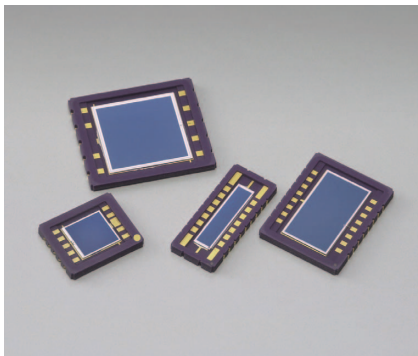


Si PIN photodiodes



S5106, S5107, S7509, S7510

Chip carrier package for surface mount

The S5106, S5107, S7509 and S7510 are Si PIN photodiodes sealed in chip carrier packages suitable for surface mount using automated solder reflow techniques. These photodiodes have large photosensitive areas, making them suitable for FSO (free space optics) where a wide field-of-view angle is required. Other applications include POS scanners, power meters and analytical instruments.

Features

- **Photosensitive area**
S5106: 5 × 5 mm
S5107: 10 × 10 mm
S7509: 2 × 10 mm
S7510: 6 × 11 mm
- **Ceramic chip carrier package for surface mount**
- **Suitable for solder reflow**
- **High sensitivity**

Applications

- **FSO**
- **Laser radar**
- **Power meter**
- **Bar-code reader**

Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material*	Photosensitive area size (mm)	Effective photosensitive area (mm ²)	Absolute maximum ratings			
				Reverse voltage V _R Max (V)	Power dissipation P (mW)	Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
S5106	①/R	5 × 5	25	30	50	-40 to +100	-40 to +125
S5107	②/R	10 × 10	100				
S7509	③/R	2 × 10	20				
S7510	④/R	6 × 11	66				

* Window R: Resin coating

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.

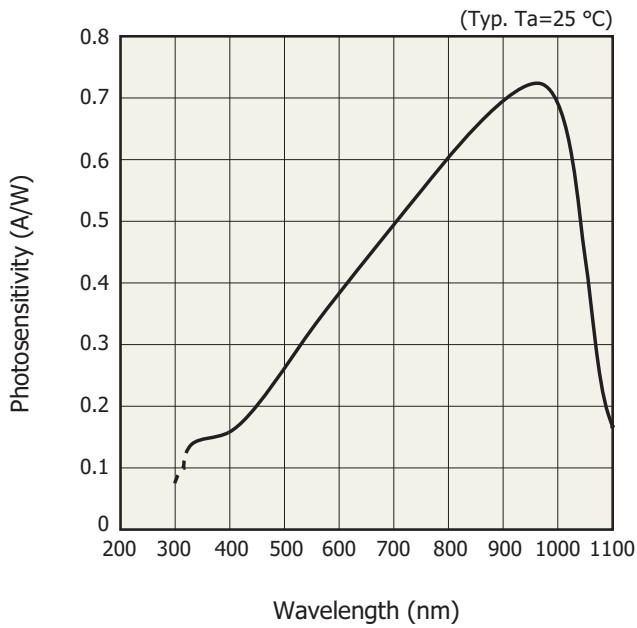
Electrical and optical characteristics (Typ. T_a=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ _p (nm)	Photosensitivity S (A/W)				Short circuit current I _{sc} 100 lx (μA)	Dark current I _D V _R =10 V		Temp. coefficient of I _D T _{CI_D} (times/°C)	Cutoff frequency f _c R _L =50 Ω V _R =10 V (MHz)	Terminal capacitance C _t f=1 MHz V _R =10 V (pF)	NEP V _R =10 V λ=λ _p (W/Hz ^{1/2})
			λ _p	660 nm	780 nm	830 nm		Typ. (nA)	Max. (nA)				
S5106	320 to 1100	960	0.72	0.45	0.57	0.62	27	0.4	5	1.15	20	40	1.6 × 10 ⁻¹⁴
S5107							110	0.9	10		10	150	2.4 × 10 ⁻¹⁴
S7509							22	0.5	5		20	40	1.7 × 10 ⁻¹⁴
S7510							72	1.0	10		15	80	2.5 × 10 ⁻¹⁴

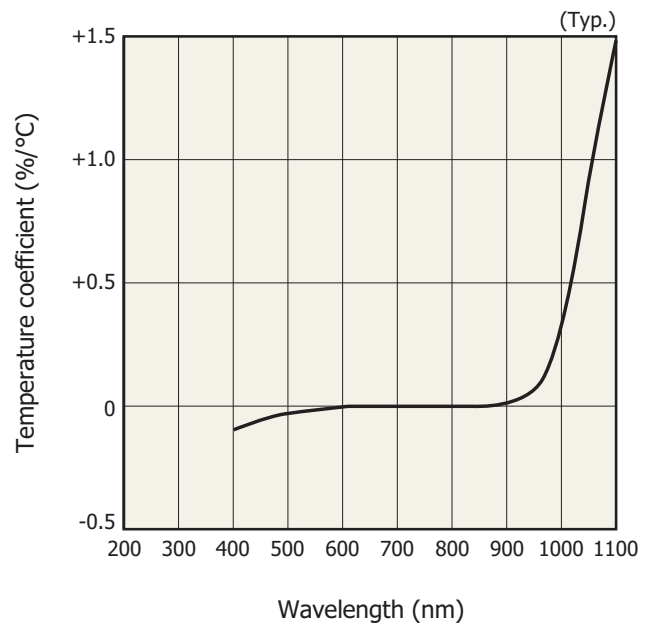
Note: S5106, S7509: For mass production, order unit is 100 pieces.

S5107, S7510: For mass production, order unit is 50 pieces.

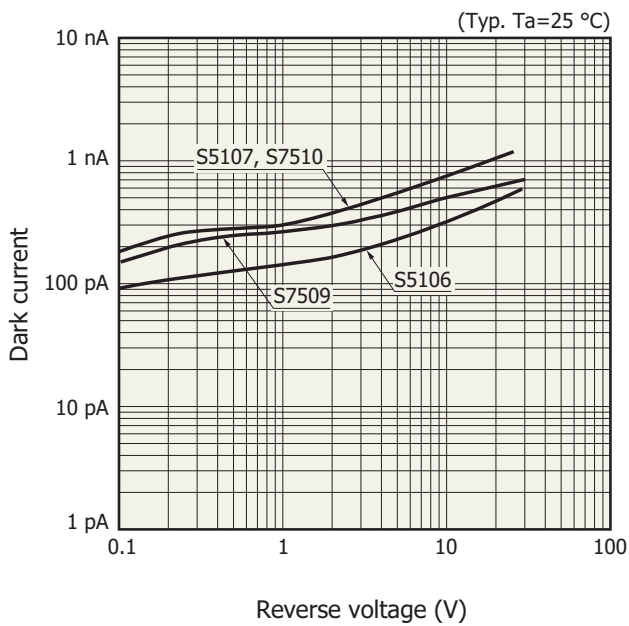
Spectral response



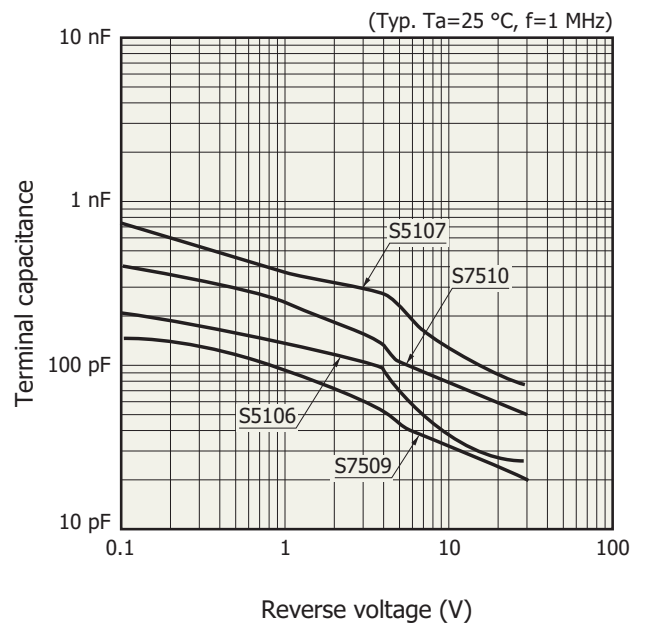
Photosensitivity temperature characteristics



Dark current vs. reverse voltage

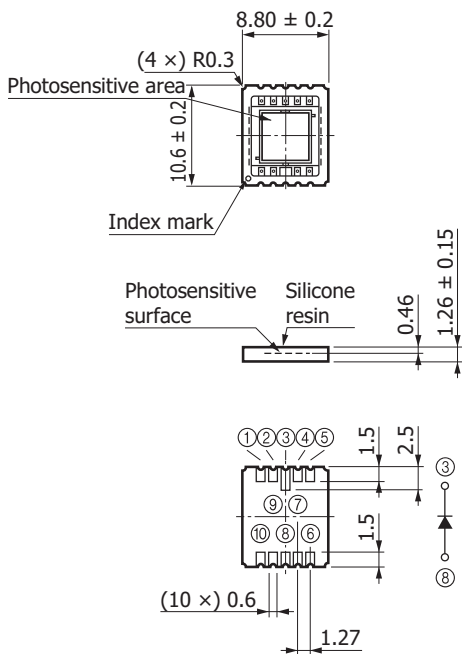


Terminal capacitance vs. reverse voltage



Dimensional outlines (unit: mm)

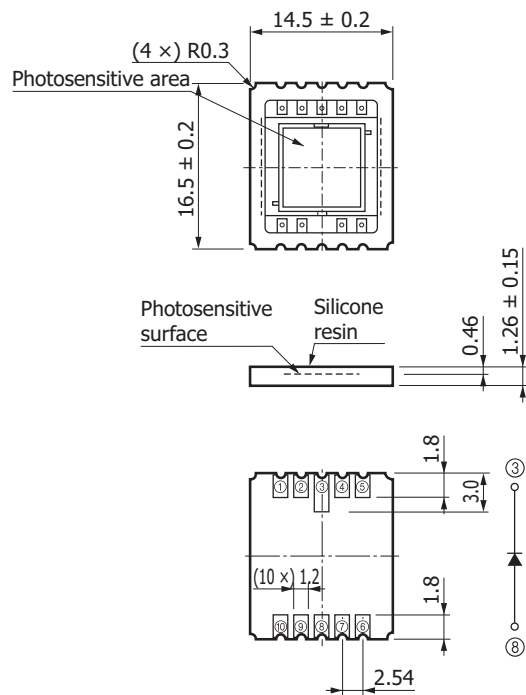
① S5106



NC (excluding pins ③⑧)
Burr shall protrude no more than 0.3 mm
on any side of package.

KPINA0002EG

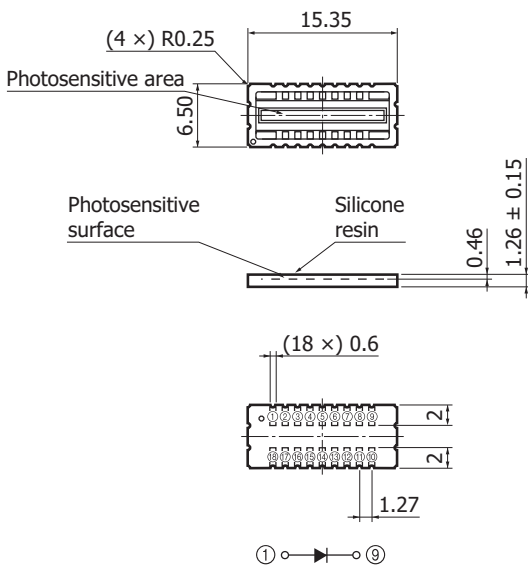
② S5107



NC (excluding pins ③⑧)
Burr shall protrude no more than 0.3 mm
on any side of package.

KPINA0013ED

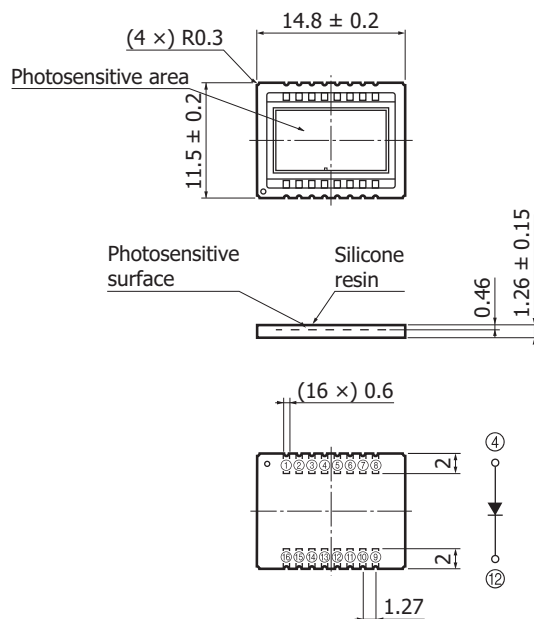
③ S7509



NC (excluding pins ①⑨)
Burr shall protrude no more than 0.3 mm
on any side of package.

KPINA0055EC

④ S7510

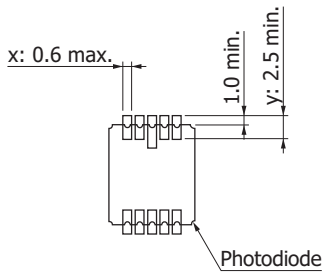


NC (excluding pins ④⑫)
Burr shall protrude no more than 0.3 mm
on any side of package.

KPINA0056EC

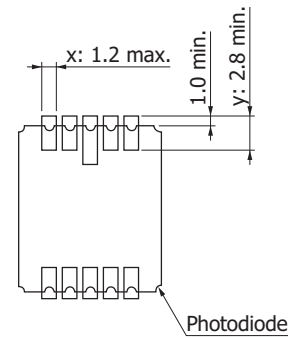
Recommended land pattern (unit: mm)

S5106



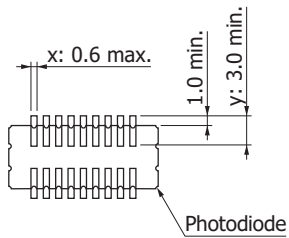
KPINC0031EB

S5107



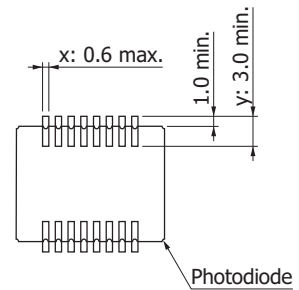
KPINC0032EB

S7509



KPINC0028EC

S7510



KPINC0033EB

1. Solder all terminals.
2. Do not make the land area larger than necessary.
3. It is preferable that the land sizes be about equal.
4. Make land width x about the same as the terminal width.
5. Make land length y at least 1 mm longer than the terminal length, protruding outside the package.

Precautions

- The light input window of this product uses soft silicone resin. Avoid touching the window to keep it from grime and damage that can decrease sensitivity. External force applied to the resin surface may deform or cut off the wires, so do not touch the window to prevent such troubles.
- Use rosin flux when soldering, to prevent the terminal lead corrosion. Reflow oven temperature should be at 260 °C maximum for 5 seconds maximum time under the conditions that no moisture absorption occurs. Reflow soldering conditions differ depending on the type of PC board and reflow oven. Carefully check these conditions before use.
- Silicone resin swells when it absorbs organic solvent, so do not use any solvent other than alcohol.
- Avoid unpacking until you actually use this product to prevent the terminals from oxidation and dust deposits or the coated resin from absorbing moisture.
When the product is stored for 3 months while not unpacked or 24 hours have elapsed after unpacking, perform baking in nitrogen atmosphere at 150 °C for 3 to 5 hours or at 120 °C for 12 to 15 hours before use.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Disclaimer
- Surface mount type products

Technical information

- Si photodiodes / Application circuit examples

Information described in this material is current as of May 2018.

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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