

OVERVIEW

The H10682 series is a photon counting head device consisting of a metal package photomultiplier tube, along with a high-speed photon counting circuit and a high-voltage power supply circuit. The high voltage supply for photomultiplier tube and the discrimination level are preset to optimum values, allowing photon counting measurement by just connecting a +5 V supply.

The H10682 series has also over light detection function to output a signal at the state that output counts fall by excessive incident light. By this signal, measurement data can be judged that it is normal or not.



PRODUCT VARIATIONS

Type No.	Spectral response	Photocathode	Window material	Features
H10682-110	230nm to 700 nm	Super bialkali	Borosilicate glass	For visible range
H10682-113	185nm to 700 nm	Super bialkali	UV glass	For UV range to visible range
H10682-210	230nm to 700 nm	Ultra bialkali	Borosilicate glass	For visible range, high sensitive than super bialkali
H10682-01	230nm to 870 nm	Multialkali	Borosilicate glass	For visible range to near IR range
H10682-04	185nm to 870 nm	Multialkali	UV glass	For UV range to near IR range

This product can't be used at vacuum environment or reduced pressure environment.

SPECIFICATIONS

(at +25 °C)

Parameter			H10682-110	H10682-113	H10682-210	H10682-01	H10682-04	Unit
Input voltage			+4.75 to +5.25					V
Max.input voltage			+6					V
Max.input current ^①			40					mA
Effective area			φ8					mm
Peak sensitivity wavelength			400					nm
Count sensitivity	200 nm	Typ.	—	9.7 × 10 ⁴	—	—	4.3 × 10 ⁴	s ⁻¹ ·pW ⁻¹
	300 nm	Typ.	3.7 × 10 ⁵	—	3.9 × 10 ⁵	—	2.7 × 10 ⁵	
	400 nm	Typ.	4.9 × 10 ⁵	—	6.1 × 10 ⁵	—	3.6 × 10 ⁵	
	500 nm	Typ.	3.7 × 10 ⁵	—	4.6 × 10 ⁵	—	2.8 × 10 ⁵	
	600 nm	Typ.	1.1 × 10 ⁵	—	1.3 × 10 ⁵	—	2.0 × 10 ⁵	
	700 nm	Typ.	7.7 × 10 ³	—	9.1 × 10 ³	—	1.2 × 10 ⁵	
	800 nm	Typ.	—	—	—	—	3.0 × 10 ⁴	
Count linearity ^②			5.0 × 10 ⁶					s ⁻¹
Dark count ^③		Typ.	50	—	50	—	600	s ⁻¹
		Max.	100	—	100	—	1000	
Pulse-pair resolution			20					ns
Output pulse width			10					ns
Output pulse height	Load resistance	Min.	+2					V
		Typ.	+2.2					
	50 Ω	Min.	+4					
		Typ.	+4.4					
Un-terminated			+4.4					
Recommended load resistance			50					Ω
Signal output logic			Positive logic					—
Over light detection output ^④	High level	Min.	+3.5					V
	Low level	Max.	+0.5					
Operating ambient temperature ^⑤			+5 to +40					°C
Storage temperature ^⑤			-20 to +50					°C
Weight			47					g

①At 5.0 × 10⁶ s⁻¹ count rate ②Random pulse, at 10 % count loss ③After 30 min storage in darkness ④Load resistance 10 kΩ ⑤No condensation

PHOTON COUNTING HEADS H10682 SERIES

Figure 1: Typical count sensitivity

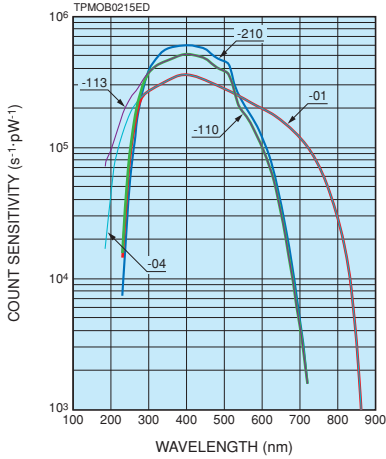


Figure 2: Typical dark count

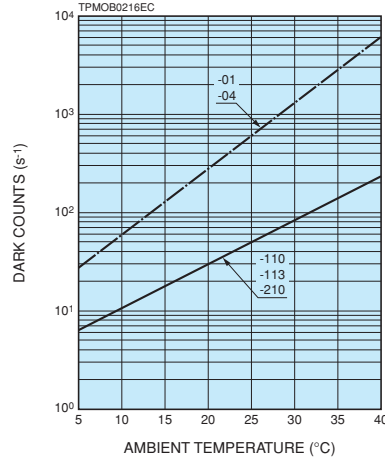


Figure 3: Typical output waveform



Figure 4: Typical count rate linearity and over light detection output

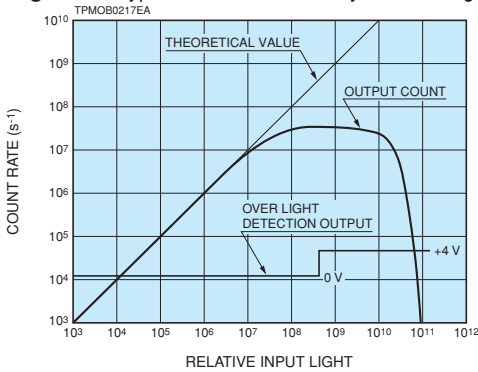


Figure 5: Typical count rate linearity correction

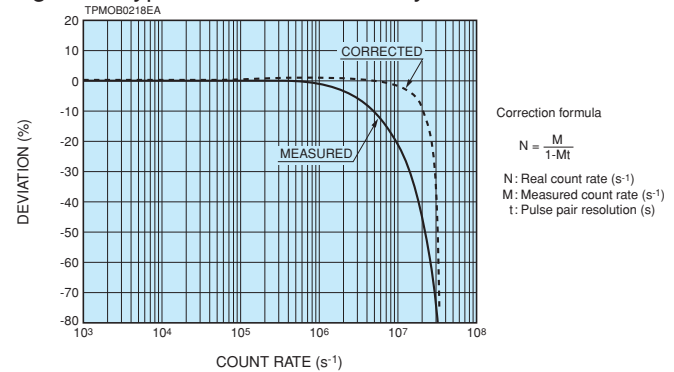


Figure 6: Block diagram

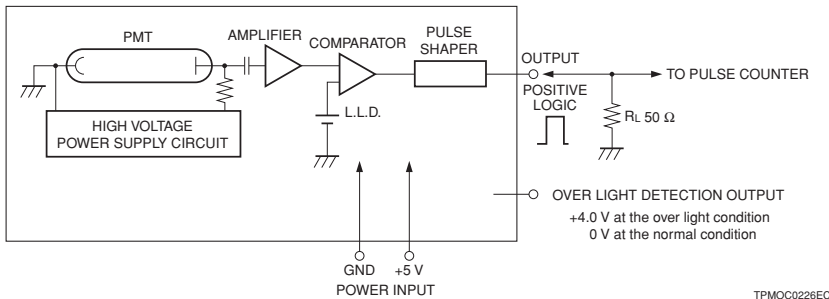
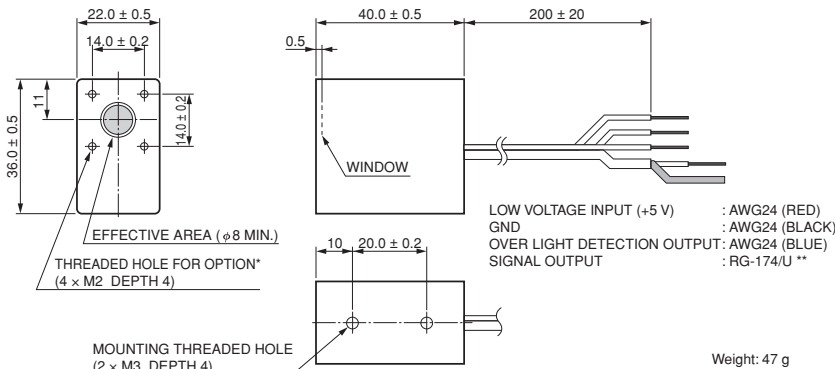


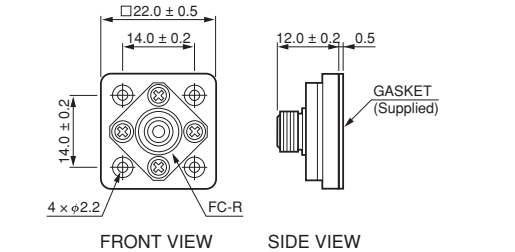
Figure 7: Dimensional outline (Unit: mm)



* Option: E5776, E5776-51, A9865, A10030-01
** Option: Available with BNC/SMA connector.

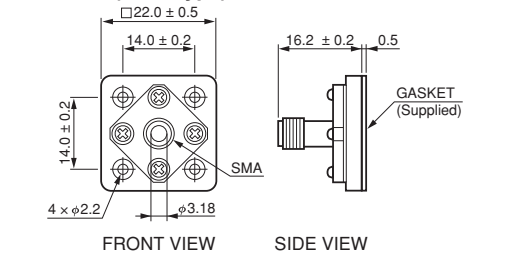
OPTIONS

OPTICAL FIBER ADAPTER (Unit: mm)



* Supplied with M2 screws (4 pcs) for fixing to module

E5776-51 (SMA Type)



* Supplied with M2 screws (4 pcs) for fixing to module

Note: Optical blocks are available for these photon counting heads to make compact optical systems without light leakage.

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

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, Bridgewater, NJ 08807, 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, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: 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
 United Kingdom: HAMAMATSU PHOTONICS UK LIMITED: 2 Howard Court, 10 Twin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk
 North Europe: HAMAMATSU PHOTONICS NORDEN AB: Torshamnsgatan 35 16440 Kista, 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 int. 6, 20044 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it
 China: HAMAMATSU PHOTONICS (CHINA) CO., LTD.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn
 Taiwan: HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

TPMO1075E02
JUN. 2022 JP