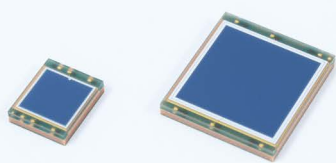


Si PIN photodiode

S15152 S15173



Surface mountable, high-speed response Si PIN photodiode

The S15152 and S15173 are Si PIN photodiodes sealed in a surface mountable chip carrier package. They can be mounted using solder reflow, which facilitates automation. Since the photosensitive area is large, it is suitable for FSO (free space optics) and other applications that require a wide field of view. In addition, they can be used in a wide variety of applications including measurements and analysis.

Features

- Surface mount type
- Compatible with lead-free solder reflow
- High sensitivity, high-speed response

Applications

- FSO
- Laser radars
- Power meters
- Barcode readers

Structure

Parameter	S15152	S15173	Unit
Photosensitive area	5 × 5	10 × 10	mm
Package	Glass epoxy		-
Window material	Silicone resin		-

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Reverse voltage	V _R	30	V
Power dissipation	P	50	mW
Operating temperature*1	T _{opr}	-40 to +100	°C
Storage temperature*1	T _{stg}	-40 to +125	°C
Soldering temperature*1	T _{sol}	260 (3 times)*2	°C

*1: No dew condensation

When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

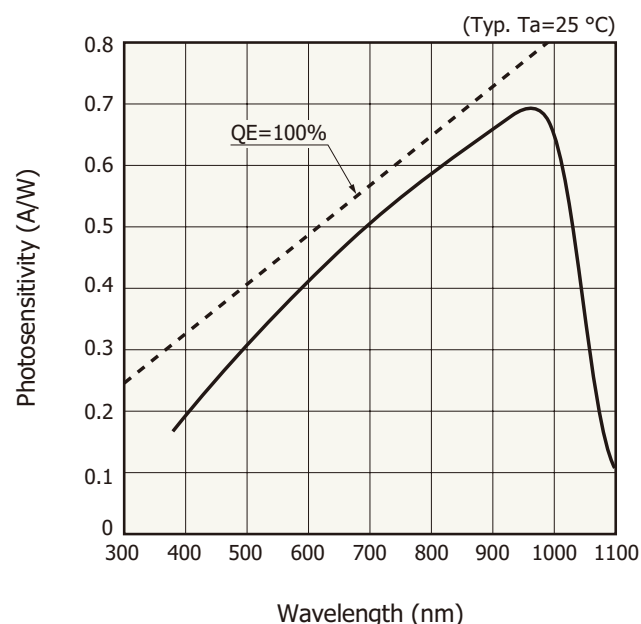
*2: Reflow soldering, JEDEC J-STD-020 MSL 3 (S15152), JEDEC J-STD-020 MSL4 (S15173), see P.7

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.

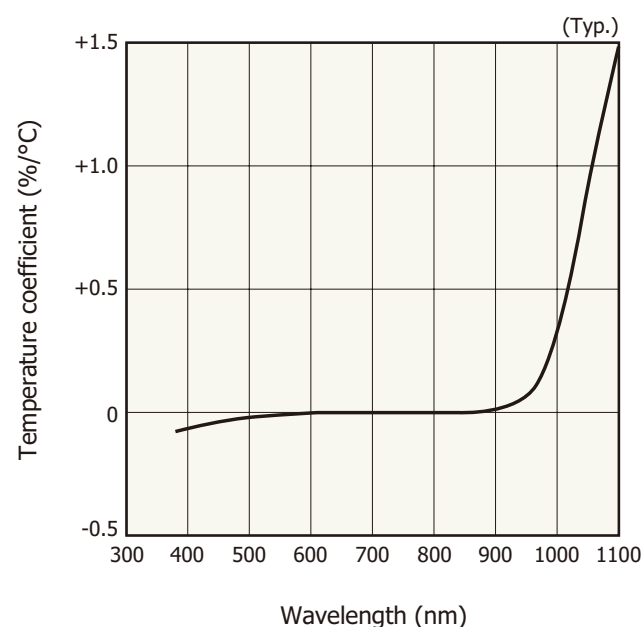
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Parameter		Symbol	Condition	S15152	S15173	Unit
Spectral response range		λ		380 to 1100		nm
Peak sensitivity wavelength		λ_p		960		nm
Photosensitivity		S	λ_p	0.69		A/W
			$\lambda=660$ nm	0.47		
			$\lambda=780$ nm	0.57		
			$\lambda=830$ nm	0.61		
Dark current	Typ.	I _D	V _R =10 V	0.2	0.5	nA
	Max.			5	10	
Dark current temperature coefficient		T _{CI} D		1.15		times/°C
Cutoff frequency		f _c	R _L =50 Ω, V _R =10 V	20		MHz
Terminal capacitance		C _t	f=10 kHz, V _R =10 V	43	155	pF
NEP		-	V _R =10 V, $\lambda=\lambda_p$	1.7 × 10 ⁻¹⁴	2.9 × 10 ⁻¹⁴	W/Hz ^{1/2}

Spectral response

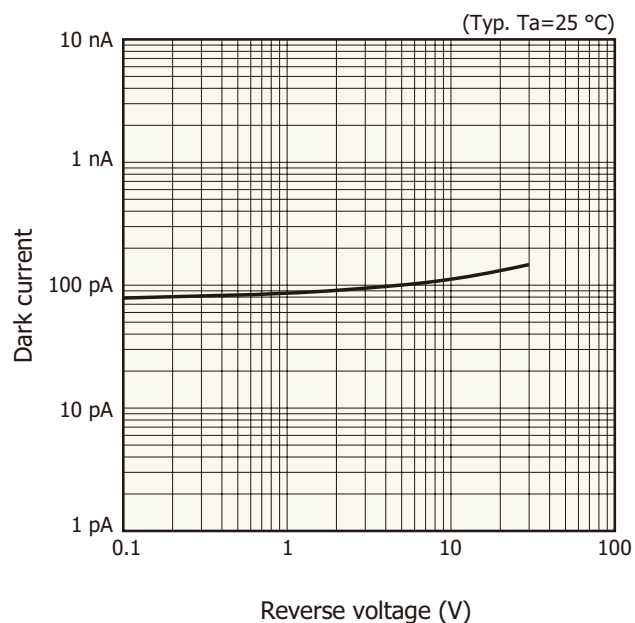


Sensitivity temperature characteristics

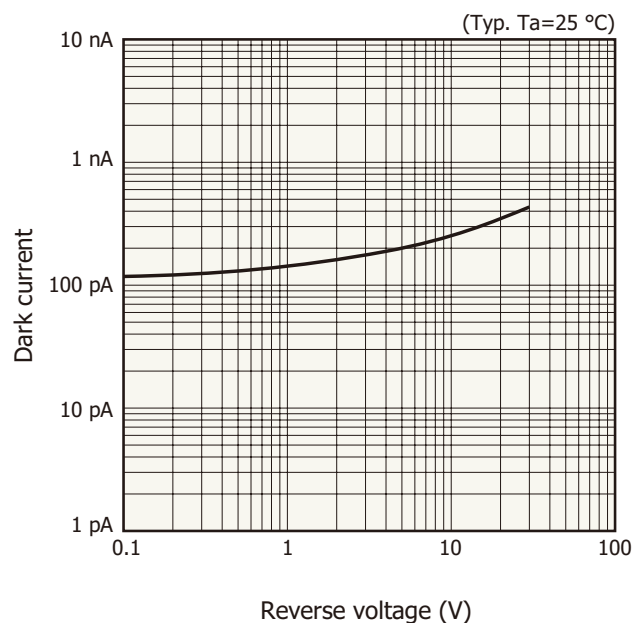


Dark current vs. reverse voltage

S15152

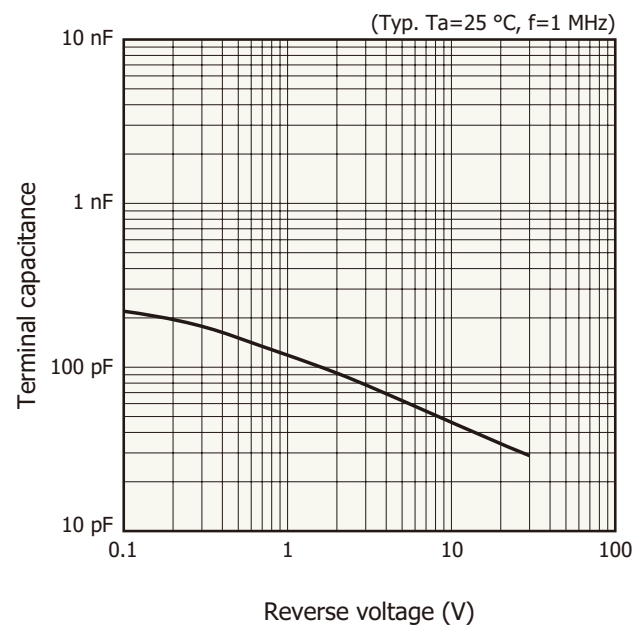


S15173

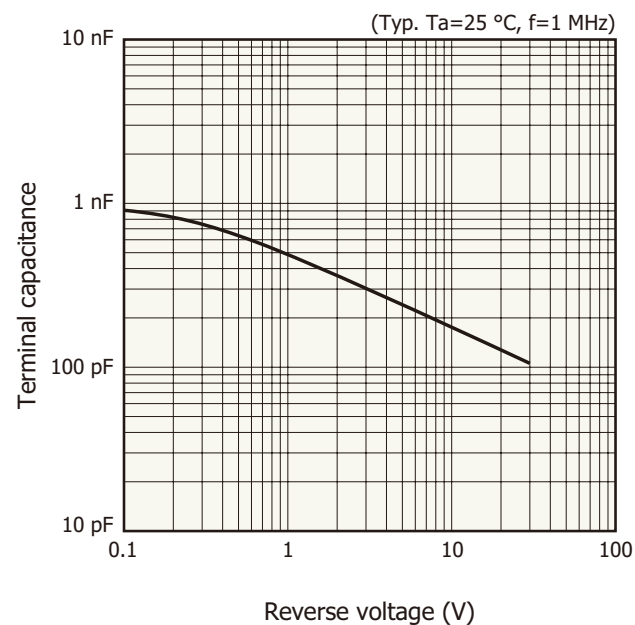


Terminal capacitance vs. reverse voltage

S15152

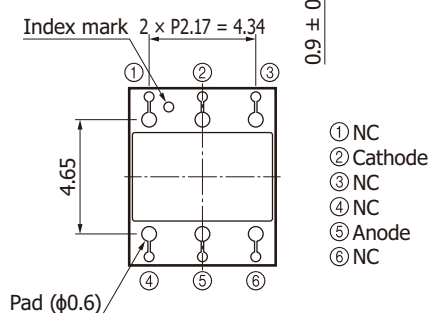
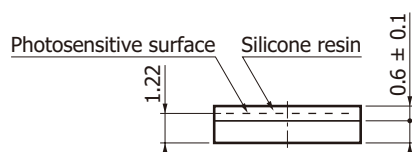
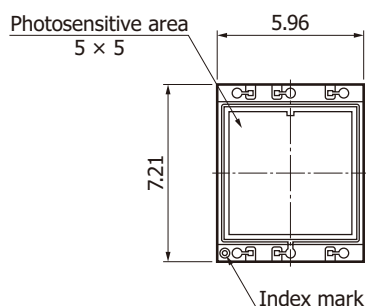


S15173



Dimensional outlines (unit: mm)

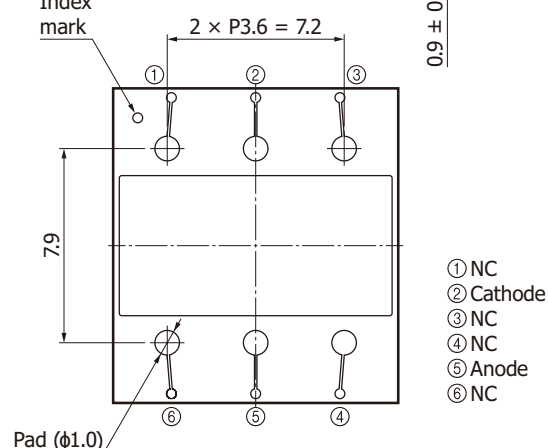
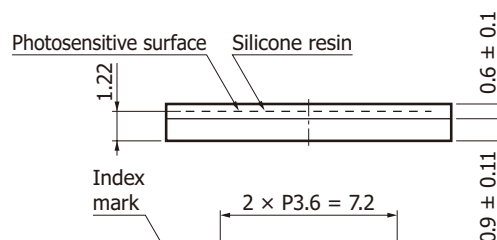
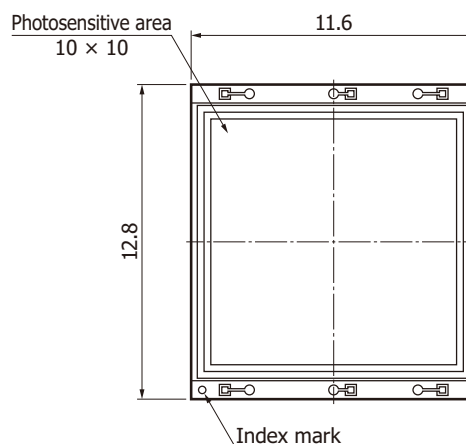
S15152



Tolerance unless otherwise noted: ±0.15 mm
Chip position accuracy with respect to package center:
-0.1 ≤ X ≤ +0.1
-0.1 ≤ Y ≤ +0.1

KPINA0132EB

S15173

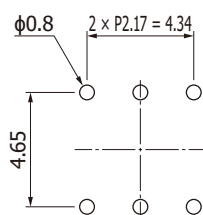


Tolerance unless otherwise noted: ±0.15 mm
Chip position accuracy with respect to package center:
-0.1 ≤ X ≤ +0.1
-0.1 ≤ Y ≤ +0.1

KPINA0133EA

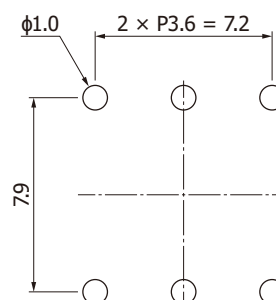
Recommended land patterns (unit: mm)

S15152



KPSDC0104EB

S15173



KPSDC0109EA

- Solder all terminals.
- Do not make the land area larger than necessary.
- It is preferable that the land sizes be about equal.
- Make land width about the same as the terminal width.

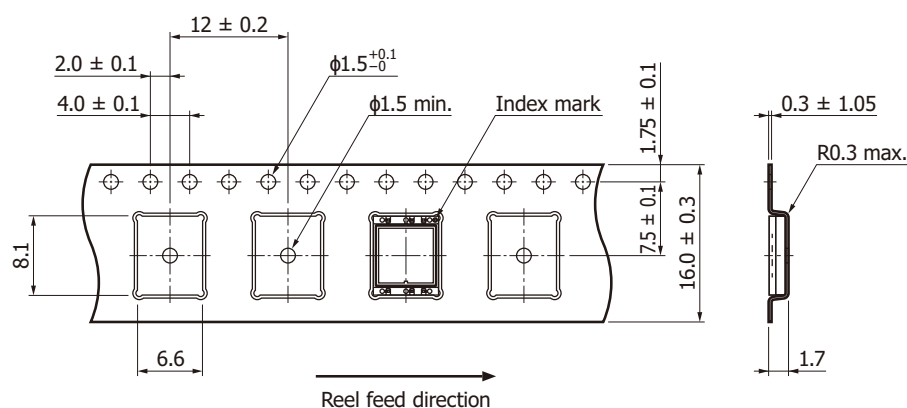
Standard packing specifications

S15152

■ Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
φ330 mm	φ100 mm	16 mm	PS	Conductive

■ Embossed tape (unit: mm, material: PS, conductive)



KPINCO046EB

■ Packing quantity

500 pcs/reel

■ Packing state

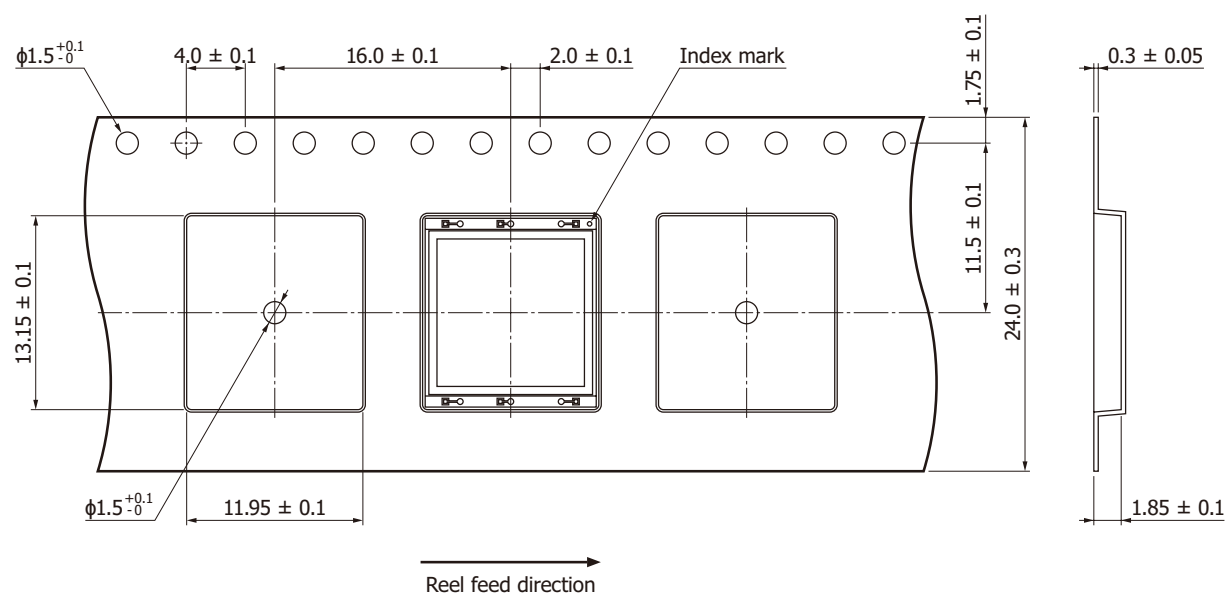
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

S15173

■ Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
φ330 mm	φ100 mm	24 mm	PS	Conductive

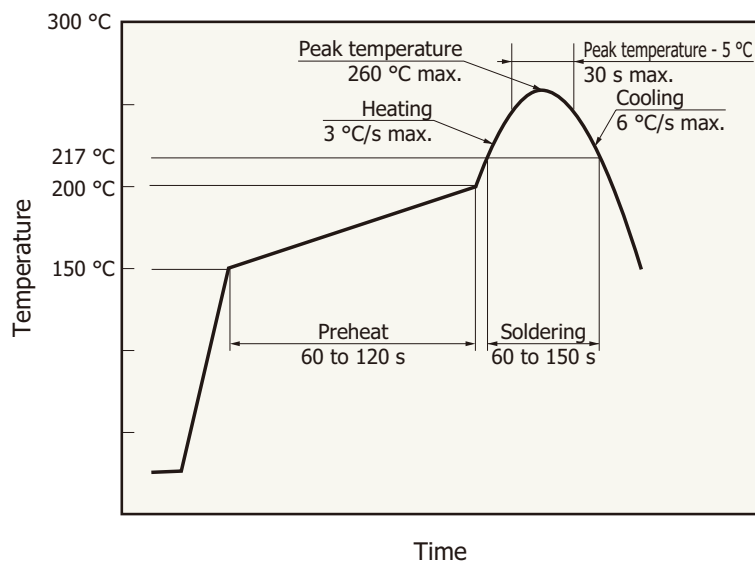
■ Embossed tape (unit: mm, material: PS, conductive)



KPINC0047EB

■ Packing quantity
100 pcs/reel■ Packing state
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

Recommended reflow soldering conditions



- After unpacking, store in an environment at a temperature of 30 °C or less and a humidity 60% or less, and perform reflow soldering within the storage period shown in the table below.

Type no.	Storage period
S15152	168 hours
S15173	72 hours

- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. When you set reflow soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

KMPDB0405EC

Baking

If more than 12 months have passed in the unopened state, or storage conditions are exceeded after opening the package, baking is required to remove moisture before reflow soldering. For the baking, refer to "Precautions / Surface mount type products" in the related information.

Recommended baking conditions

Temperature: 150 °C (3 to 5 hours) or 120 °C (12 to 15 hours)

Note: Before setting the baking conditions, perform experiments to confirm that no problems occur with the product.

Related information

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

Precautions

- Disclaimer
- Precautions / Surface mount type products

Catalogs

- Technical note / Si photodiodes

Information described in this material is current as of March 2026.

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.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.