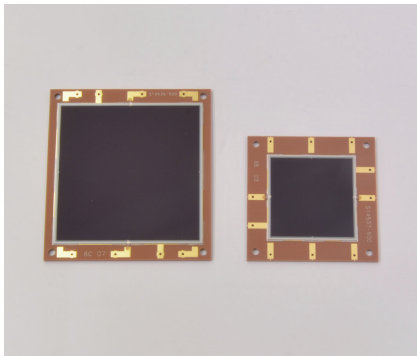


Si PIN photodiodes

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 $\Delta E/E$ detection of charged particles and X-rays.

Features

- Large area
- Low dark current
- High voltage tolerance

Applications

- Heavy ions energy detection
- X-ray detection
- $\Delta E/E$ 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 P_d (mW)	Operating temperature*2 ($^{\circ}\text{C}$)	Storage temperature*2 ($^{\circ}\text{C}$)
S14536-320	48 × 48	320 ± 15	(100)	1.5	20	120	100	0 to +60	0 to +80
S14536-500		500 ± 15				200			
S14537-320	28 × 28	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.

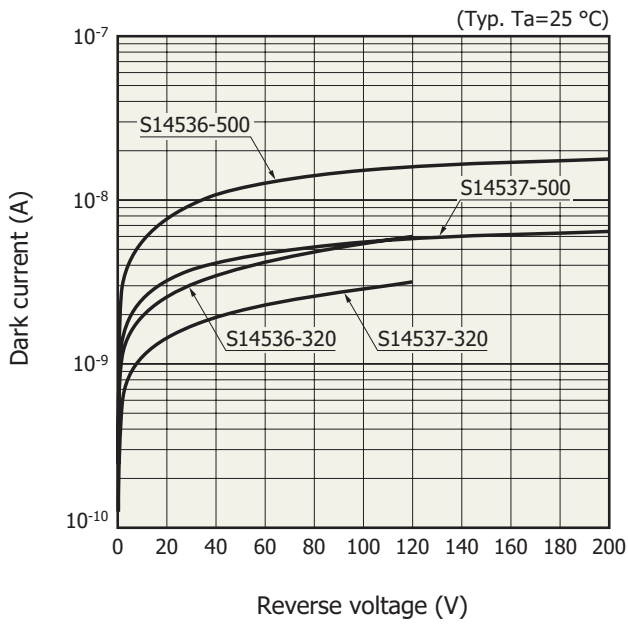
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Typ. $T_a=25^{\circ}\text{C}$, unless otherwise noted)

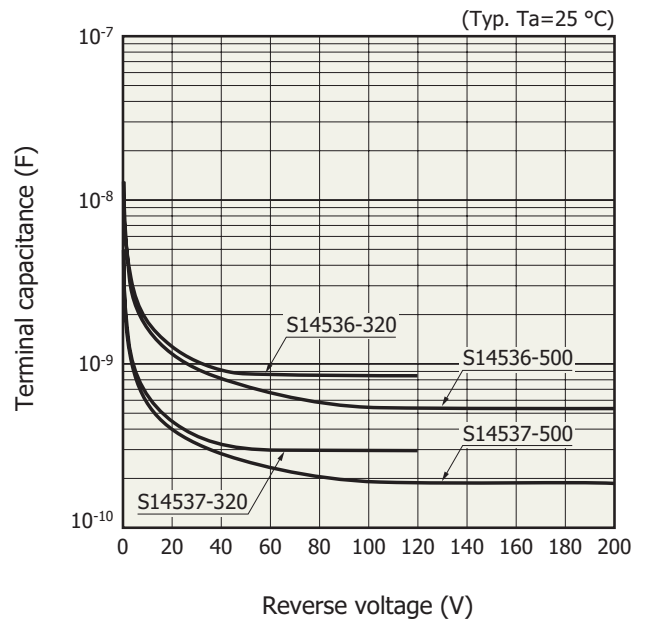
Type no.	Full depletion voltage V_D		Dark current*3 I_D		Temperature coefficient of dark current*3 T_{CID}	Cutoff frequency*3 f_c (MHz)	Terminal capacitance*3 C_t $f=10\text{ kHz}$ (pF)
	Typ. (V)	Max. (V)	Typ. (nA)	Max. (nA)			
S14536-320	60	100	10	100	1.12	3	860
S14536-500	100	170	20	200		5	550
S14537-320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

*3: $V_R=V_D$

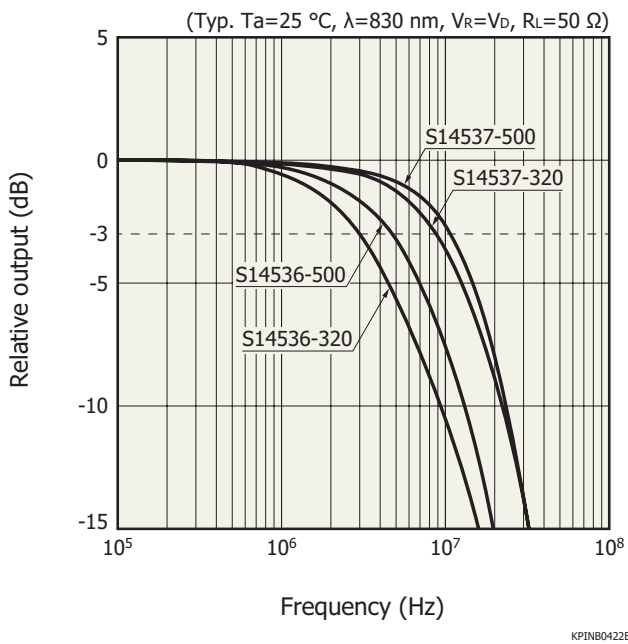
Dark current vs. reverse voltage



Terminal capacitance vs. reverse voltage

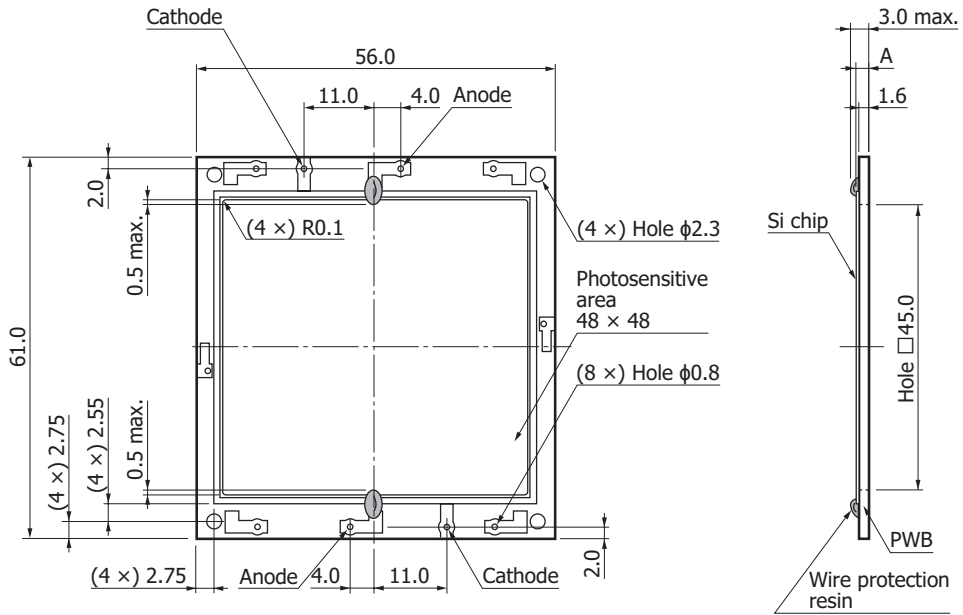


Frequency characteristics



Dimensional outlines (unit: mm)

S14536 series

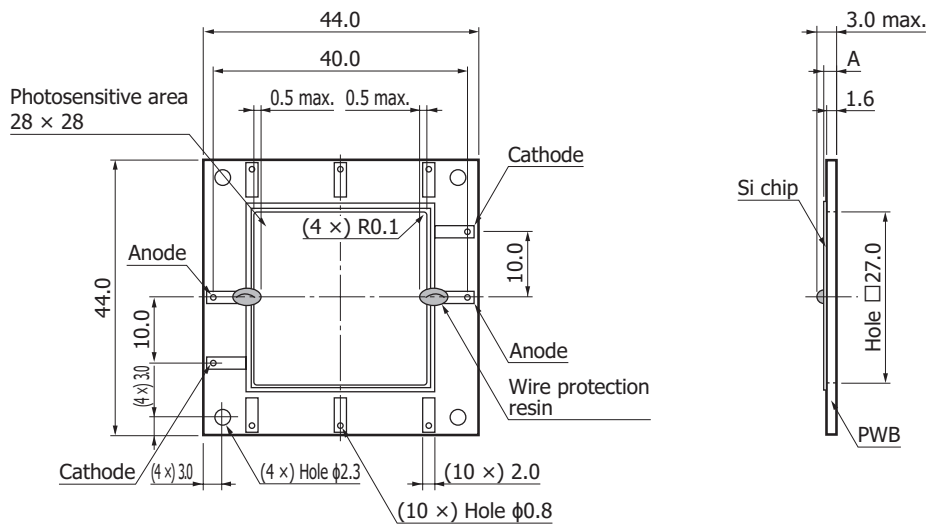


	S14536-320	S14536-500
A	1.9	2.1

Tolerance unless otherwise noted: ± 0.2

KPINA0121EA

S14537 series



	S14537-320	S14537-500
A	1.9	2.1

Tolerance unless otherwise noted: ± 0.2

KPINA0122EA

Recommended soldering conditions

- Iron tip temperature: 350 ± 10 °C
- Soldering time: 5 ± 1 s
- Soldering iron output: 70 W
- Number of times: 11

For other precautions, see "3. Soldering" in "Unsealed product/Precautions."

Related information

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

■ Precautions

- Disclaimer
- Unsealed products

Information described in this material is current as of January 2021.

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.

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