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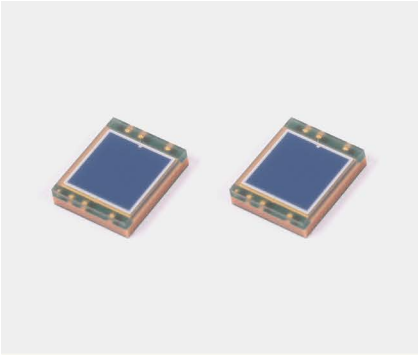
NEW

Si PIN photodiode



S15152

Surface mountable, high-speed response Si PIN photodiode

The S15152 is a Si PIN photodiode sealed in a surface mountable chip carrier package. It 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, it 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	Specification	Unit
Photosensitive area	5 × 5	mm
Package	Glass epoxy	-
Window material	Silicone resin	-

Absolute maximum ratings

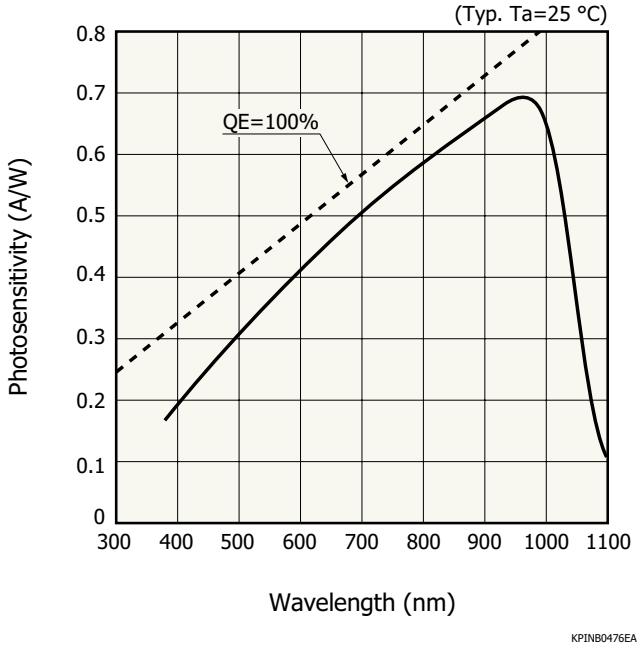
Parameter	Symbol	Value	Unit
Reverse voltage	V_R	30	V
Power dissipation	P	50	mW
Operating temperature*1	Topr	-40 to +100	°C
Storage temperature*1	Tstg	-40 to +125	°C
Soldering temperature*1	Tsol	260 (3 times)*2	°C

*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, see P.5
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.

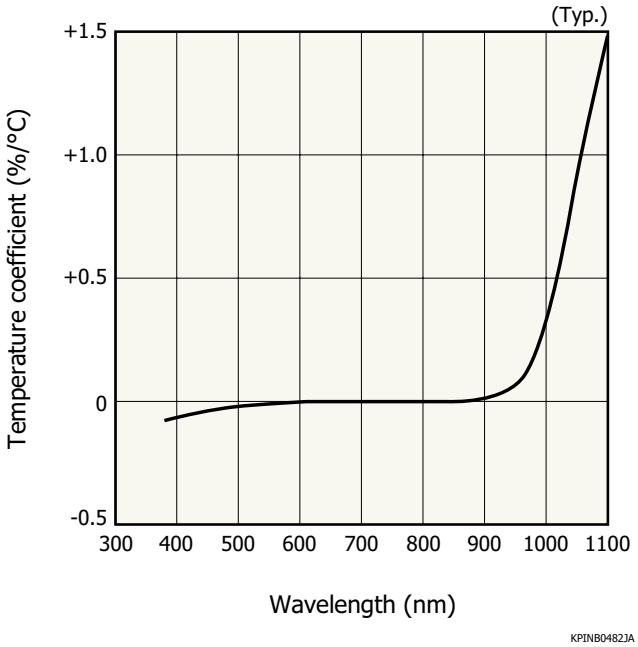
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Parameter		Symbol	Condition	Value	Unit
Spectral response range		λ		380 to 1100	nm
Peak sensitivity wavelength		λp		960	nm
Photosensitivity		S	λp	0.69	A/W
			λ=660 nm	0.47	
			λ=780 nm	0.57	
			λ=830 nm	0.61	
Dark current	Typ.	ID	VR=10 V	0.2	nA
	Max.			5	
Dark current temperature coefficient		TCID		1.15	times/°C
Cutoff frequency		fc	RL=50 Ω, VR=10 V	20	MHz
Terminal capacitance		Ct	f=10 kHz, VR=10 V	43	pF
NEP		-	VR=10 V, λ=λp	1.7×10^{-14}	$W/Hz^{1/2}$

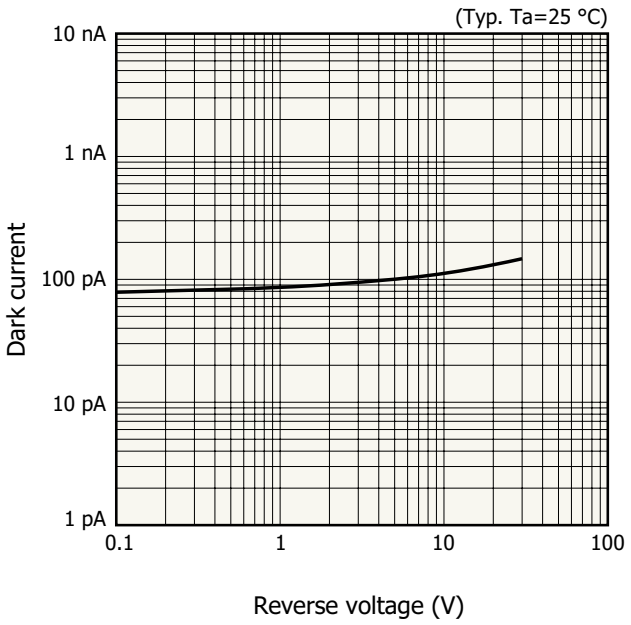
Spectral response



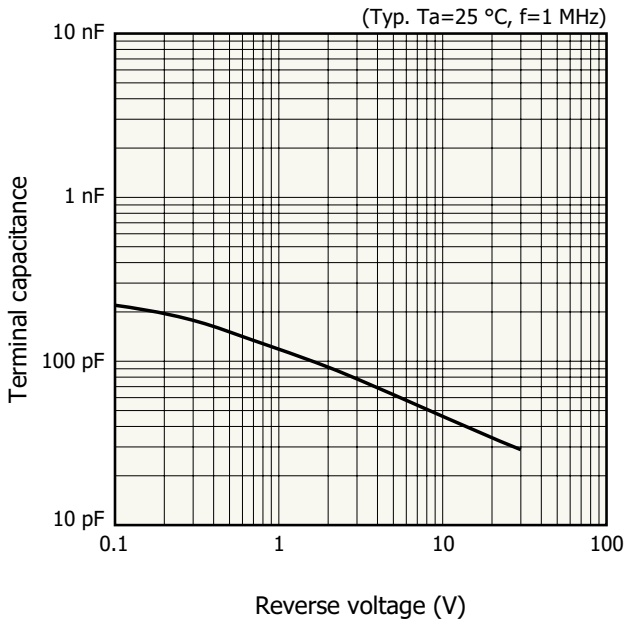
Sensitivity temperature characteristics



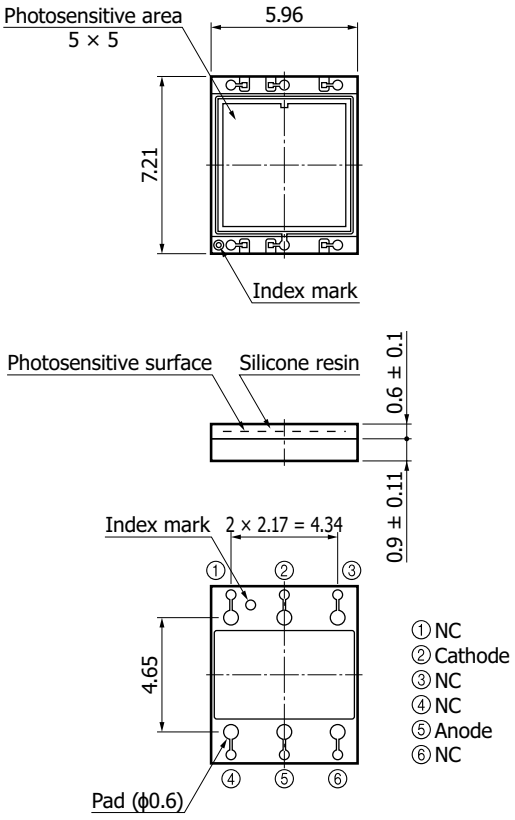
Dark current vs. reverse voltage



Terminal capacitance vs. reverse voltage



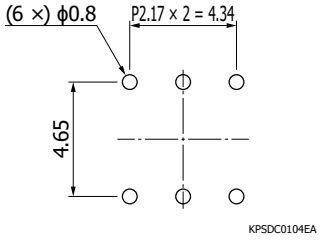
Dimensional outline (unit: mm)



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

KPINA0132EA

Recommended land patterns (unit: mm)



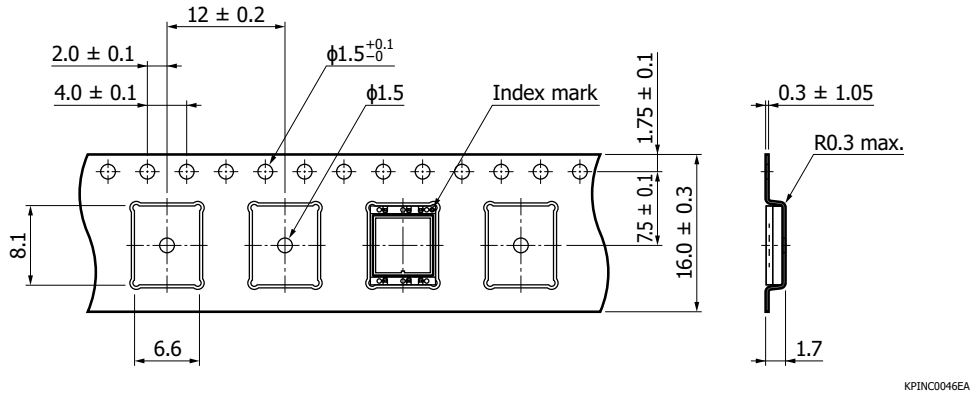
· Solder all terminals.
· Do not make the land area larger than necessary.
· It is preferable that the land sizes be about equal.
· Make land width about the same as the terminal width.

Standard packing specifications

■ Reel (conforms to JEITA ET-7200)

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

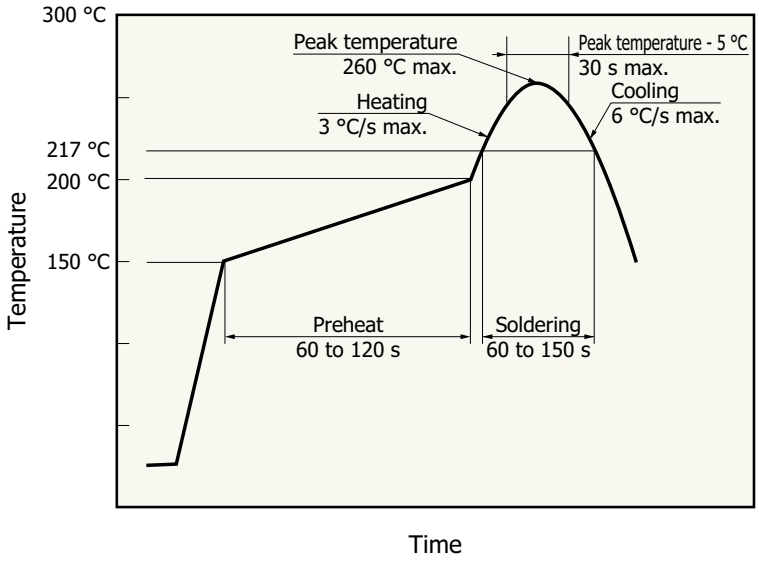
■ Embossed tape (unit: mm, material: PS, conductive)



■ Packing quantity
500 pcs/reel

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

Recommended reflow soldering conditions



KMPDB0405EC

- 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 168 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.

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

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