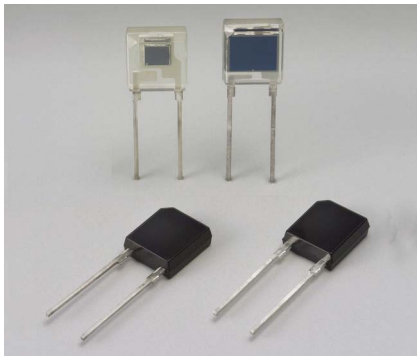


# Si PIN photodiodes



S2506/S6775/S6967 series

## Plastic SIP (single in-line package)

S2506/S6775 series and S6967 are Si PIN photodiodes with large active areas, molded into a clear or visible-cut plastic SIP for detecting visible to near infrared range or near infrared range only. These Si PIN photodiodes feature a high sensitivity, a high-speed response and large active areas.

### Features

- **S2506-02: visible to near infrared range**  
**S2506-04: visible-cut**  
**S6775, S6967: visible to near infrared range, high sensitivity, high-speed response, large active area**  
**S6775-01, S6967-01: visible-cut, high sensitivity, high-speed response, large active area**
- **Plastic package: 7 × 7.8 mm**
- **Photosensitive area size**  
**S2506 series: 2.77 × 2.77 mm**  
**S6775/S6967 series: 5.5 × 4.8 mm**

### Applications

- **FSO (free space optics)**
- **Optical switches**
- **Laser radar, etc.**

### General ratings / Absolute maximum ratings

Type no.	Package	Photosensitive area size (mm)	Effective photosensitive area (mm <sup>2</sup> )	Absolute maximum ratings			
				Reverse voltage V <sub>R</sub> max. (V)	Power dissipation P (mW)	Operating temperature T <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°C)
S2506-02	Plastic	2.77 × 2.77	7.7	20	150	-25 to +85	-40 to +100
S2506-04					50		
S6775		5.5 × 4.8	26.4		50		
S6775-01							
S6967							
S6967-01							

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

### Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

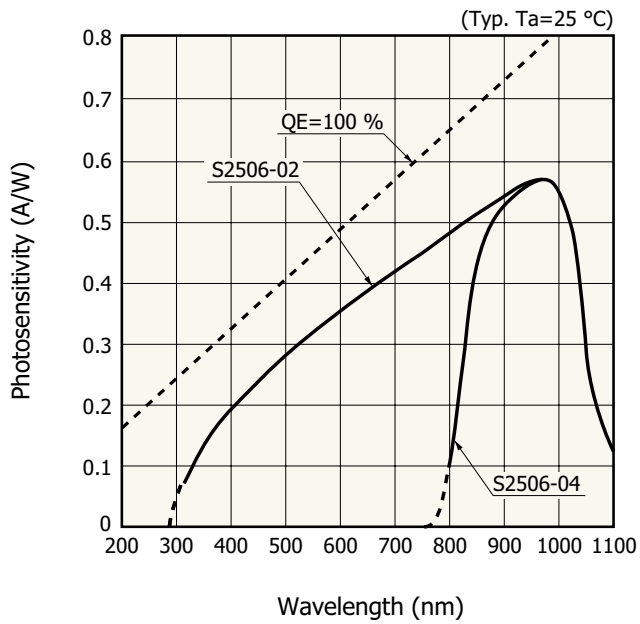
Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ <sub>p</sub> (nm)	Photosensitivity S (A/W)				Short circuit current I <sub>sc</sub> 100 lx (μA)	Dark current I <sub>D</sub>		Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Cutoff frequency f <sub>c</sub> R <sub>L</sub> =50 Ω -3 dB (MHz)	Terminal capacitance C <sub>t</sub> f=1 MHz (pF)	NEP (W/Hz <sup>1/2</sup> )
			λ <sub>p</sub>	660 nm	780 nm	830 nm		Typ. (nA)	Max. (nA)				
S2506-02	320 to 1100	960	0.56	0.4	0.48	0.5	7.3	0.1* <sup>1</sup>	10* <sup>1</sup>	1.15	25* <sup>1</sup>	15* <sup>1</sup>	1.0 × 10 <sup>-14*1</sup>
S2506-04	760 to 1100			-	-	0.25	4.1						
S6775	320 to 1100	960	0.7	0.45	0.55	0.6	30	0.5* <sup>2</sup>	10* <sup>2</sup>		15* <sup>2</sup>	40* <sup>2</sup>	1.8 × 10 <sup>-14*2</sup>
S6775-01	720 to 1100			0.68	-	0.48	0.54						
S6967	320 to 1060	900	0.65	0.45	0.55	0.6	26	5* <sup>2</sup>	50* <sup>2</sup>		50* <sup>2</sup>	50* <sup>2</sup>	2.0 × 10 <sup>-14*2</sup>
S6967-01	700 to 1060			0.63	-	0.48	0.54						

\*1: V<sub>R</sub>=12 V

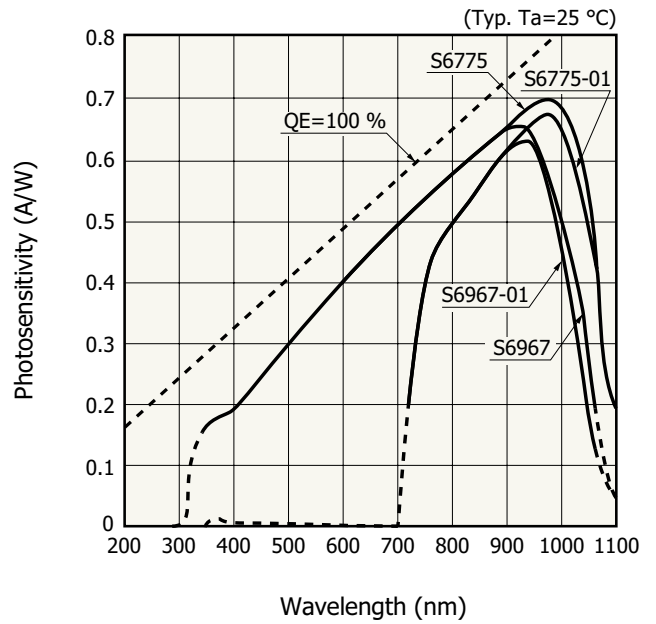
\*2: V<sub>R</sub>=10 V

**Spectral response**

S2506 series

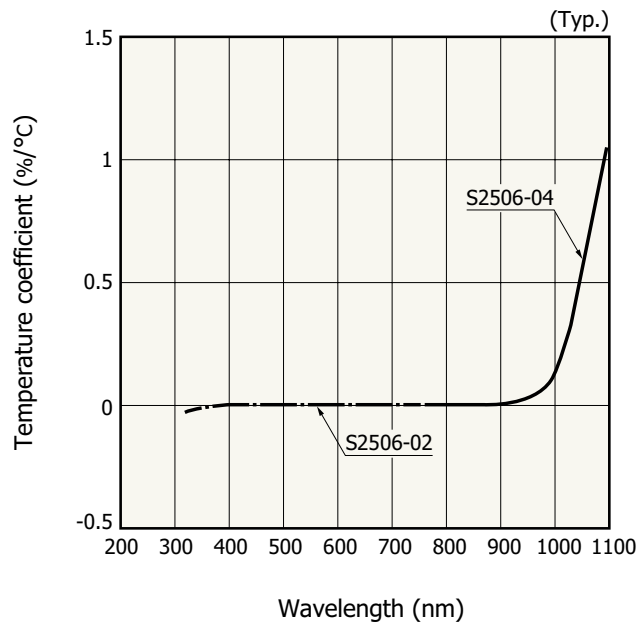


S6775/S6967 series

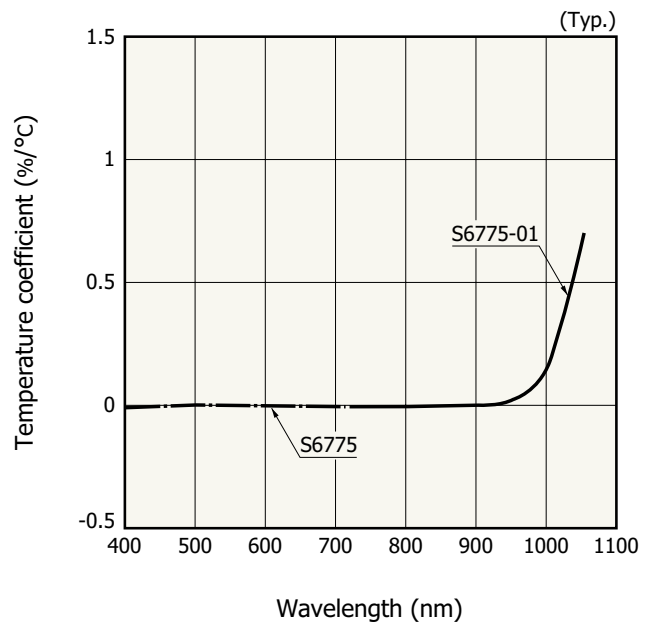


**Photosensitivity temperature characteristics**

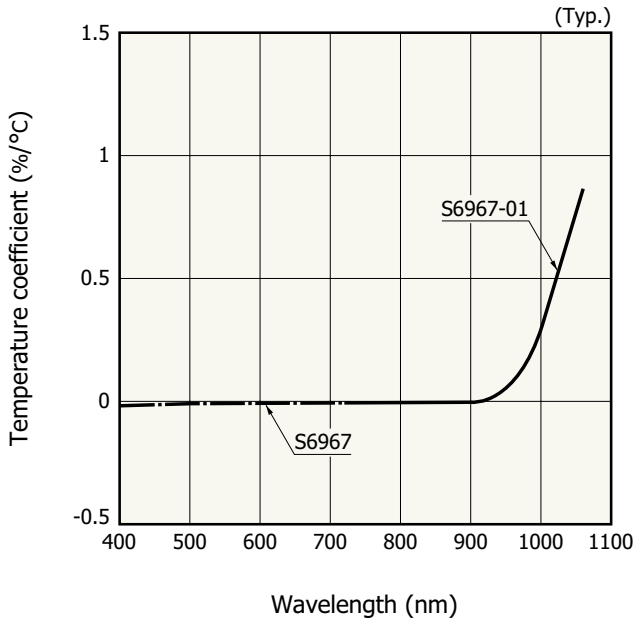
S2506 series



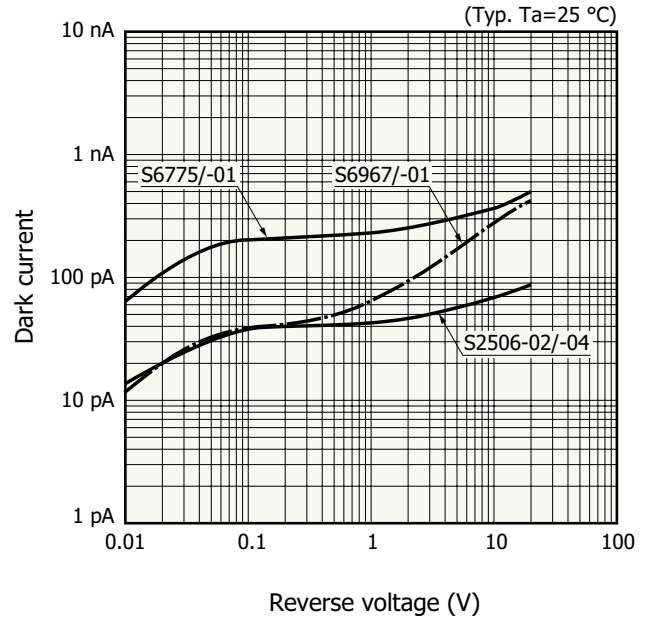
S6775 series



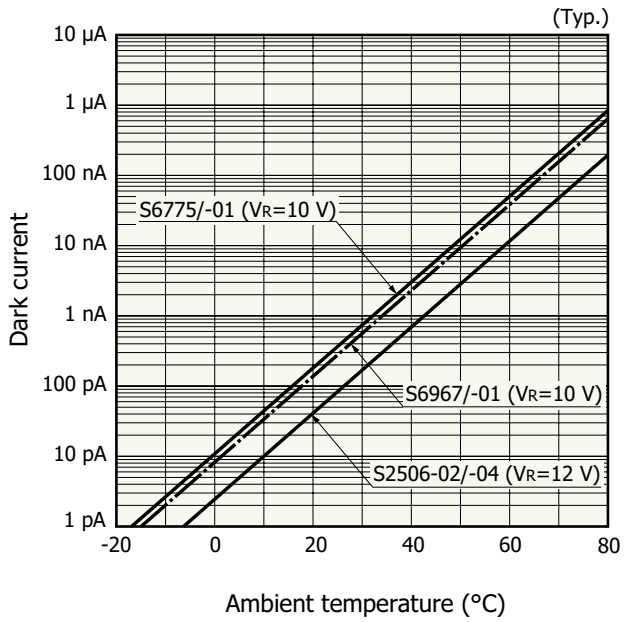
S6967 series



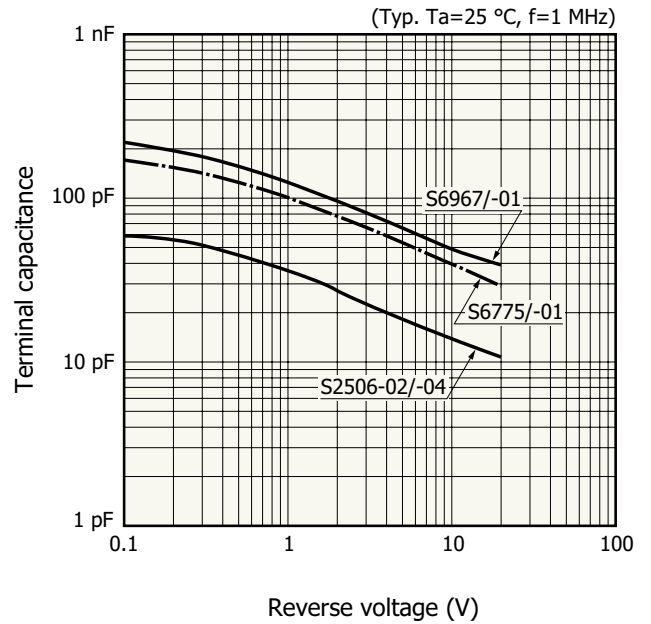
Dark current vs. reverse voltage



Dark current vs. ambient temperature

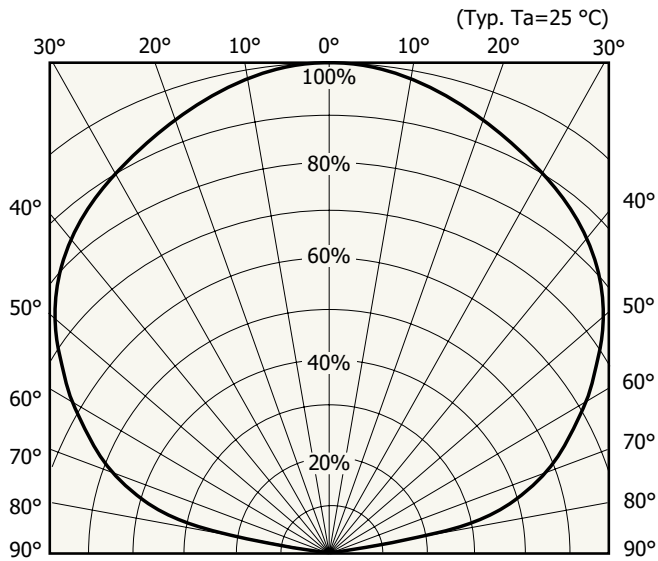


Terminal capacitance vs. reverse voltage



**Directivity**

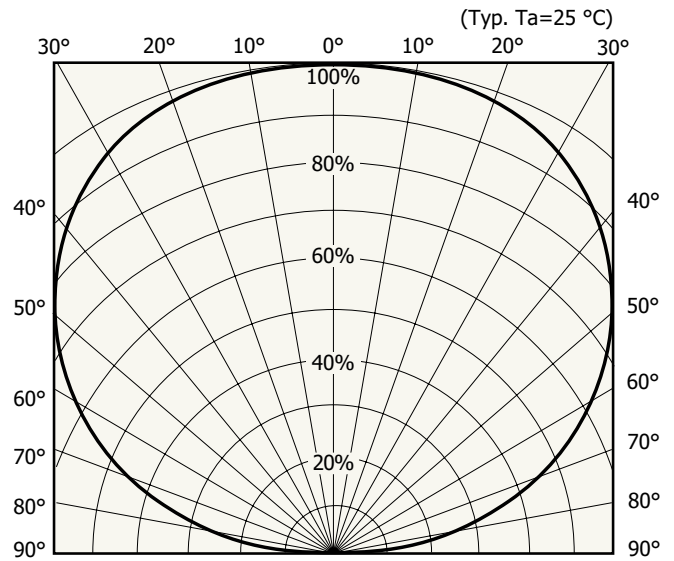
S2506 series



Relative sensitivity

KPINB0065EB

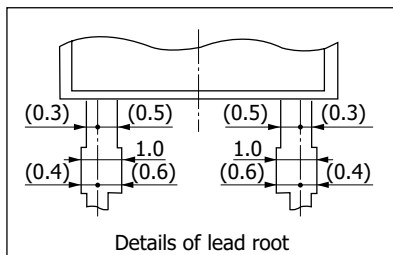
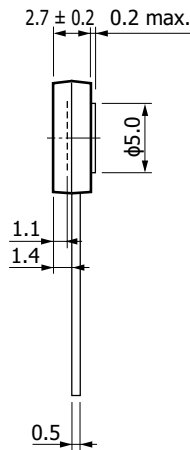
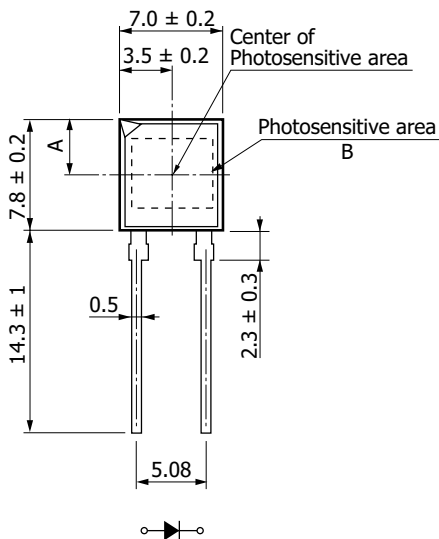
S6775/S6967 series



Relative sensitivity

KPINB0401EA

**Dimensional outline (unit: mm)**



Type no.	A	B
S2506 series	2.8 ± 0.2	2.77 × 2.77
S6775/S6967 series	3.65 ± 0.2	5.5 × 4.8

Tolerance unless otherwise noted: ±0.1  
 Packing: Polyethylene pack [anti-static type]  
 Values in parentheses indicate reference values.

KPINA0084EF

### Recommended soldering conditions

Parameter	Specification	Remarks
Solder temperature	260 °C max. (once, 10 s or less)	at least 2 mm away from lead roots

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

### Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

#### ■ Precautions

- Notice
- Metal, ceramic, plastic package products

#### ■ Technical note

- Si photodiodes

Information described in this material is current as of May 2024.

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