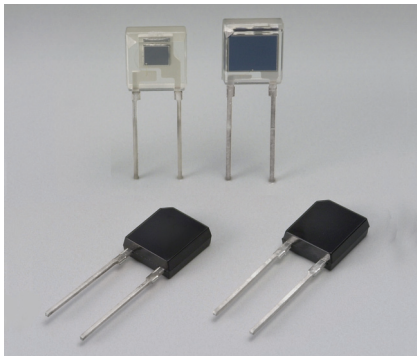


# Si PIN photodiodes



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)

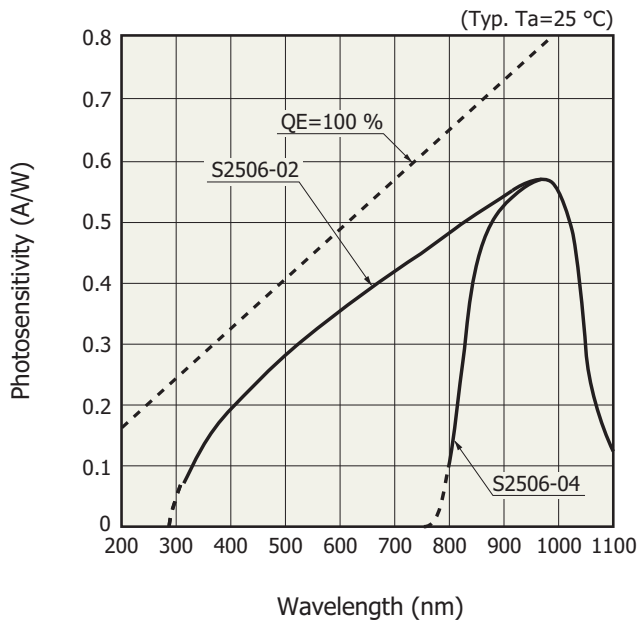
Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ <sub>p</sub> (nm)	Photosensitivity S (A/W)				Short circuit current I <sub>sc</sub> 100 lx (μA)	Dark current I <sub>D</sub>		Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Cutoff frequency f <sub>c</sub> R <sub>L</sub> =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>	5 <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

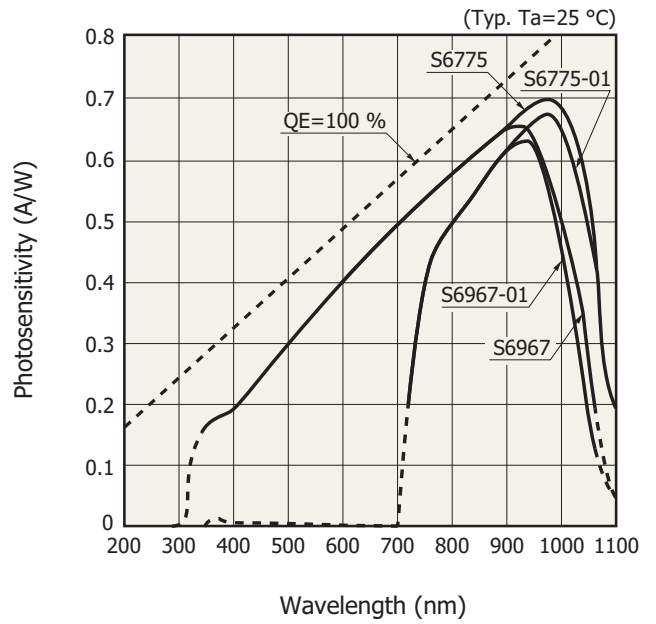
\*2: V<sub>R</sub>=10 V

**Spectral response**

S2506 series

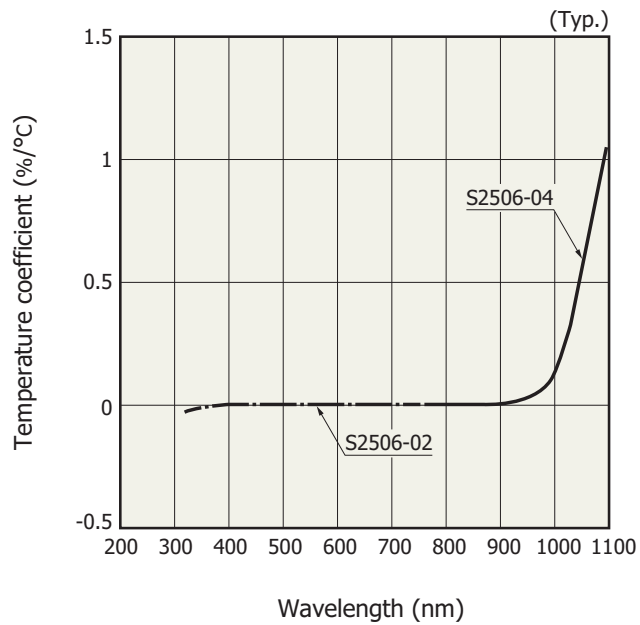


S6775/S6967 series

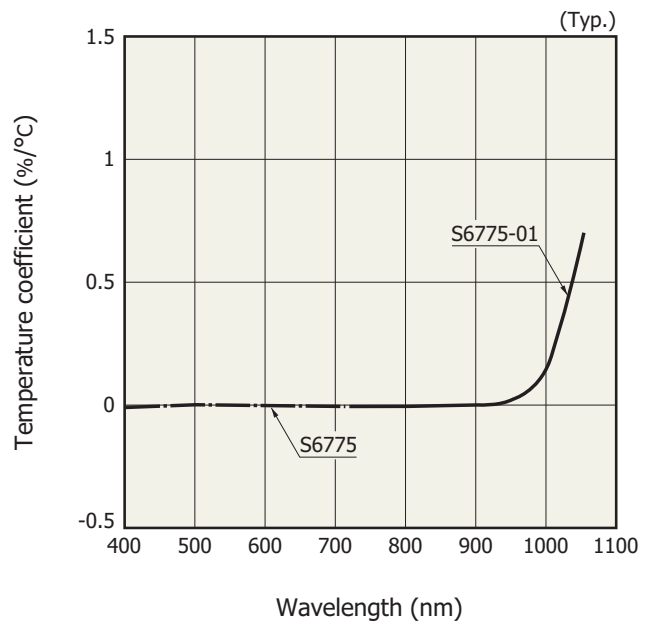


**Photosensitivity temperature characteristics**

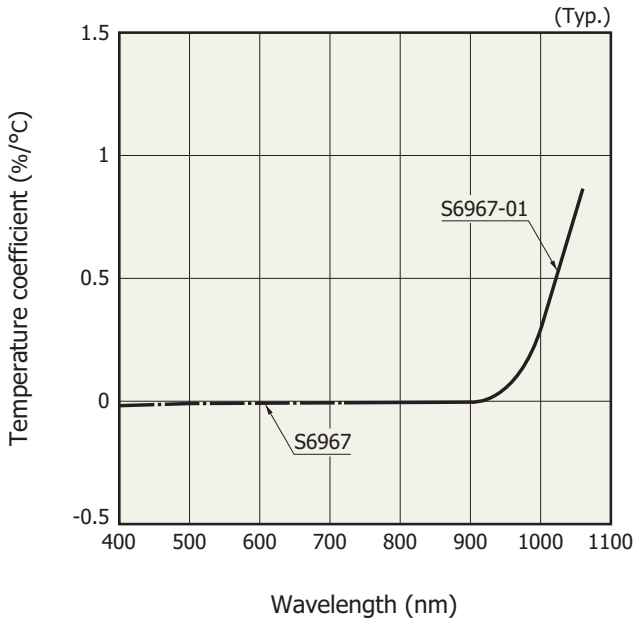
S2506 series



S6775 series

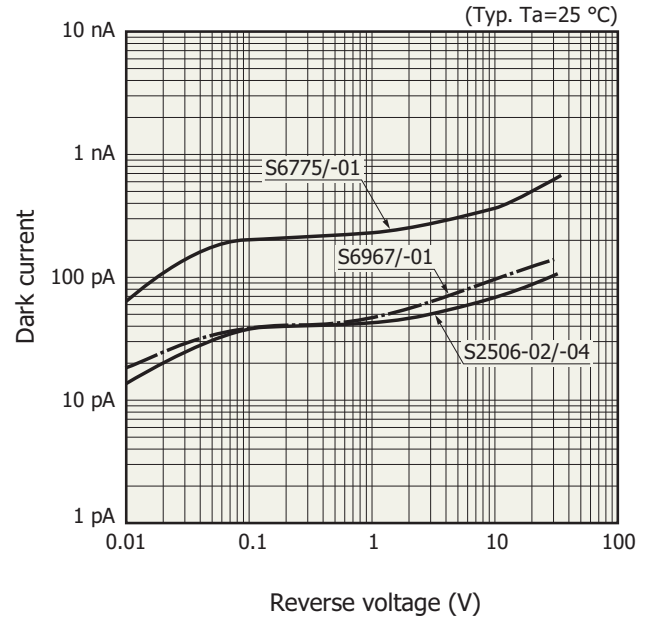


S6967 series



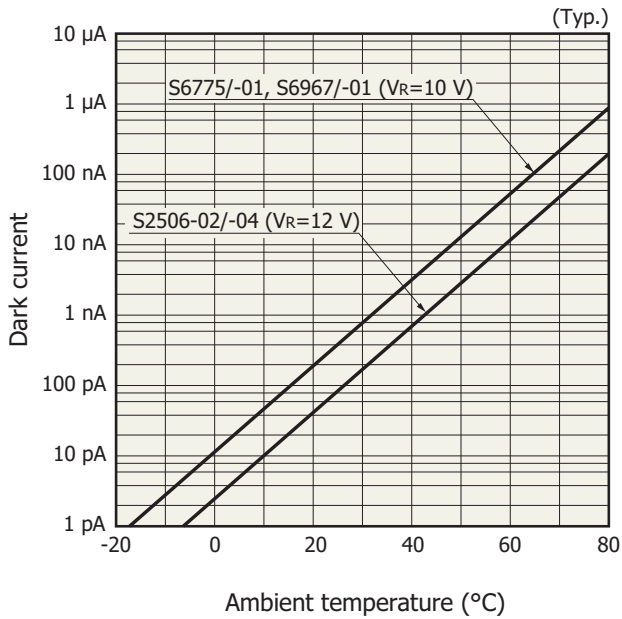
KPINB0460EA

Dark current vs. reverse voltage



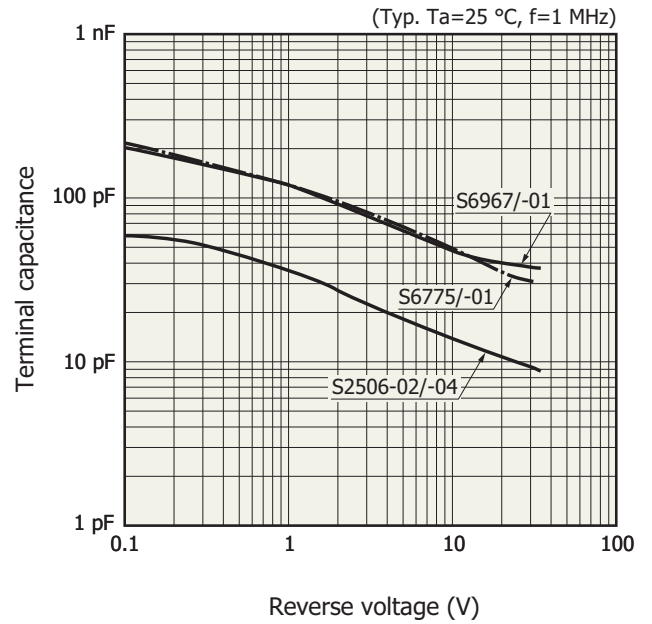
KPINB0168EE

Dark current vs. ambient temperature



KPINB0169ED

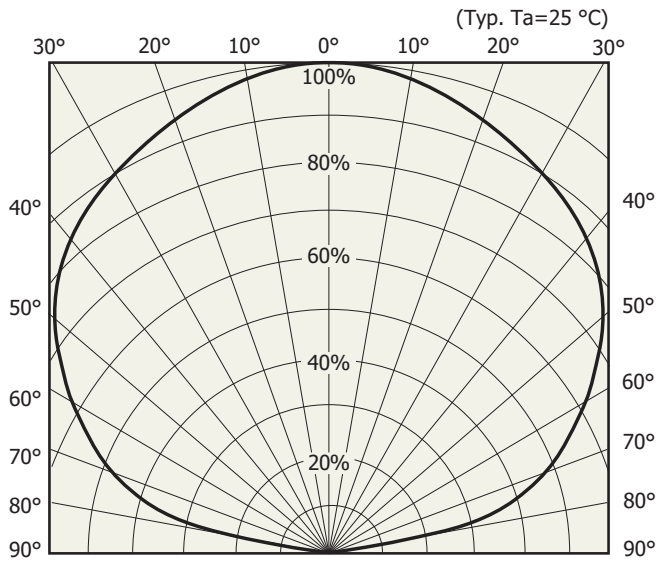
Terminal capacitance vs. reverse voltage



KPINB0170ED

**Directivity**

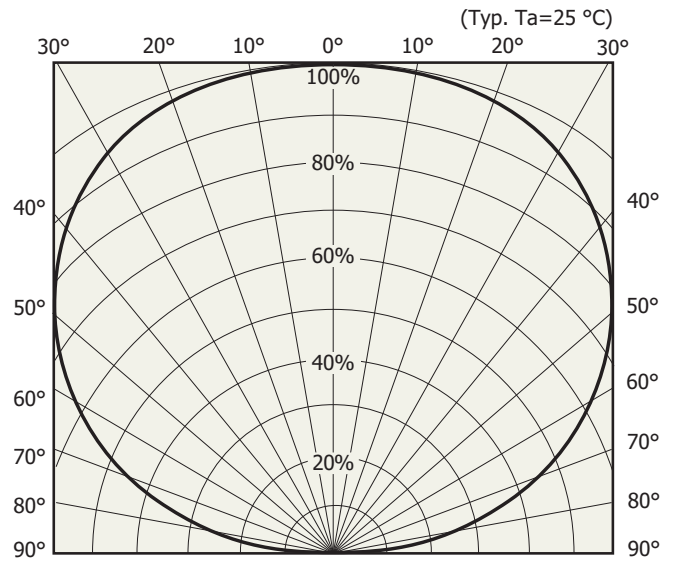
S2506 series



Relative sensitivity

KPINB0065EB

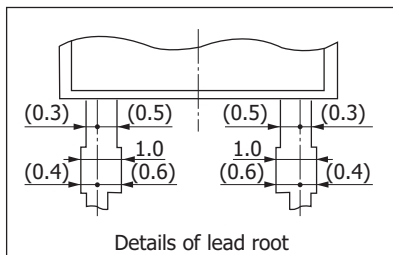
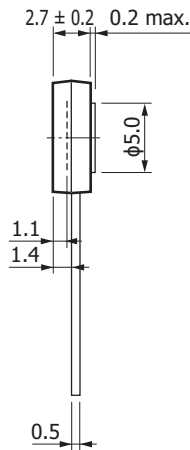
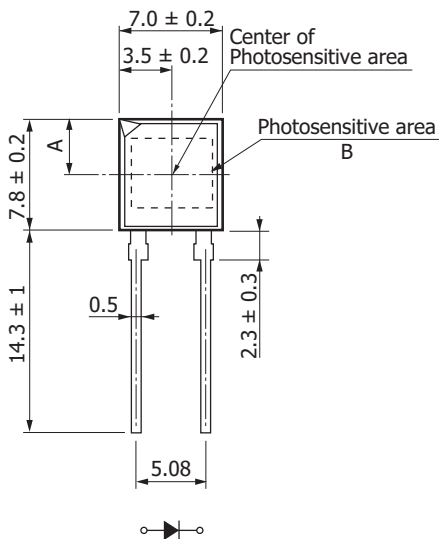
S6775/S6967 series



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 information

- Si photodiode/Application circuit examples

Information described in this material is current as of May 2021.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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