

OVERVIEW

The H11461 series are photomultiplier tube modules containing a 28-mm (1-1/8") diameter side-on PMT and a high-voltage power supply circuit. This PMT delivers high gain, wide dynamic range, and high-speed response. Seven types of products are available with different sensitivity characteristics such as spectral response ranges.

The H11461 series are also included "P" type with low dark count selected for photon counting measurement.

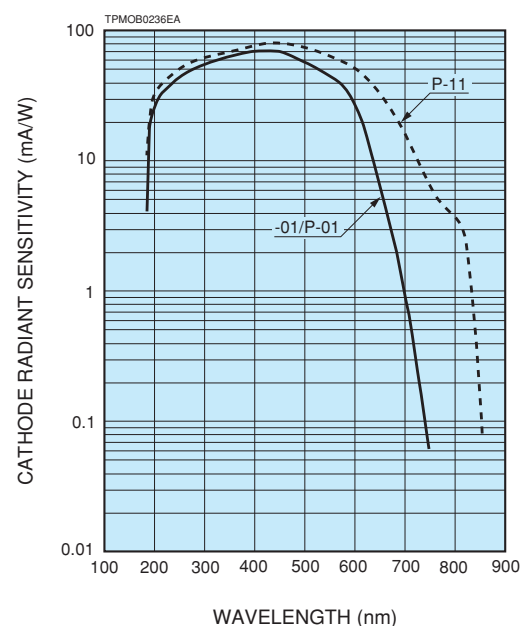
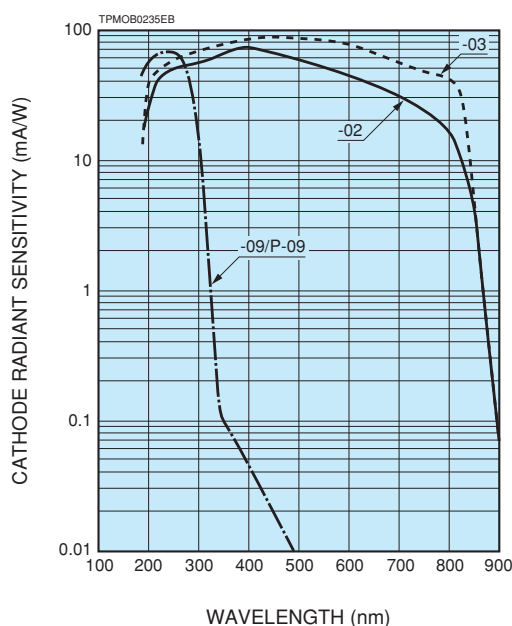


PRODUCT VARIATIONS

Type No.	Spectral Response	Photocathode	Window material	Features
H11461-01	185 nm to 680 nm	Bialkali	UV glass	High sensitivity and low noise in UV to visible range
H11461-02	185 nm to 900 nm	Multialkali	UV glass	High sensitivity in UV to near IR range
H11461-03	185 nm to 900 nm	Multialkali	UV glass	High sensitivity in UV to near IR range
H11461-09	185 nm to 320 nm	Cs-Te	Quartz	For UV range
H11461P-01	185 nm to 680 nm	Bialkali	UV glass	For photon counting in UV to visible range
H11461P-09	185 nm to 320 nm	Cs-Te	Quartz	For photon counting in UV range
H11461P-11	185 nm to 850 nm	Multialkali	UV glass	For photon counting in UV to near IR range

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

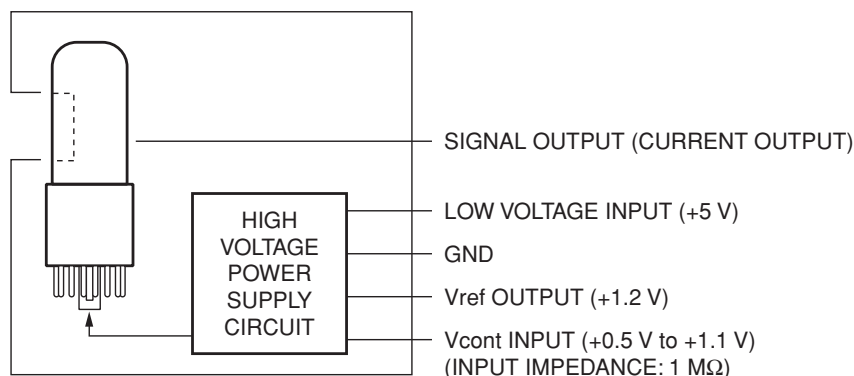
Figure 1: Typical spectral response



PHOTOMULTIPLIER TUBE MODULES

H11461 SERIES

Figure 2: Schematic diagram



TPMOC0271EA

SPECIFICATIONS

(at +25 °C)

Parameter			H11461 series							Unit
Suffix			-01	-02	-03	-09	P-01	P-09	P-11	—
Input voltage			+4.5 to +5.5							V
Max. input voltage			+6.0							V
Max. input current *1			3.5							mA
Max. average output signal current *2			100							μA
Max. control voltage			+1.2 (Input impedance 1 MΩ)							V
Recommended control voltage adjustment range			+0.5 to +1.1 (Input impedance 1 MΩ)							V
Effective area			4 × 20							mm
Peak sensitivity wavelength			400	400	450	230	400	230	430	nm
Cathode	Luminous sensitivity	Min.	80	140	475	—	80	—	140	μA/lm
		Typ.	100	—	—	—	100	—	—	
	Blue sensitivity index (Blue filter)	Typ.	8	—	—	—	8	—	—	—
	Red/White ratio	Typ.	—	0.2	0.2	—	—	—	0.1	—
	Radiant sensitivity *3	Typ.	100	—	—	62	100	62	—	mA/W
Anode	Luminous sensitivity *2	Min.	1000	400	3000	—	1000	—	300	A/lm
		Typ.	1200	—	—	—	1200	—	—	
	Radiant sensitivity *2 *3	Typ.	1.2 × 10 ⁶	—	—	6.2 × 10 ⁵	1.2 × 10 ⁶	6.2 × 10 ⁵	—	A/W
	Dark current *2 *4	Typ.	0.1	—	—	1	0.1	1	—	nA
		Max.	2	50	50	10	1	10	5	
	Dark count *4 *5	Typ.	—	—	—	—	10	20	—	s ⁻¹
		Max.	—	—	—	—	30	50	150	
Rise time *2			2.2							ns
Ripple noise *2 *6 (peak to peak)		Max.	0.3							mV
Settling time *7		Max.	14							s
Operating ambient temperature *8			+5 to +50							°C
Storage temperature *8			-20 to +50							°C
Weight		Typ.	225							g

*1: At +5 V input voltage, +1.0 V control voltage, and output current equal to dark current.

*2: Control voltage = +1.0 V

*3: Measured at the peak sensitivity wavelength (-09: 254 nm)

*4: After 30 minutes storage in darkness

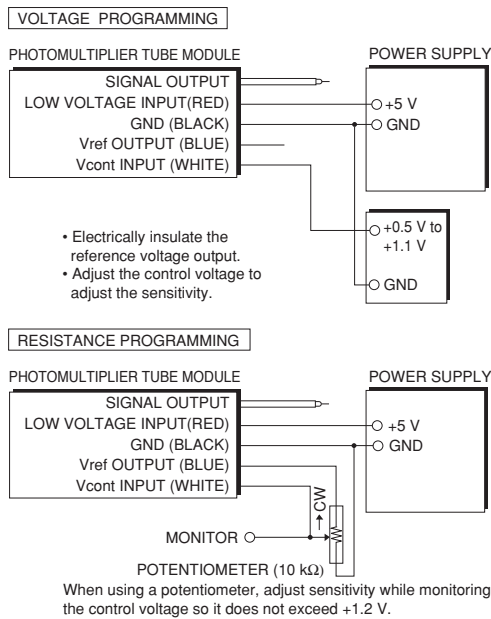
*5: Control voltage: Plateau voltage

*6: Cable RG-174/U, Cable length 450 mm, load resistance = 1 MΩ, load capacitance = 14 pF

*7: The time required for the output to reach a stable level following a change in the control voltage from +1.0 V to +0.5 V.

*8: No condensation

Figure 3: Sensitivity adjustment method



TPMOC0238EA

Figure 4: Gain

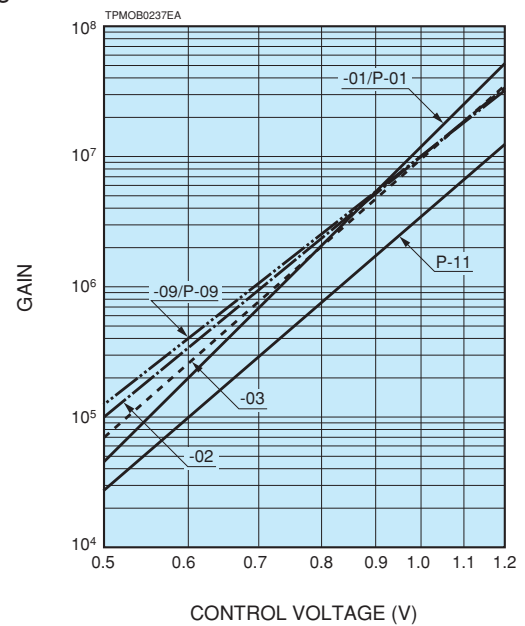


Figure 5: Output signal current vs. input current

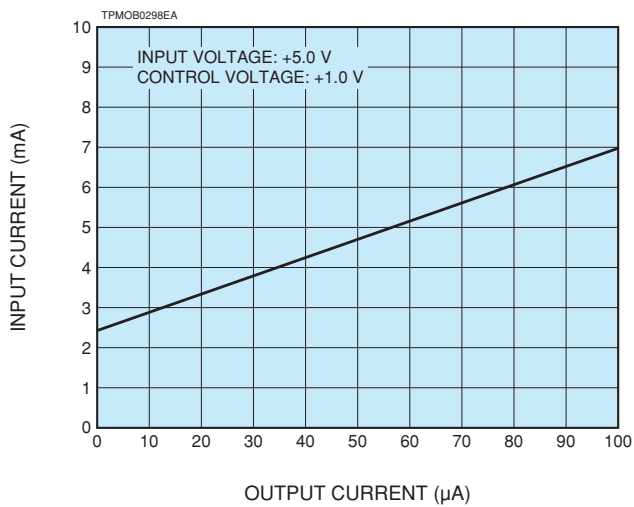


Figure 6: Ripple noise

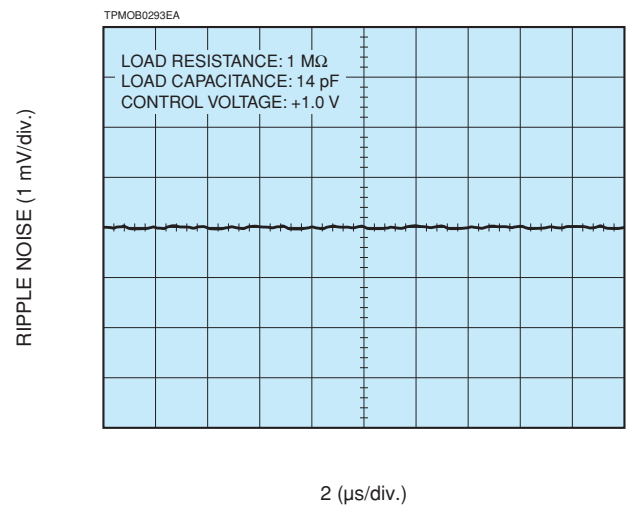


Figure 7: DC linearity

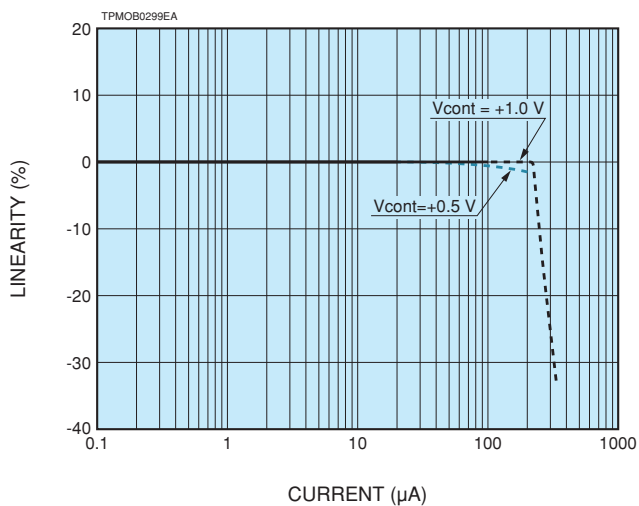
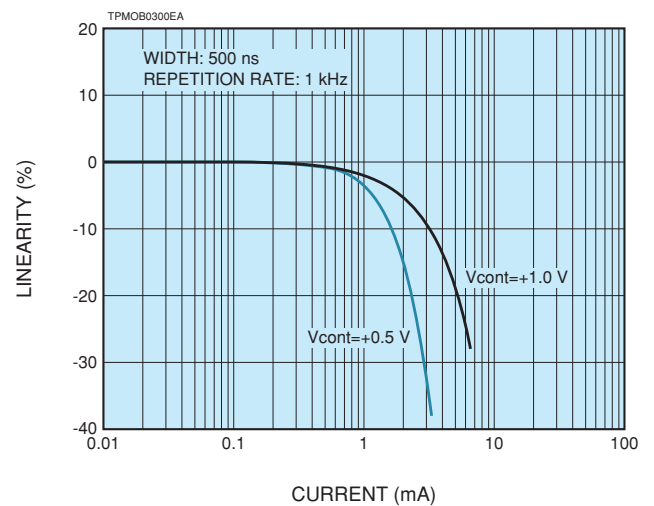


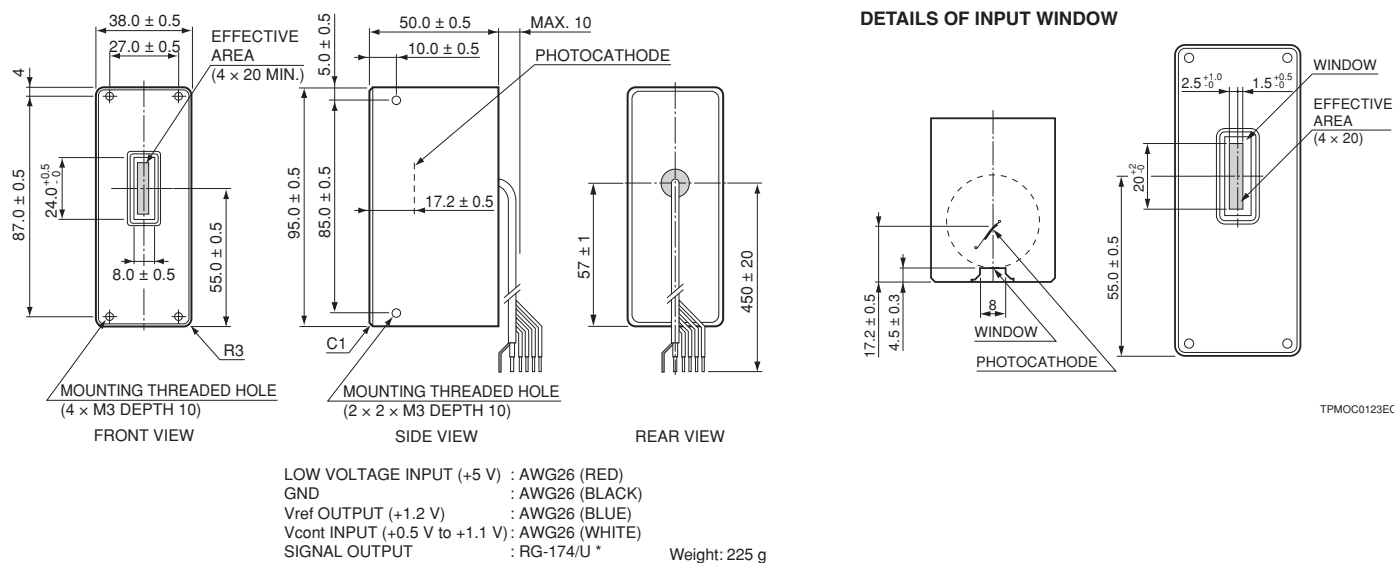
Figure 8: Pulse linearity



PHOTOMULTIPLIER TUBE MODULES

H11461 SERIES

Figure 9: Dimensional outlines (Unit: mm)



RELATED PRODUCT

POWER SUPPLY FOR PHOTOMULTIPLIER TUBE MODULES C10709 SERIES

The C10709 series are the power supply for photomultiplier tube modules which has 5 V input voltage. This unit can provide both the driving voltage and the control voltage. This feature enables users to operate the modules easily.

Parameter	Description / Value	Unit
Output voltage	±5	V
Output current	Max. 2.0 (+5 V), 0.2 (-5 V)	A
Control voltage ^① (variable voltage range)	+0.25 to +1.8	V
Input voltage	AC100 to AC240	V

NOTE: ^①Adjust within the recommended control voltage range for the photomultiplier tube module being used.



Guide of Type No. for power cord

C10709-C□

“□” Type No.

- 2: For Japan & U.S.A. (UL / PSE: AC 125 V)
- 3: For Europe (CEE: AC 250 V)
- 4: For China (GB: AC 250 V)
- 5: For United Kingdom (BS: AC 250 V)

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

Electron Tube/Laser Applied Sales

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539-62-5245, 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

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: info@hamamatsu.fr

United Kingdom: HAMAMATSU PHOTONICS UK LIMITED: 2 Howard Court, 10 Tewin 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.: 13F-1, No.101, Section 2, Gongdao 5th Road, East Dist., Hsinchu City, 300046, Taiwan(R.O.C.), Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

Korea: HAMAMATSU PHOTONICS KOREA CO., LTD.: A-912, 167, Songpa-daero, Seoul, 05855, Republic of Korea, Telephone: (82)2-2054-8202, Fax: (82)2-2054-8207 E-mail: sales@hpkcr.co.kr

TPMO1079E03
 JUN. 2025 IP