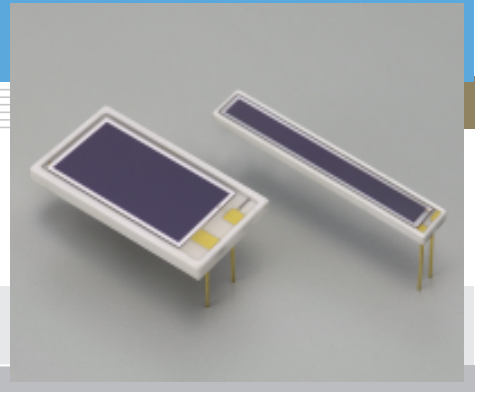


# Si PIN photodiode

## S2744/S3588-08, -09

Large area sensors for scintillation detection



### Features

- Higher sensitivity and low dark current than conventional type
- Sensitivity matching with BGO and CsI (TI) scintillators
- High quantum efficiency QE=85 % ( $\lambda=540$  nm)
- Low capacitance
- High-speed response
- High stability
- Good energy resolution

### Applications

- Scintillation detectors
- Calorimeters
- Hodoscopes
- TOF counters
- Air shower counters
- Particle detectors, etc.

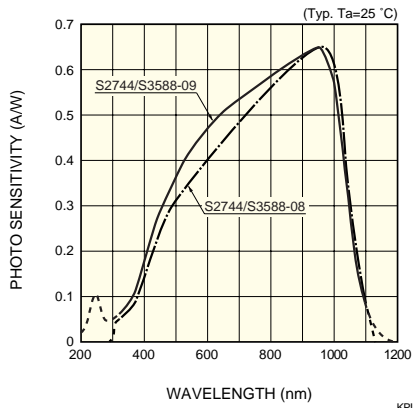
### ■ General ratings / Absolute maximum ratings

Type No.	Dimensional outline	Window material	Active area (mm)	Depletion layer thickness (mm)	Absolute maximum ratings			
					Reverse voltage $V_R$ Max.	Power dissipation $P$ (mW)	Operating temperature $T_{opr}$ (°C)	Storage temperature $T_{stg}$ (°C)
S2744-08	①	Epoxy resin	10 × 20	0.3	100	100	-20 to +60	-20 to +80
S2744-09		Window-less						
S3588-08	②	Epoxy resin	3 × 30					
S3588-09		Window-less						

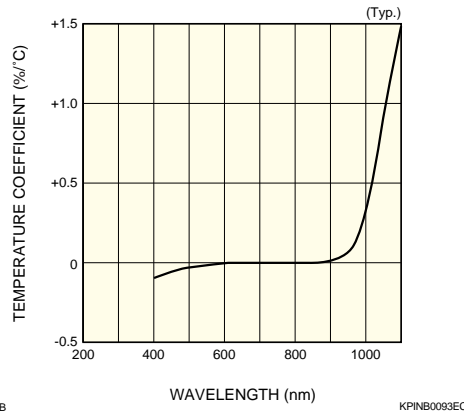
### ■ Electrical and optical characteristics (Typ. $T_a=25$ °C, unless otherwise noted)

Type No.	Spectral response range $\lambda$ (nm)	Peak sensitivity wavelength $\lambda_p$ (nm)	Photo sensitivity $S$				Short circuit current $I_{sc}$ 100 lx ( $\mu$ A)	Dark current $I_D$ $V_R=70$ V		Temp. coefficient of $I_D$ $T_{CID}$ (times/°C)	Cut-off Frequency $f_c$ $V_R=70$ V (MHz)	Terminal capacitance $C_t$ $f=1$ MHz $V_R=70$ V (pF)	NEP $V_R=70$ V ( $W/Hz^{1/2}$ )
			$\lambda=\lambda_p$ (A/W)	LSO 420 nm (A/W)	BGO 480 nm (A/W)	CsI(Tl) 540 nm (A/W)		Typ.	Max.				
S2744-08	320 to 1100	960	0.66	0.20	0.30	0.36	200	3	10	1.12	25	85	$4.7 \times 10^{-14}$
S2744-09			0.66	0.22	0.33	0.41							
S3588-08			0.66	0.20	0.30	0.36	90	3	10	1.12	40	40	
S3588-09			0.66	0.22	0.33	0.41							

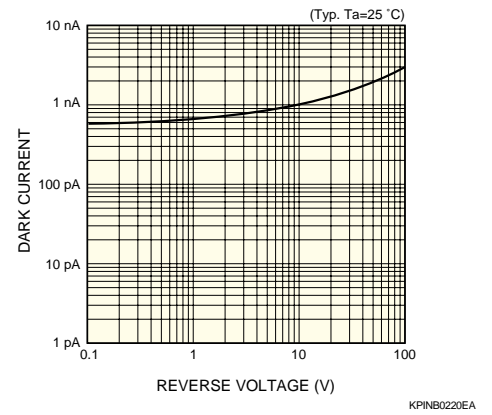
### ■ Spectral response



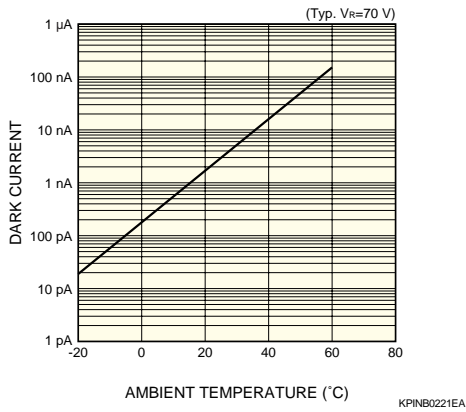
### ■ Photo sensitivity temperature characteristic



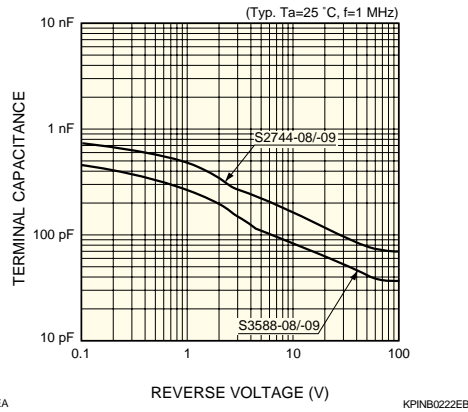
### ■ Dark current vs. reverse voltage



### ■ Dark current vs. ambient temperature

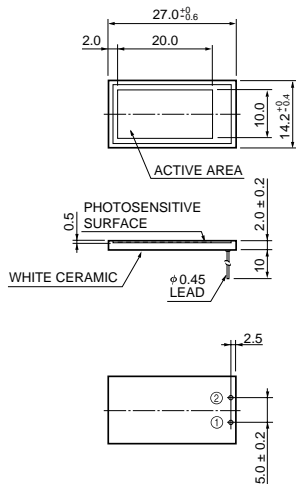


### ■ Terminal capacitance vs. reverse voltage



### ■ Dimensional outlines (unit: mm)

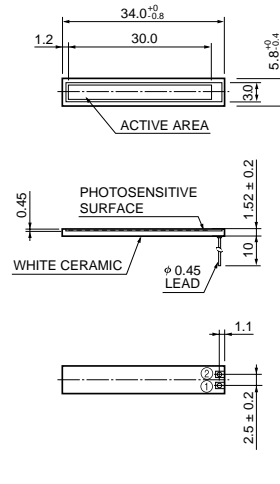
#### ① S2744-08/-09



The coating resin may extend a maximum of 0.1 mm beyond the upper surface of the package.

KPINA0039EB

#### ② S3588-08/-09



The coating resin may extend a maximum of 0.1 mm beyond the upper surface of the package.

KPINA0042EB

## HAMAMATSU

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