

Photon Counting Head

HAMAMATSU

H7828 Series



The H7828 series are photon counting head devices using a 19-mm (3/4") diameter head-on photomultiplier tube, high-speed photon counting circuit, and 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. Despite its compact size, the effective photosensitive area is as large as 15 mm in diameter, so the incident light can be collected very efficiently. Compared to other PMT modules, the H7828 series devices have higher resistance to vibration and shock, making them suitable for portable or mobile measurement equipment. Two types of photomultiplier tubes with different spectral response characteristics are provided for measurement in the visible range or visible to near IR range.

Product Variations

Type No.	Spectral Response	Features
H7828	300 nm to 650 nm	For visible range
H7828-01	300 nm to 850 nm	For visible to near IR range

Specifications

Parameter		H7828	H7828-01	Unit	
Input Voltage		+4.5 to +5.5		V	
Max. Input Voltage		+6		V	
Max. Input Current		60		mA	
Effective Area		φ15		mm	
Peak Sensitivity Wavelength		420	380	nm	
Count Sensitivity	Typ.	300 nm	2.1×10^5	1.7×10^5	s ⁻¹ ·pW ⁻¹
		400 nm	3.6×10^5	2.1×10^5	
		500 nm	2.8×10^5	1.6×10^5	
		600 nm	5.0×10^4	1.0×10^5	
		700 nm	—	5.9×10^4	
Count Linearity *1		1.5×10^6		s ⁻¹	
Dark Count *2	Typ.	200	2000	s ⁻¹	
	Max.	500	3500		
Pulse-pair Resolution		70		ns	
Output Pulse Width		30		ns	
Output Pulse Height *3	Min.	3.0		V	
	Typ.	3.5			
Recommended Load Resistance		50		Ω	
Signal Output Logic		Positive logic		—	
Operating Ambient Temperature *4		+5 to +40		°C	
Storage Temperature *4		-20 to +50		°C	
Weight		70		g	

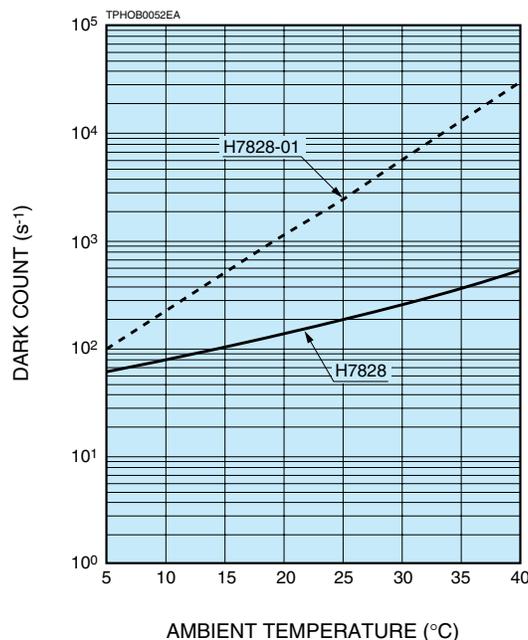
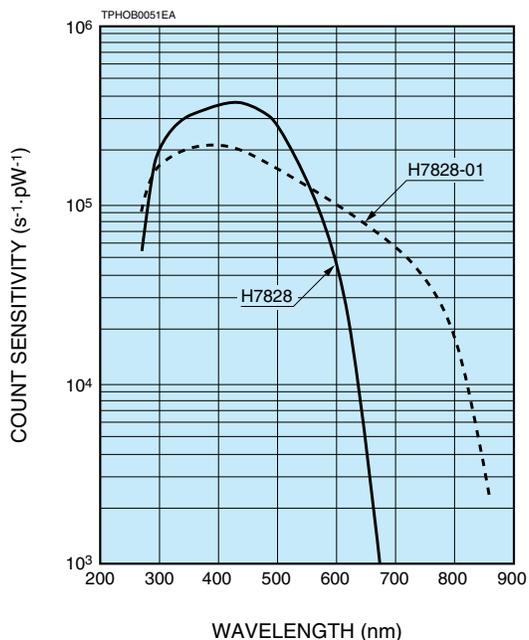
*1: Random pulse, at 10 % count loss

*2: After 30 minutes storage in darkness

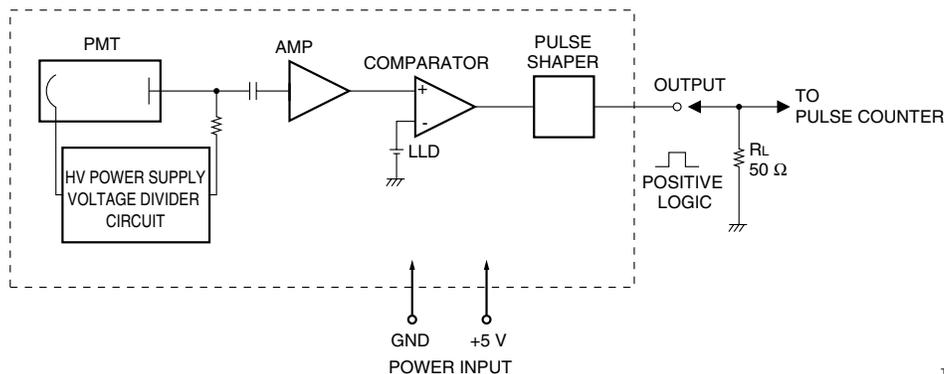
*3: With input voltage +5 V, Load resistance 50 Ω and Coaxial cable RG-174/U (450 mm)

*4: No condensation

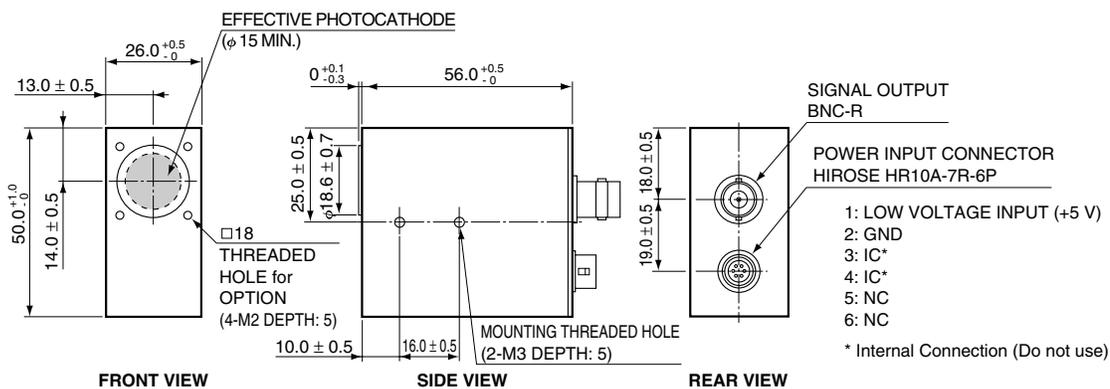
Characteristics (Count sensitivity, Dark count)



Block Diagram



Dimensional Outlines (Unit: mm)



Power cable with connector (HIROSE HR10A-7P-6S) is supplied with H7828 series

