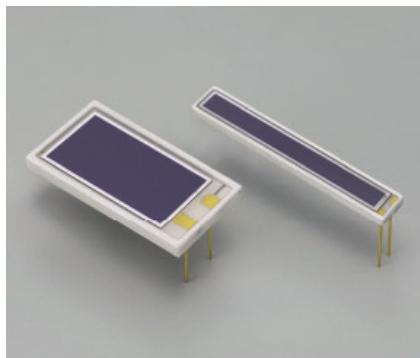


# Si PIN photodiode

S2744/S3588-08, -09



## Large active area Si PIN photodiodes

### Features

- ➔ Sensitivity matching with BGO and CsI (TI) scintillators
- ➔ High quantum efficiency (Unsealed type): QE=85 % ( $\lambda=540$  nm)
- ➔ Low capacitance
- ➔ High-speed response
- ➔ High stability
- ➔ Good energy resolution

### Applications

- ➔ Scintillation detectors
- ➔ Hodoscopes
- ➔ TOF counters

### Structure / Absolute maximum ratings

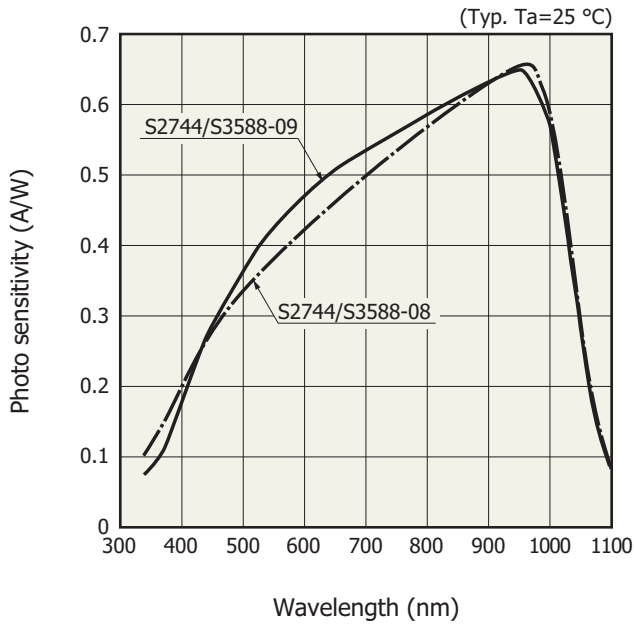
Type No.	Window material	Active area (mm)	Depletion layer thickness (mm)	Absolute maximum ratings			
				Reverse voltage $V_R$ max	Power dissipation $P$ (mW)	Operating temperature $T_{opr}$ (°C)	Storage temperature $T_{stg}$ (°C)
S2744-08	Epoxy resin	10 × 20	0.3	100	100	-20 to +60	-20 to +80
S2744-09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

Note: Absolute maximum ratings are the values that must not be exceeded at any time. If even one of the absolute maximum ratings is exceeded even for a moment, the product quality may be impaired. Always be sure to use the product within the absolute maximum ratings.

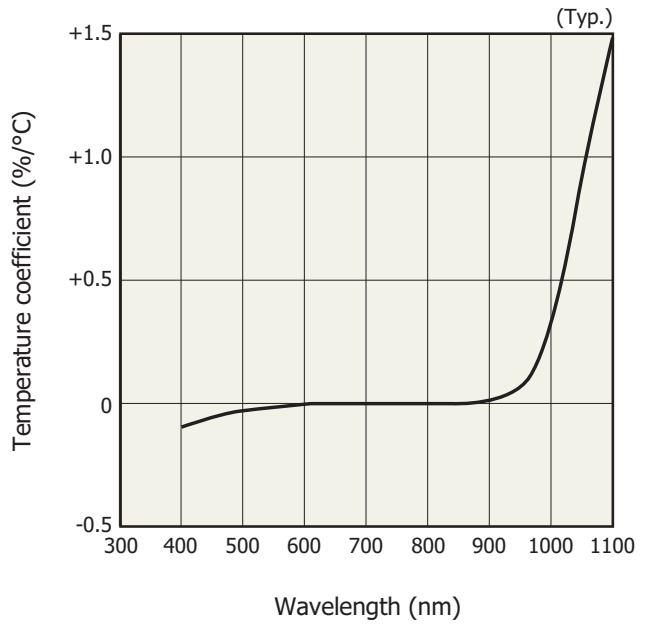
### Electrical and optical characteristics (Typ. $T_a=25$ °C, unless otherwise noted)

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(TI) 540 nm (A/W)		Typ.	Max.				
S2744-08	340 to 1100	960	0.66	0.20	0.30	0.36	3	10	1.12	25	85	$4.7 \times 10^{-14}$	
S2744-09				0.22	0.33	0.41							
S3588-08				0.20	0.30	0.36							
S3588-09				0.22	0.33	0.41							

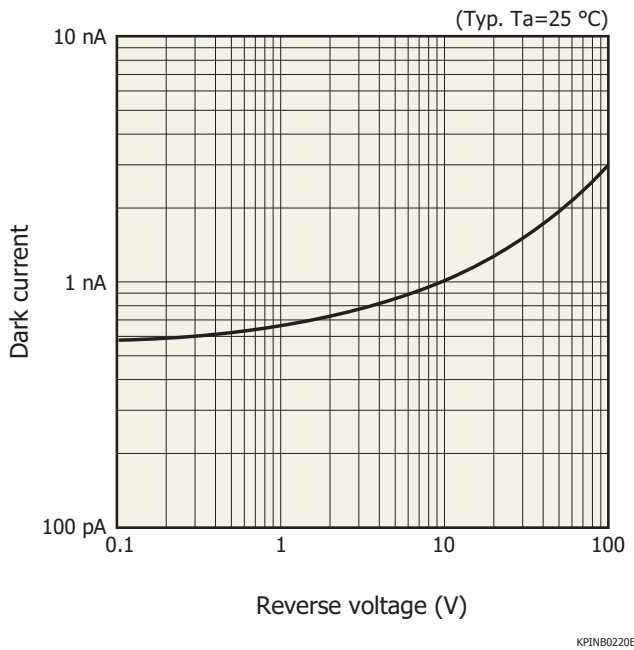
**Spectral response**



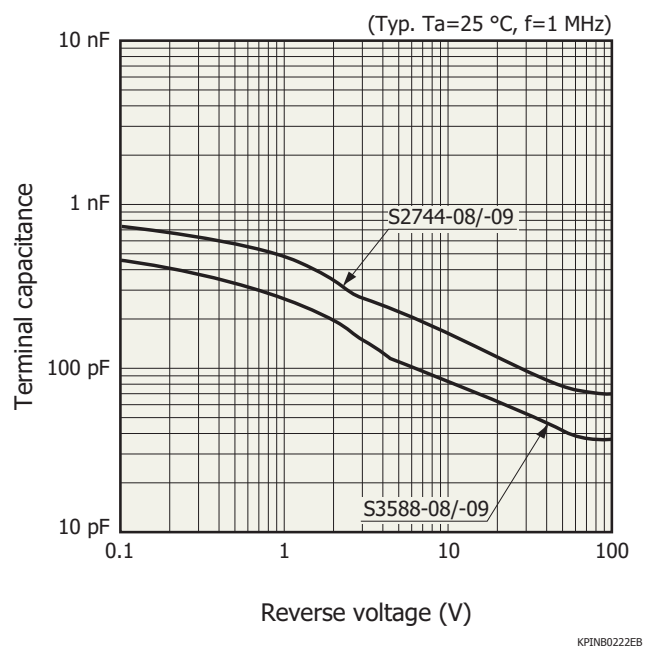
**Photo sensitivity temperature characteristic**



**Dark current vs. reverse voltage**

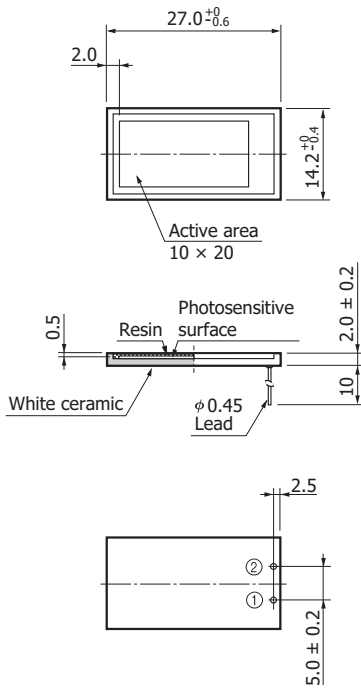


**Terminal capacitance vs. reverse voltage**

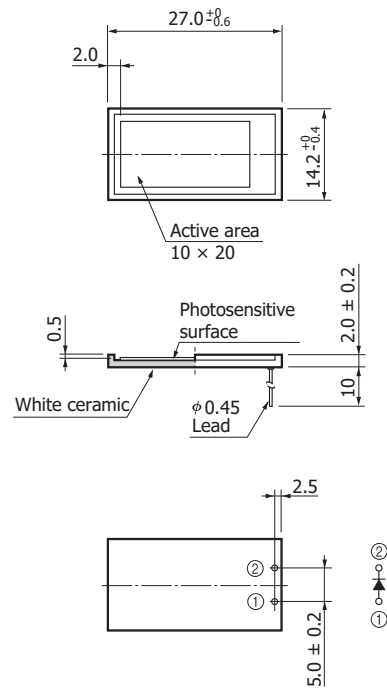


**Dimensional outline (unit: mm)**

S2744-08



S2744-09

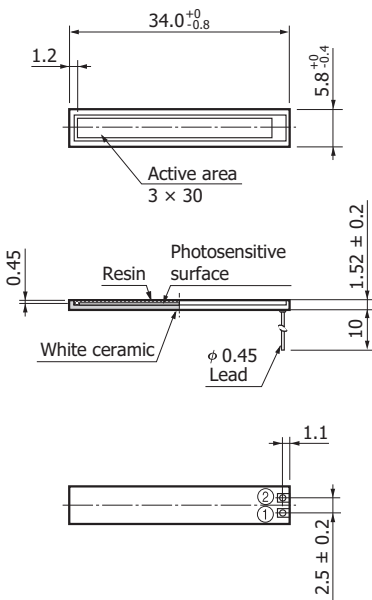


The potting resin may extend a maximum of 0.1 mm beyond the upper surface of the package.

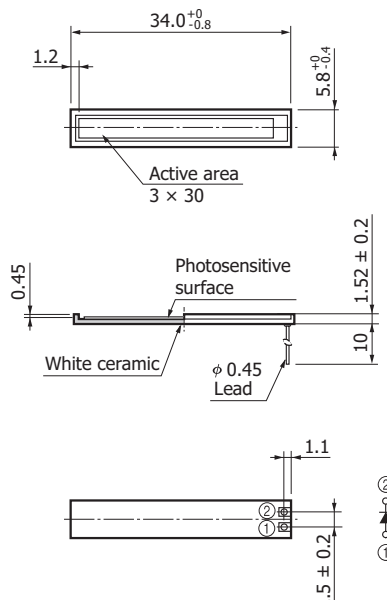
KPINA0039EC

KPINA0108EA

S3588-08



S3588-09



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

KPINA0042EC

KPINA0109EA

Information described in this material is current as of October, 2011.

Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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# **HAMAMATSU**

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