

## Extremely Improved Solar Blind Photocathode for General Photometric Applications

### FEATURES

- High Quantum Efficiency ..... 14 % at 254 nm Typ.
- High Sharp Cutoff Characteristic
- Low Dark Count ..... 5 s<sup>-1</sup> Typ.

### SPECIFICATIONS

#### GENERAL

Parameter	Description / Value	Unit
Spectral Response	150 to 320	nm
Wavelength of Maximum Response	240	nm
Photocathode	Material	Cs-Te
	Minimum Effective Area	φ27
Window Material	Sapphire	—
Dynode	Structure	Metal channel
	Number of Stages	15
Operating Ambient Temperature	0 to +50	°C
Storage Temperature	-15 to +50	°C

#### MAXIMUM RATINGS (Absolute Maximum Values)

Parameter	Value	Unit	
Supply Voltage	Between Anode and Cathode	+2500	V
	Between Anode and Last Dynode	300	V
Average Anode Current	0.01	mA	

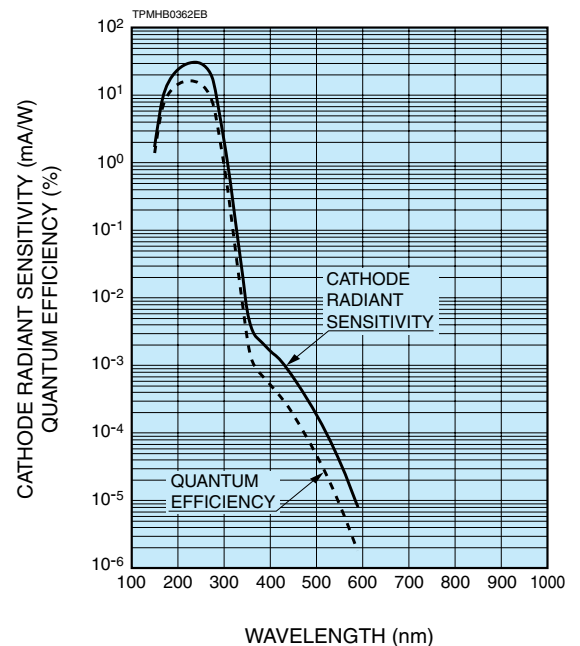
#### CHARACTERISTICS (at +25 °C)

Parameter	Min.	Typ.	Max.	Unit	
Cathode Sensitivity	Radiant at 254 nm	20	28	—	mA/W
	Radiant at 365 nm	—	$2.8 \times 10^{-3}$	$1.1 \times 10^{-2}$	mA/W
	Radiant at 550 nm	—	$3.6 \times 10^{-5}$	—	mA/W
	Quantum Efficiency at 254 nm	9.8	13.7	—	%
Anode Sensitivity (at +2000 V)	Detection Efficiency at 254 nm	7.5	10.5	—	—
	Detection Efficiency at 365 nm	—	$1.05 \times 10^{-5}$	$4.2 \times 10^{-5}$	—
	Detection Efficiency at 550 nm	—	$1.36 \times 10^{-7}$	—	—
Gain (at +2000 V)	$1.0 \times 10^6$	$1.0 \times 10^7$	—	—	
Dark Counts	PHD at $1 \times 10^6$ Gain <sup>Ⓐ</sup>	—	3	10	s <sup>-1</sup>
	Plateau Voltage <sup>Ⓑ</sup>	—	5	20	s <sup>-1</sup>
Anode Pulse Rise Time <sup>Ⓒ</sup>	—	2.5	—	ns	

- NOTE:** Ⓐ The discrimination level is set at one fourth the average electron pulse height to measure the background.  
 Ⓑ Plateau voltage at the set up in HPK.  
 Ⓒ The rise time is the time of the output pulse to rise from 10 % to 90 % of peak amplitude when the entire photocathode is illuminated by a delta function light pulse.



Figure 1: Typical Spectral Response



# PHOTOMULTIPLIER TUBE H10744

Figure 2: Signal Counts and Anode Dark Counts

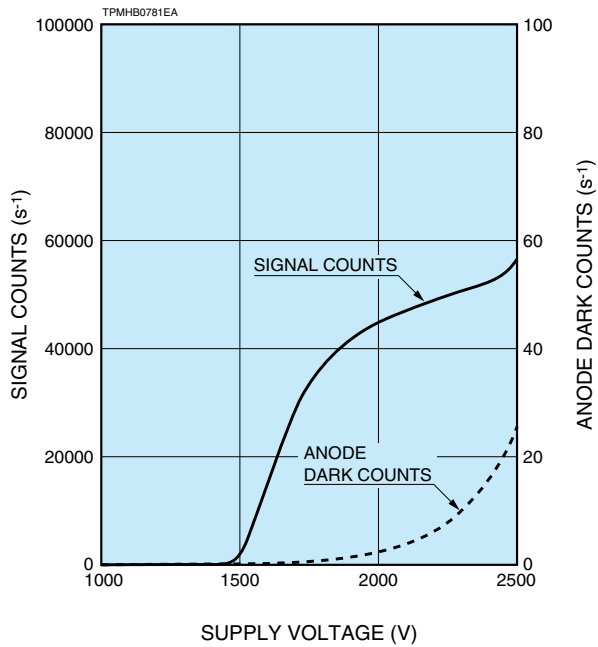
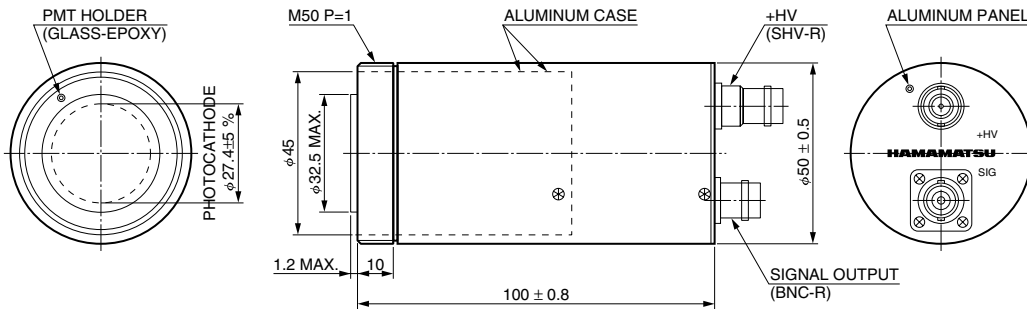
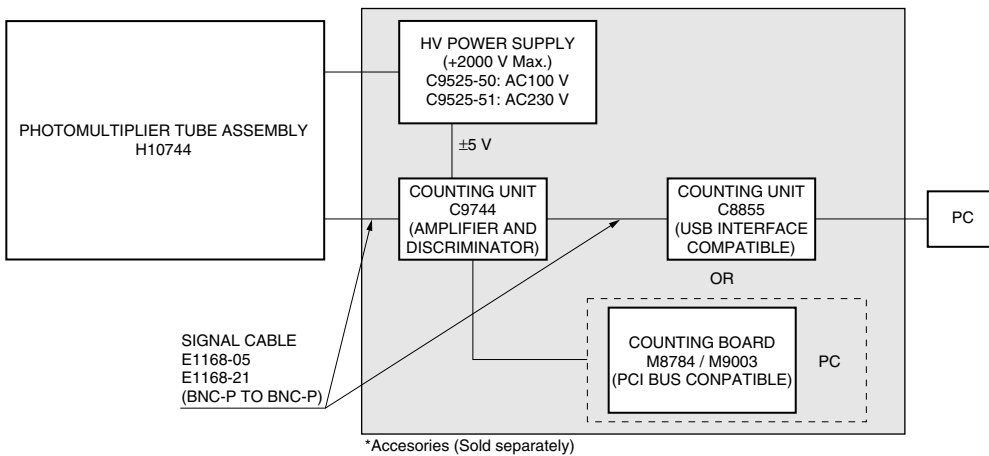


Figure 3: Dimensional Outline (Unit: mm)



TPMHA0547EA

Figure 4: Photon Counting System (Connecting Example)



TPMHC0234EB

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