

## 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.	Typ.	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 <sup>5</sup>	—	—
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

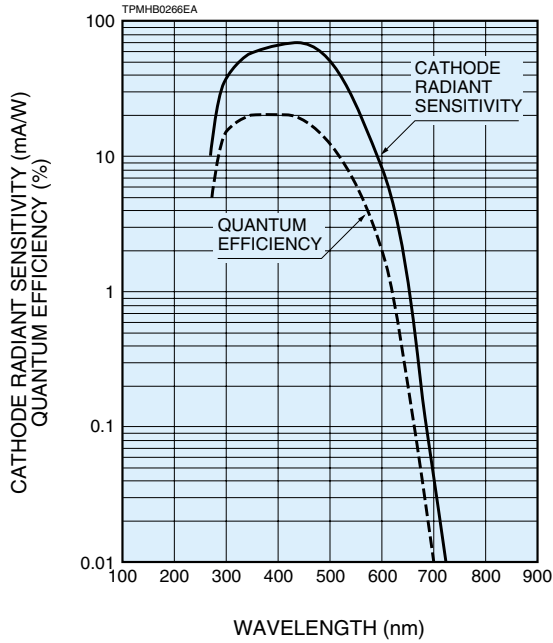


Figure 2: Typical Gain and Dark Current

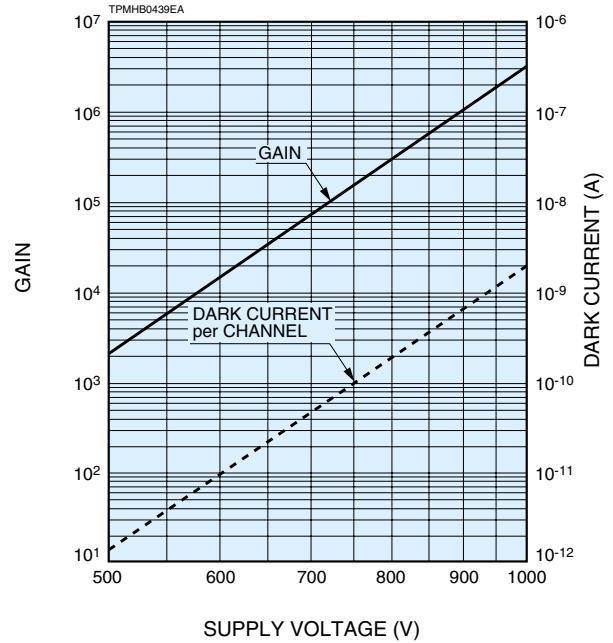


Figure 3: Typical Time Response

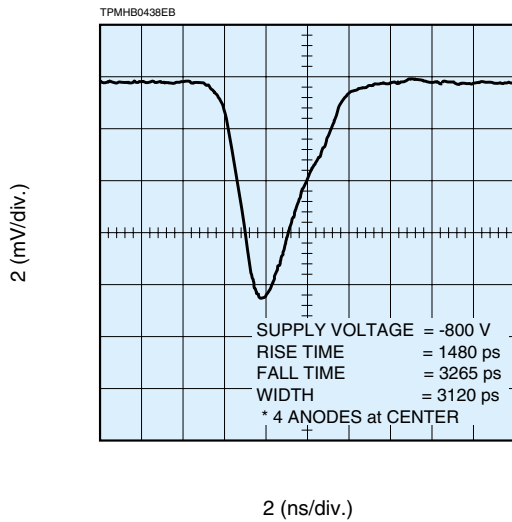


Figure 4: Single Photoelectron PHD per Channel (Example)

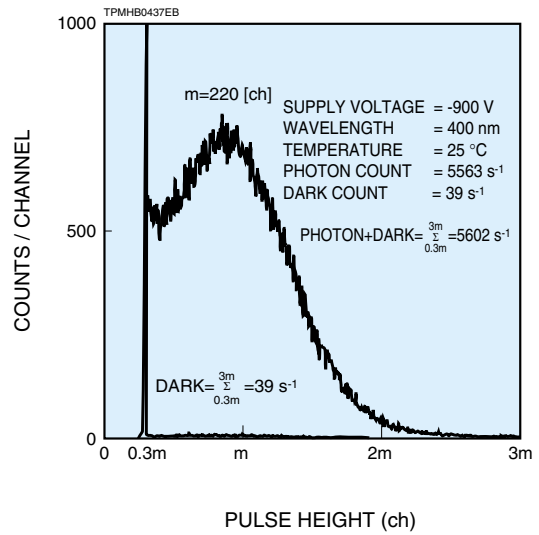
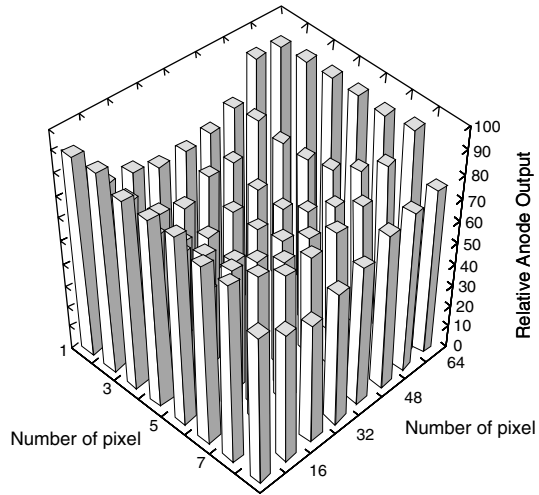


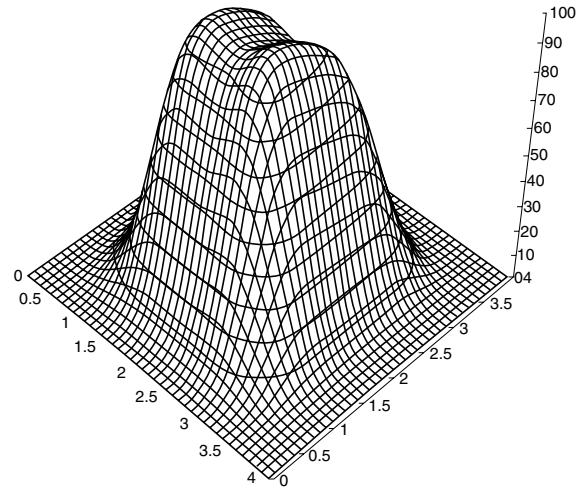
Figure 5: Typical Anode Uniformity



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

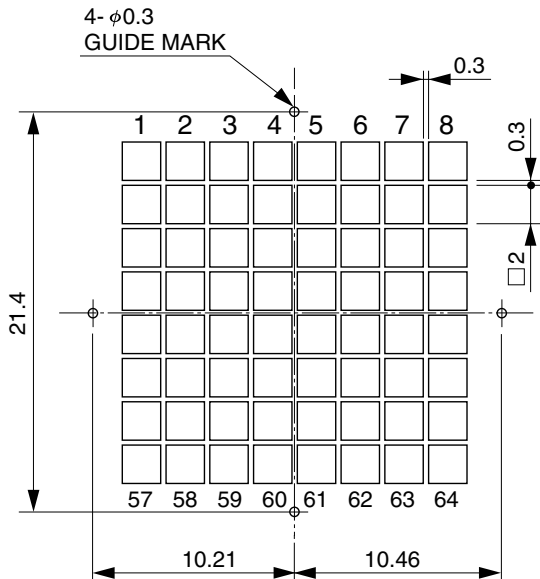
TPMHB0472EB

Figure 6: Anode Uniformity of One Pixel



TPMHB0587EA

Figure 7: Anode Matrix and Guide Mark



Anode Pattern

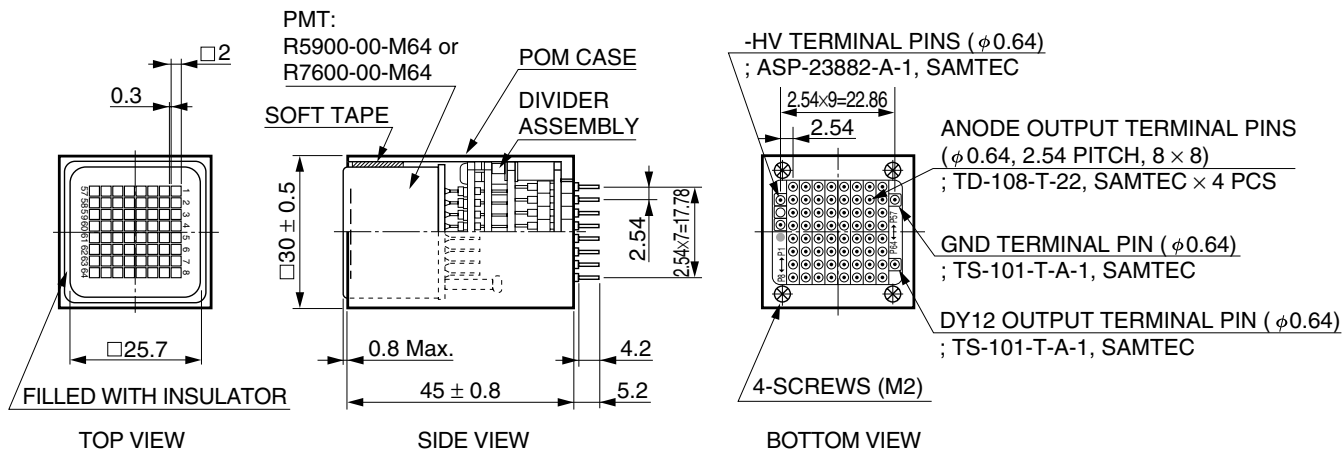
TPMHA0404ED

**GUIDEMARK**

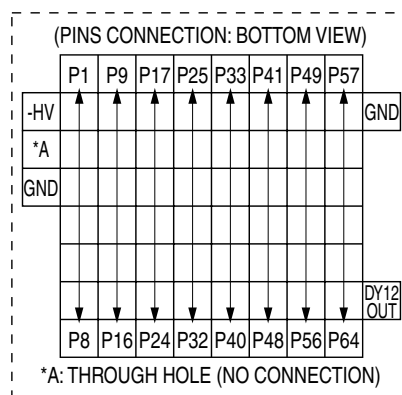
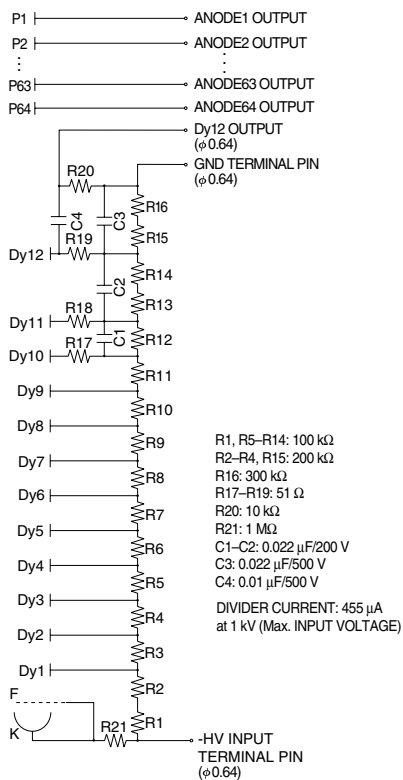
The guide marks are holes of 0.3 mm in diameter on the electrode plate. They can be seen from top of the H7546B through its photocathode. They can be used for positioning when scintillating or optical fibers are coupled to the H7546B.

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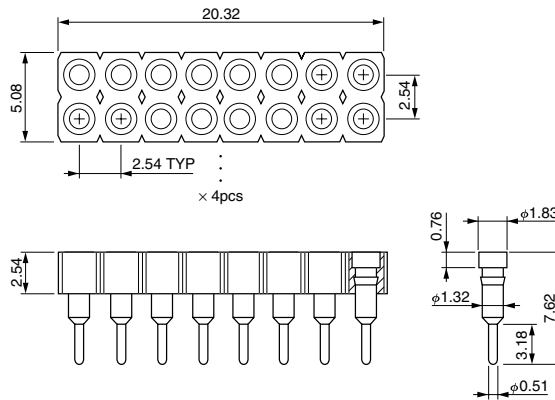
Figure 8: Dimensional Outline and Circuit Diagram (Unit: mm)



**NOTE:** Suitable sockets for anode output pins are attached.



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



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

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