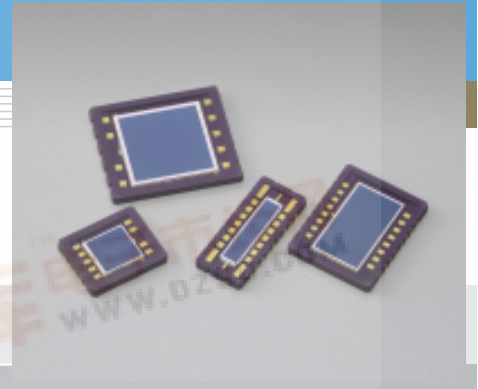


PHOTODIODE

# Si PIN photodiode S5106, S5107, S7509, S7510

## Chip carrier package for surface mount



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 active areas, making them suitable for spatial light transmission where a wide field-of-view angle is required. Other applications include POS scanners, power meters and analytical instruments.

### Features

- Active 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

- Spatial light transmission
- Laser radar
- Power meter
- Bar-code reader

### General ratings / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *	Active area size (mm)	Effective active 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)
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				

### 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)	Photo sensitivity S (A/W)				Short circuit current I <sub>sc</sub> 100 lx (μA)	Dark current I <sub>D</sub> V <sub>R</sub> =10 V		Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Cut-off frequency f <sub>c</sub> R <sub>L</sub> =50 Ω V <sub>R</sub> =10 V (MHz)	Terminal capacitance C <sub>t</sub> f=1 MHz V <sub>R</sub> =10 V (pF)	NEP V <sub>R</sub> =10 V λ=λ <sub>p</sub> (W/Hz <sup>1/2</sup> )	
			λ <sub>p</sub>	660 nm	780 nm	830 nm		I <sub>sc</sub>	V <sub>R</sub> =10 V					
									Typ.					Max.
S5106	320 to 1100	960	0.72	0.45	0.57	0.62	27	0.4	5	1.15	20	40	1.6 × 10 <sup>-14</sup>	
S5107							110	0.9	10		10	150	2.4 × 10 <sup>-14</sup>	
S7509							22	0.5	5		20	40	1.7 × 10 <sup>-14</sup>	
S7510							72	1.0	10		15	80	2.5 × 10 <sup>-14</sup>	

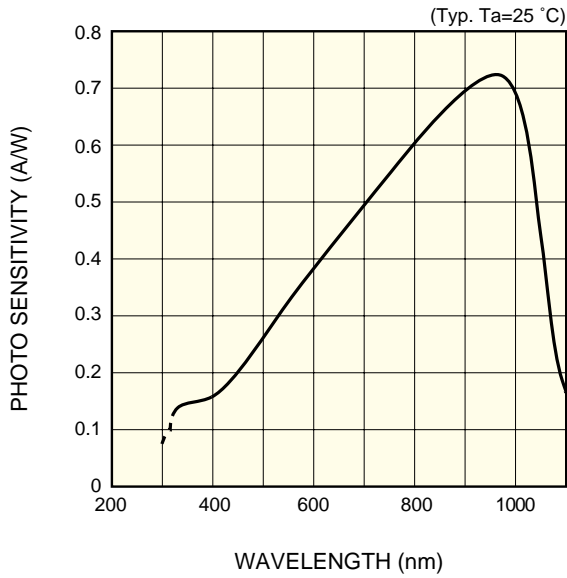
\* Window R: Resin coating

Note) S5106, S7509: For mass production, order unit is 100 pieces.  
S5107, S7510: For mass production, order unit is 50 pieces.



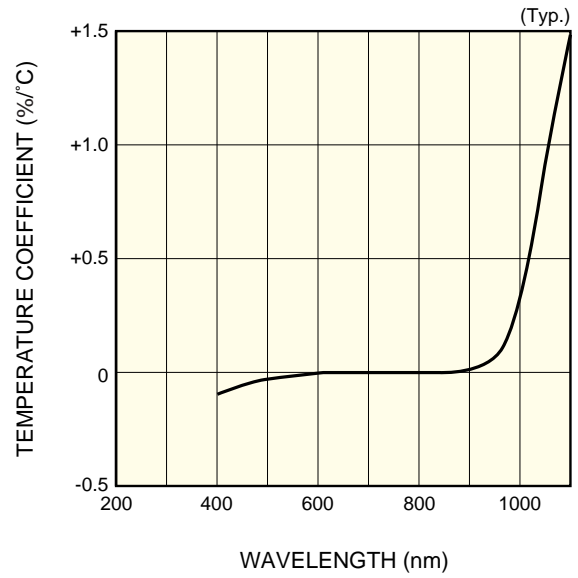
# Si PIN photodiode S5106, S5107, S7509, S7510

## ■ Spectral response



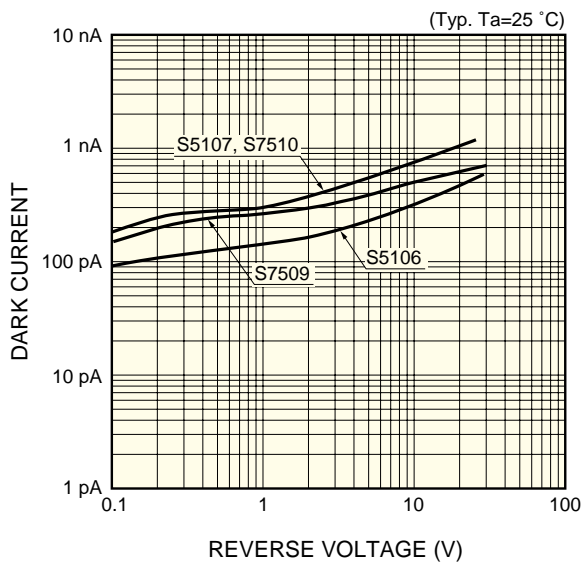
KPINB0166EA

## ■ Photo sensitivity temperature characteristic



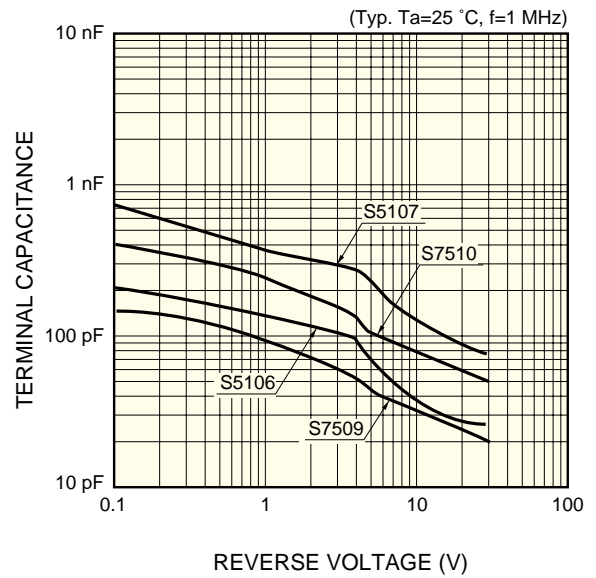
KPINB0093EC

## ■ Dark current vs. reverse voltage



KPINB0166EA

## ■ Terminal capacitance vs. reverse voltage

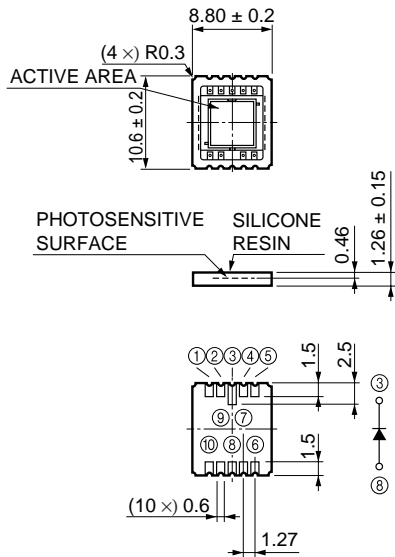


KPINB0128EA

# Si PIN photodiode S5106, S5107, S7509, S7510

## Dimensional outlines (unit: mm)

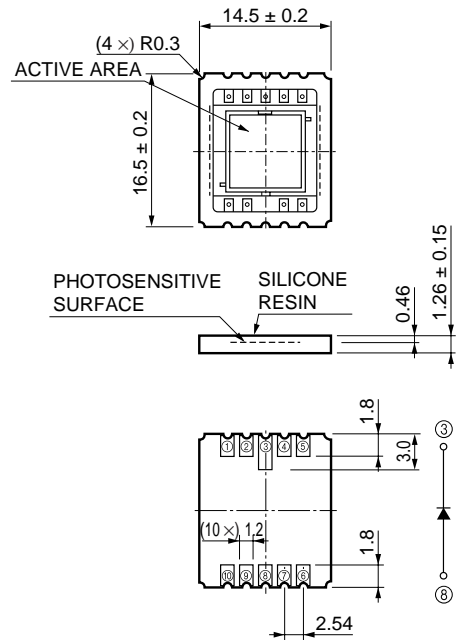
### ① S5106



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

KPINA0002EE

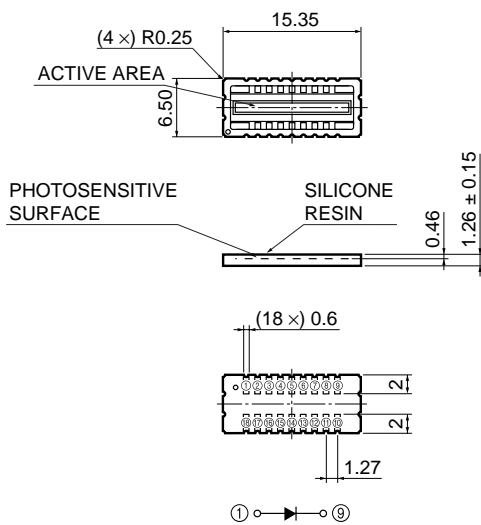
### ② S5107



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

KPINA0013EC

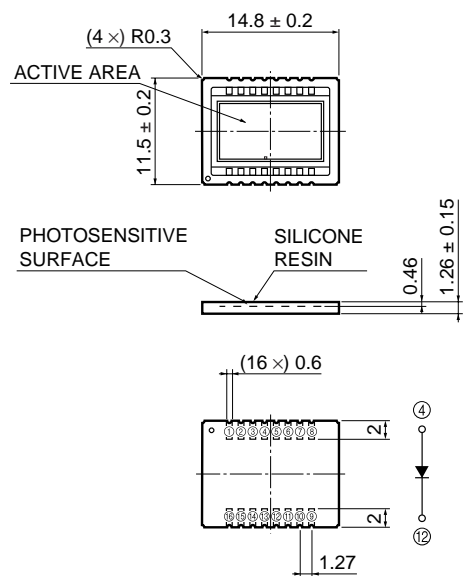
### ③ S7509



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

KPINA0055EB

### ④ S7510



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

KPINA0056EB

## Si PIN photodiode S5106, S5107, S7509, S7510

### Precautions for use

- 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.