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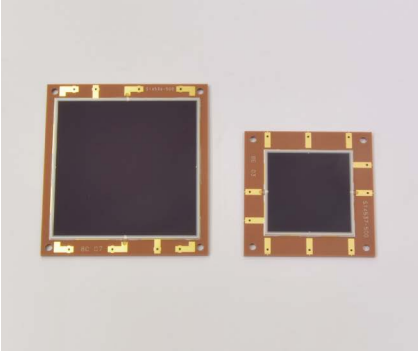
Si PIN photodiodes



S14536/S14537 series

Si detectors for high-energy particles

The S14536/S14537 series are large-area photodiodes specifically designed for the direct detection of high-energy charged particles and X-rays. These detectors are mounted on a PC board with an opening for the purpose of ΔE/E detection of charged particles and X-rays.

Features

- **Large area**
- **Low dark current**
- **High voltage tolerance**

Applications

- **Heavy ions energy detection**
- **X-ray detection**
- **ΔE/E detection**

Structure / Absolute maximum ratings

Type no.	Photosensitive area (mm)	Chip thickness (μm)	Surface orientation	Dead layer thickness*1		Absolute maximum ratings			
				Front side (μm)	Rear side (μm)	Reverse voltage V_R (V)	Power dissipation Pd (mW)	Operating temperature*2 (°C)	Storage temperature*2 (°C)
S14536-320	48 × 48	320 ± 15	(100)	1.5	20	120	100	0 to +60	0 to +80
S14536-500		500 ± 15				200			
S14537-150	28 × 28	150 ± 15				140			
S14537-320		320 ± 15				120			
S14537-500		500 ± 15				200			

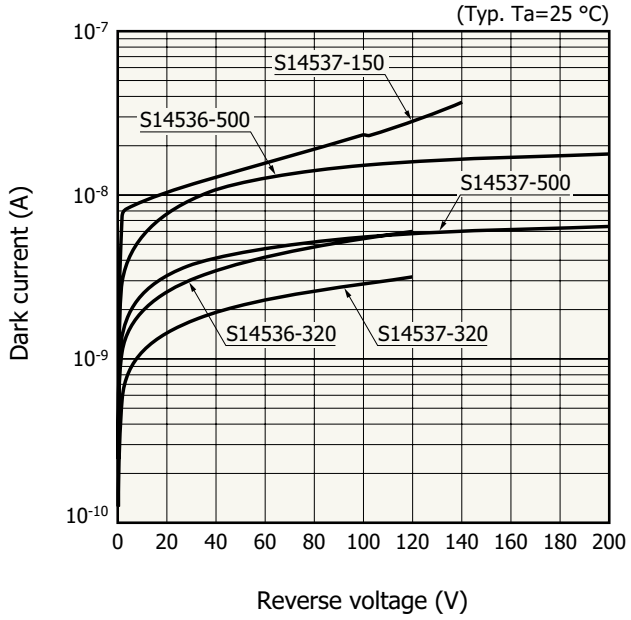
*1: Estimated value
*2: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: 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)

Type no.	Full depletion voltage V_D		Dark current*3 I_D		Temperature coefficient of dark current*3 T_{CID}	Cutoff frequency*3 fc (MHz)	Terminal capacitance*3 Ct f=10 kHz (pF)
	Typ. (V)	Max. (V)	Typ. (nA)	Max. (nA)			
S14536-320	60	100	10	100	1.12	3	860
S14536-500	100	170	20	200		5	550
S14537-150	100	120	25	100		4.5	600
S14537-320	60	100	5	50		8	300
S14537-500	100	170	10	100		10	190

*3: V_R=V_D

Dark current vs. reverse voltage



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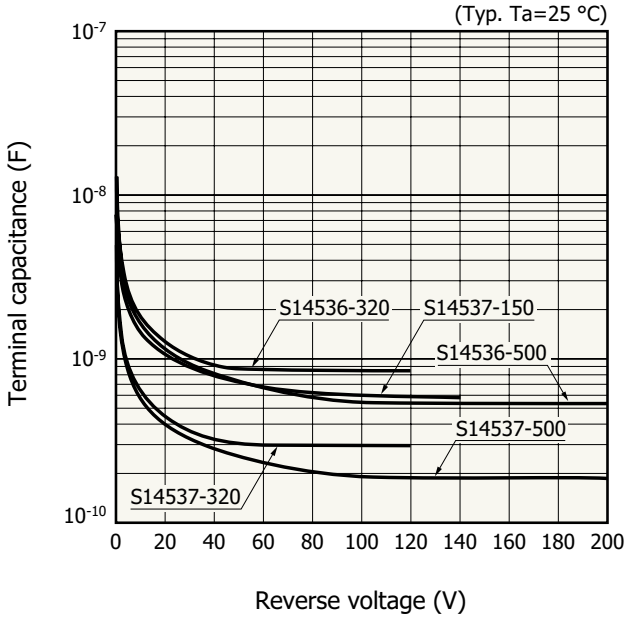
Terminal capacitance vs. reverse voltage



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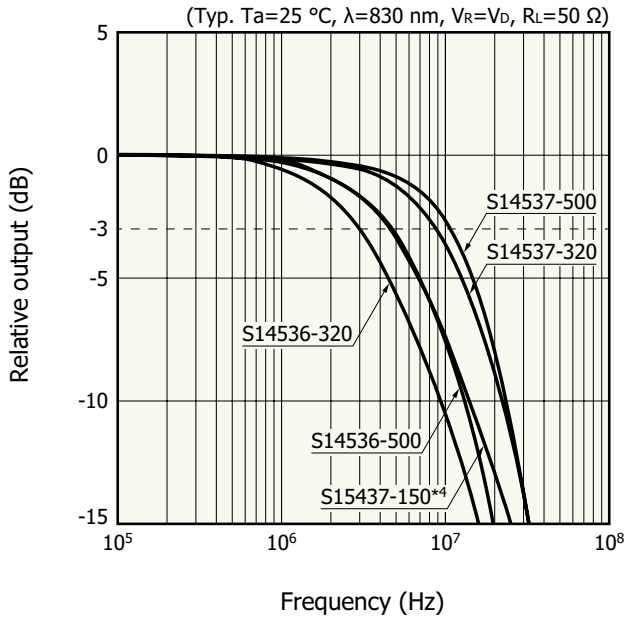
Frequency characteristics



*4: λ=405 nm

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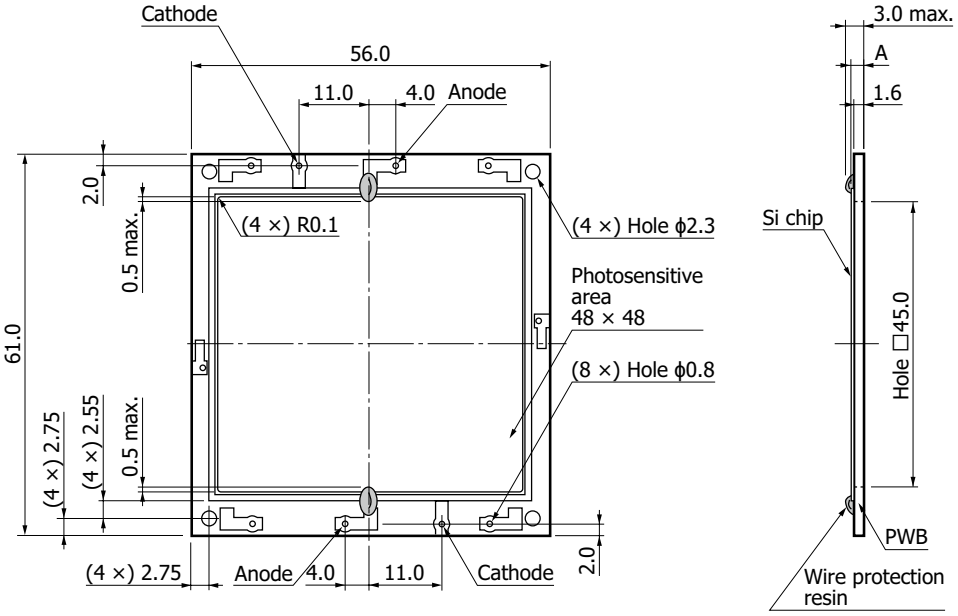
Dimensional outlines (unit: mm)

S14536 series

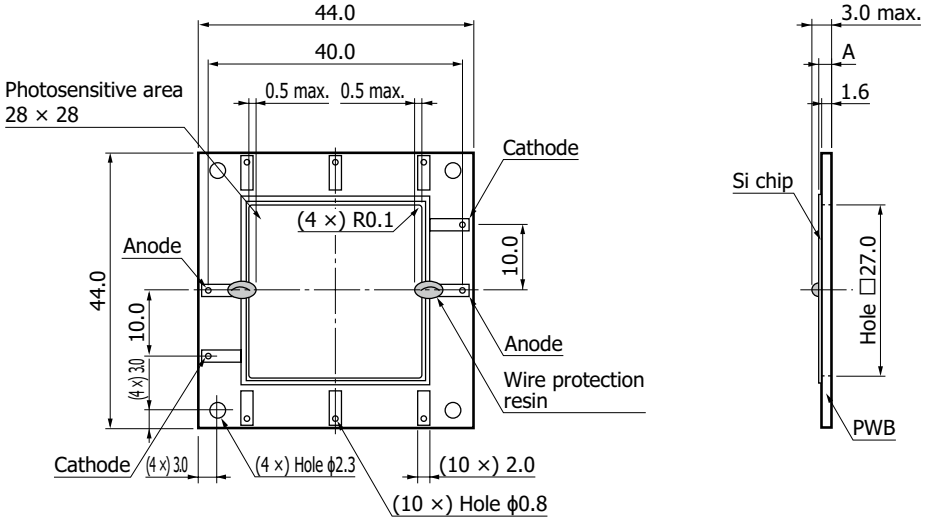


	S14536-320	S14536-500
A	1.9	2.1

Tolerance unless otherwise noted: ±0.2

KPINA0121EA

S14537 series



	S14537-150	S14537-320	S14537-500
A	1.75	1.90	2.10

Tolerance unless otherwise noted: ±0.2

KPINA0122EB

Recommended soldering conditions

· Iron tip temperature: 350 ± 10 °C
· Soldering time: 5 ± 1 s
· Soldering iron output: 70 W
· Number of times: 1

Note: When you set the soldering conditions, check that problems do not occur in the product by testing out the conditions in advance. For other precautions, see "3. Soldering" in "Unsealed product/Precautions"

Related information

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

■ Precautions
· Disclaimer
· Unsealed products

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