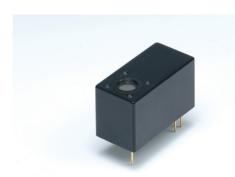
Metal Package PMT with Gate Function Photosensor Modules H12056 Series





The H12056 series is a photosensor module containing a metal package PMT, shutter circuit and a high-voltage power supply circuit. This module has shutter function to avert the PMT from excessive light without switching OFF the PMT voltage completely like the case of opening / closing machine to change the measurement samples. Three types of photocathodes are available, including a super bialkali photocathode that has higher sensitivity than conventional bialkali photocathodes, a multialkali photocathode with sensitivity extending to the near infrared region, and a red sensitivity enhanced multialkali photocathode. Hamamatsu also provides "P" type with gain and low dark count selected for photon counting measurement.

Product Variations

Type No.	Spectral Response	Features
H12056-110	230 nm to 700 nm	Super bialkali photocathode, high sensitivity in visible range
H12056-01	230 nm to 870 nm	For UV to near IR range
H12056-20	230 nm to 920 nm	Infrared-extended multialkali photocathode with enhanced sensitivity
H12056P-110	230 nm to 700 nm	For photon counting

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

Specifications

(at +25 °C)

Parameter			H12056 Series			Unit
Suffix			-110 / P-110	-01	-20	_
Input Voltage			+4.5 to +5.5			V
Max. Input Voltage			+6			V
Max. Average Input Current *1			10			mA
Max. Output Signal Current *2			100			μΑ
Max. Control Voltage			+1.1 (Input Impedance 1 MΩ)			V
Recommended Control Voltage Adjustment Range			+0.5 to +1.1 (Input Impedance 1 MΩ)			V
Effective Area			φ8			mm
Peak Sensitivity Wavelength			400	400	630	nm
	Luminous Consitivity	Min.	80	100	350	A /I
g	Luminous Sensitivity	Тур.	105	200	500	μ A /lm
Sathode	Blue Sensitivity Index (CS 5-58)	Тур.	13.5	_	_	_
Sa	Red / White Ratio	Тур.	_	0.2	0.45	_
	Radiant Sensitivity *3	Тур.	110	77	78	mA/W
	Luminous Sensitivity *2	Min.	80	100	350	Δ /l.e.
		Тур.	210	400	1000	A/lm
<u>e</u>	Radiant Sensitivity *2 *3	Тур.	2.2 × 10 ⁵	1.5 × 10 ⁵	1.5 × 10 ⁵	A/W
Anode	Radiant Sensitivity *2 *3 Dark Current *2 *4	Тур.	1	1	10	
₹		Max.	10	10	100	nA
	Dark Count (P Type) *2 *4	Тур.	50	_	_	S ⁻¹
	Dark Count (P Type) -	Max.	100	_	_	
Rise Time *2			0.57			ns
Ripple Noise *2 *5 (peak to peak) Max.		0.6			mV	
Settling Time *6 Max.		10			S	
Operating Ambient Temperature *7		+5 to +50			°C	
Storage Temperature *7			-20 to +50			°C
Weight Typ.			70			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

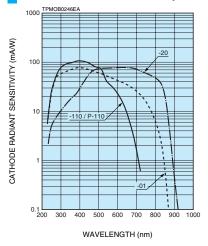
^{*4:} After 30 minutes storage in darkness.

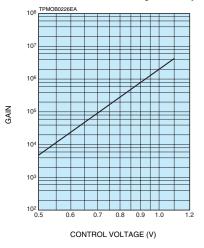
^{*5:} Cable RG-174/U, Cable length 450 mm, Load resistance = 1 M Ω , Load capacitance = 22 pF

^{*6:} 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.

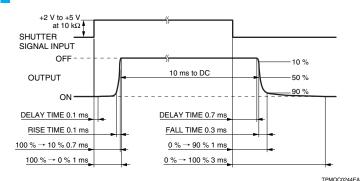
^{*7:} No condensation

Characteristics (Cathode radiant sensitivity, Gain)





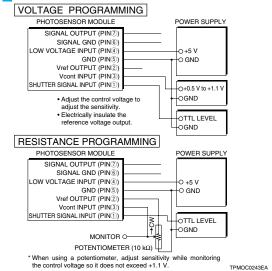
Shutter Characteristic



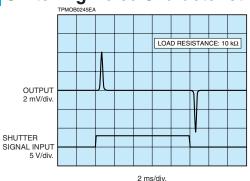
Shutter Specifications

Parameter			Description / Value	Unit	
	Mode		Normaly ON	_	
	Shutter Width (FWHM)		10 ms to DC	_	
	Rise Time	Тур.	0.1	ms	
Shutter	Fall Time	Тур.	0.3	ms	
Mode	Repetition	Max.	70 Hz (Shutter Width 10 ms)		
ivioue	Rate	IVIAX.	9 Hz (Shutter Width 100 ms)		
	Switching	Тур.	103	_	
	Ratio	īyp.	10-		
	Delay Time	Тур.	0.1 (At Rise), 0.7 (At Fall)	ms	
Shutter	Level		TTL Level		
Signal	Level		(High Level: +2 V to +5 V)		
Input	Input Impedance		10	kΩ	

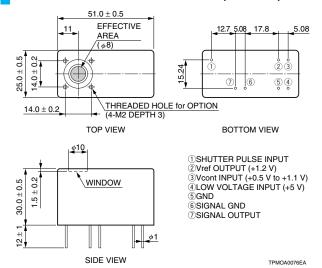
Sensitivity Adjustment Method



Switching Noise Characteristic



Dimensional Outlines (Unit: mm)



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