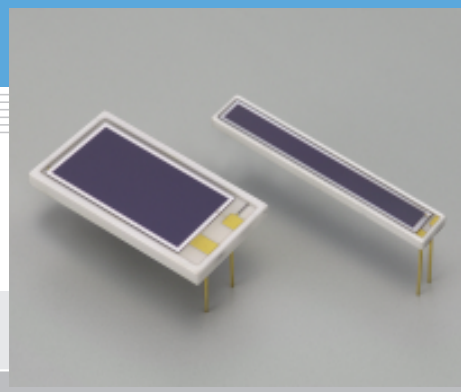


Si PIN photodiode

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

| General ratings / Absolute maximum ratings | | | | Absolute maximum ratings | | | |
|--|---------------------|-----------------|---------------------|----------------------------|--------------------------------|---------------------------------------|-------------------------------------|
| Type No. | Dimensional outline | Window material | Active area (mm) | Reverse voltage VR Max. | Power dissipation P (mW) | Operating temperature Topr (°C) | Storage temperature Tstg (°C) |
| S2744-08 | ① | Epoxy resin | 10 × 20 | 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 λ (nm) | Peak sensitivity wavelength λ_p (nm) | Photo sensitivity S | | | | Short circuit current Isc 100 lx (μ A) | Dark current ID VR=70 V | | Temp. coefficient of ID TCID (times/° C) | Cut-off Frequency fc VR=70 V (MHz) | Terminal capacitance Ct f= 1MHz VR=70 V (pF) | NEP VR=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) | | VR=70 V | | | | | |
| | | | | | | | | 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 × 10 ⁻¹⁴ |
| S2744-09 | | | 0.66 | 0.22 | 0.33 | 0.41 | | | | | | | |
| S3588-08 | | | 0.66 | 0.20 | 0.30 | 0.36 | 90 | | | | | | |
| S3588-09 | | | 0.66 | 0.22 | 0.33 | 0.41 | | | | | | | |

Spectral response

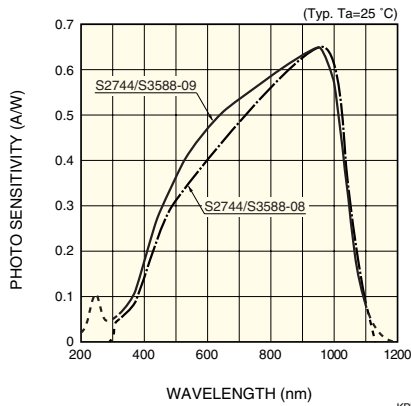
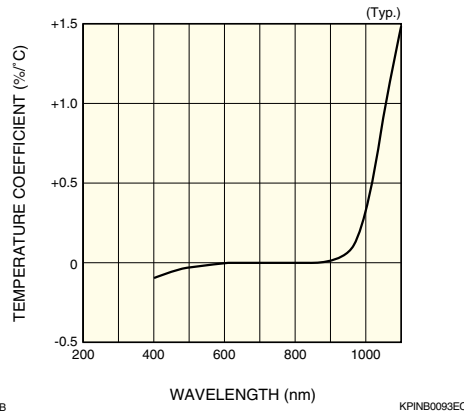
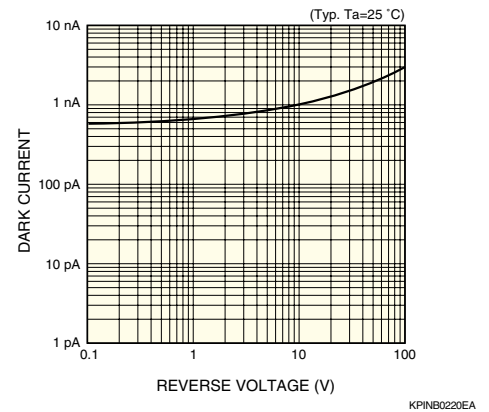


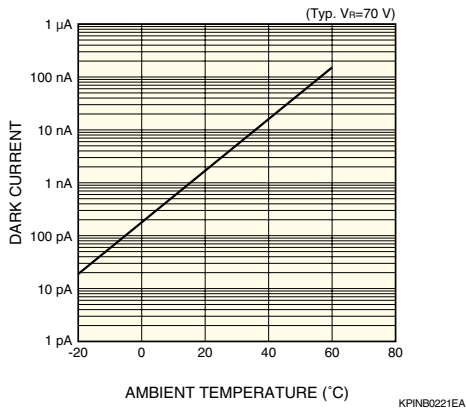
Photo sensitivity temperature characteristic



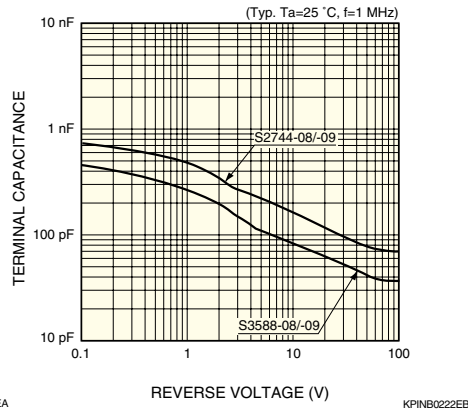
Dark current vs. reverse voltage



Dark current vs. ambient temperature

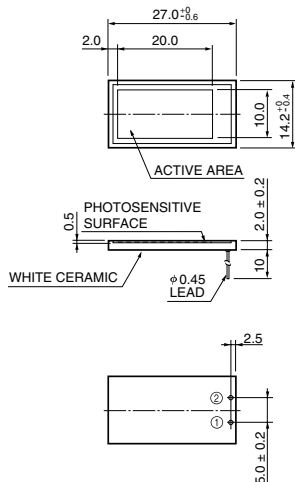


Terminal capacitance vs. reverse voltage



Dimensional outlines (unit: mm)

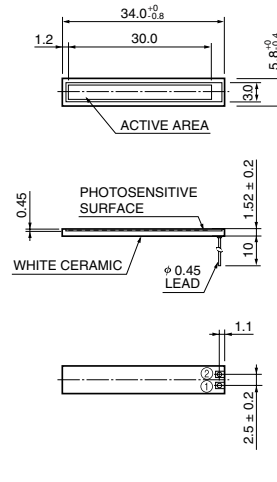
① S2744-08/-09



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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