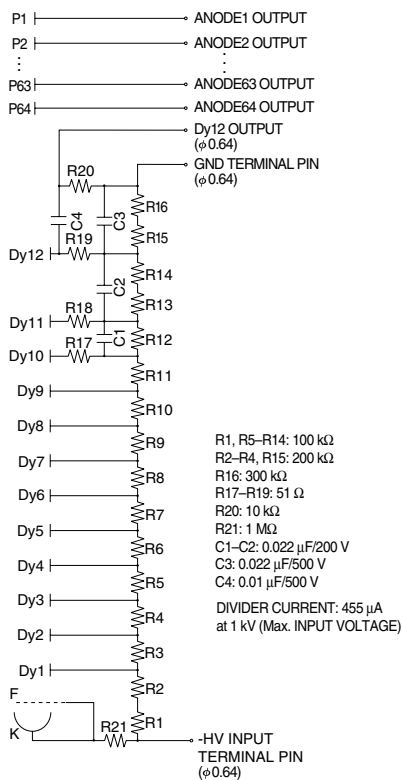
The guide marks are holes of 0.3 mm in diameter on the electrode plate. They can be seen from top of the H7546B through its photocathode. They can be used for positioning when scintillating or optical fibers are coupled to the H7546B.

MULTIANODE PHOTOMULTIPLIER TUBE ASSEMBLY H7546B

Figure 8: Dimensional Outline and Circuit Diagram (Unit: mm)

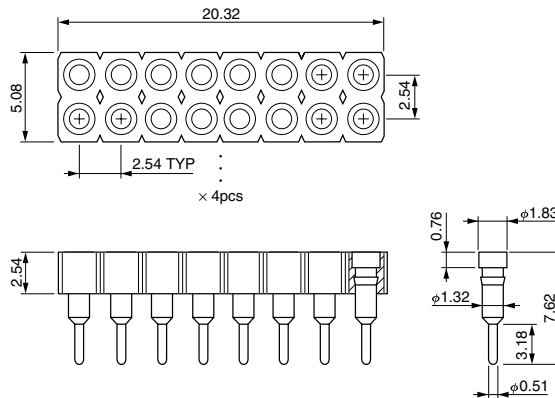


NOTE: Suitable sockets for anode output pins are attached.



TPMHA0445EC

SOCKET for ANODE OUTPUT TERMINAL PIN : SD-108-T-22 (Mfg. SAMTEC U.S.A.)



TACCA0182EA

PATENT US: 5410211 and other (6). GB: 551767 and other (4). DE: 69209809 and other (4). FR: 551767 and other (4).

HAMAMATSU

WEB SITE <http://www.hamamatsu.com>

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 E-mail: 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

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 E-mail: 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

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

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

TPMH1240E07
JUL. 2003 IP