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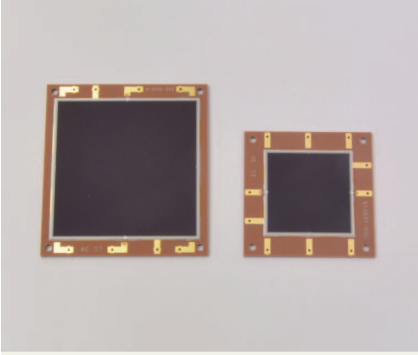
NEW

# 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 | | | |
| S14537-320 | 28 × 28 | 320 ± 15 | | | | 120 | | | |
| S14537-500 | | 500 ± 15 | | | | 200 | | | |

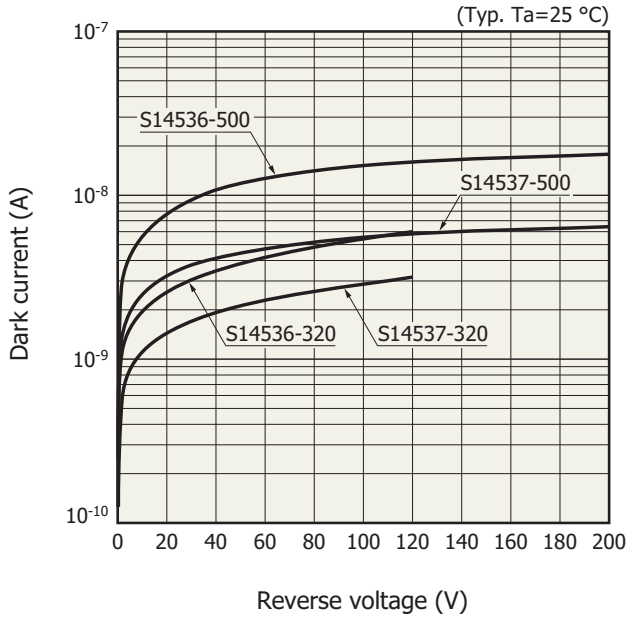
*1: Estimated value
*2: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: 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 |
| S14537-320 | 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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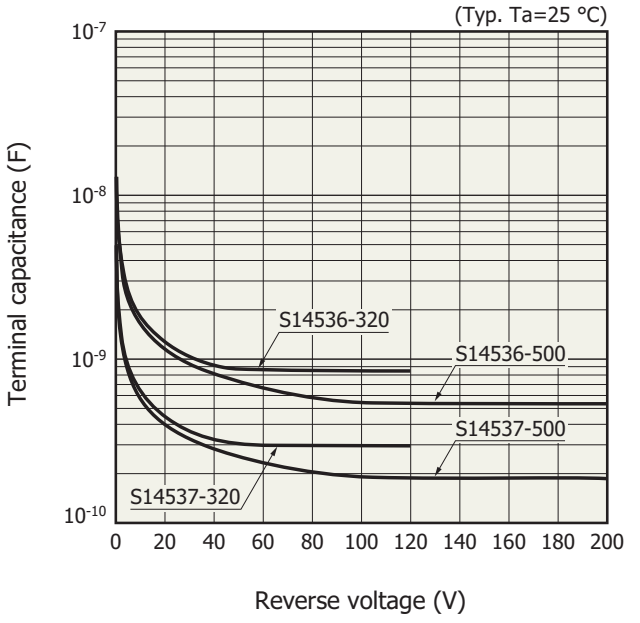
## Terminal capacitance vs. reverse voltage

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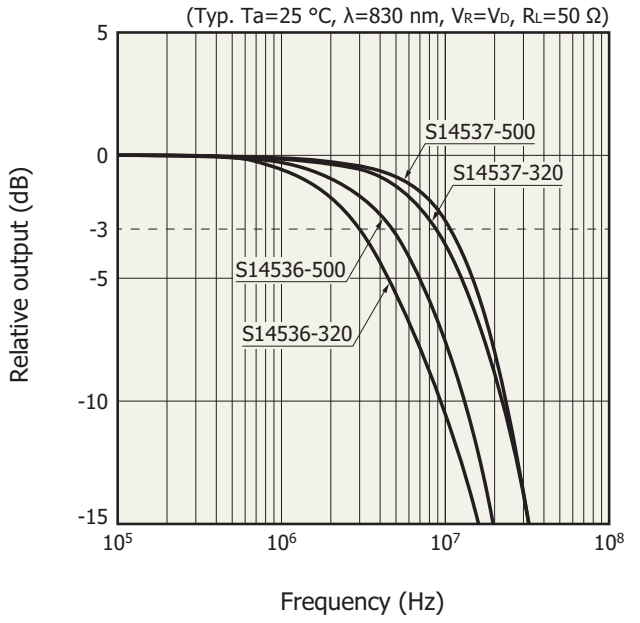
## Frequency characteristics

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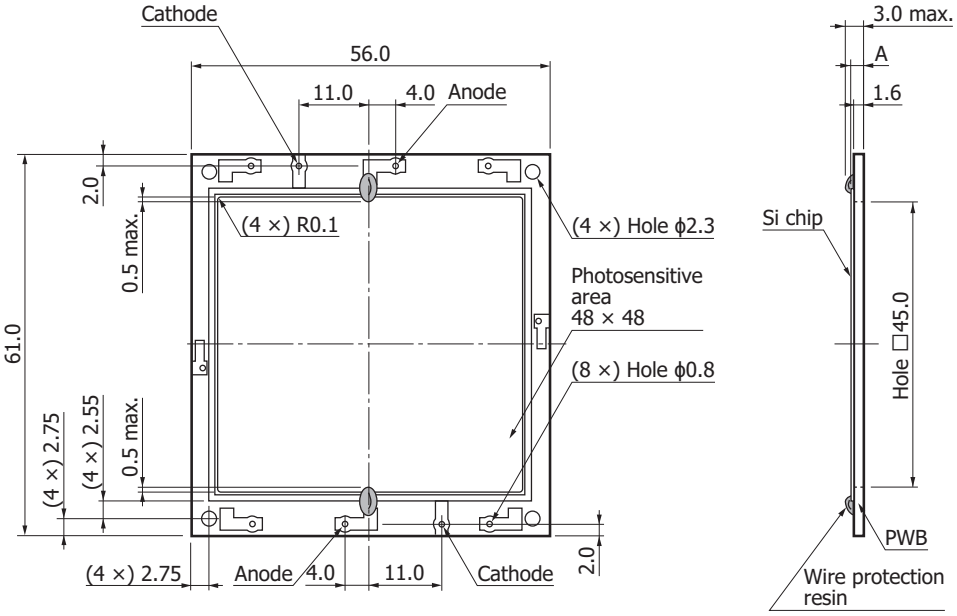
## Dimensional outlines (unit: mm)

S14536 series




| | S14536-320 | S14536-500 |
|---|---|---|
| A | 1.9 | 2.1 |

Tolerance unless otherwise noted: ±0.2

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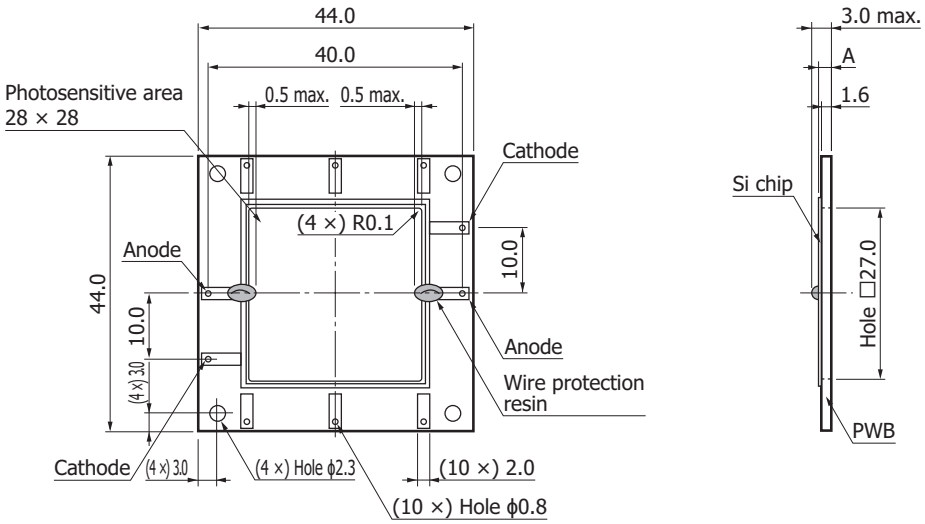
S14537 series




| | S14537-320 | S14537-500 |
|---|---|---|
| A | 1.9 | 2.1 |

Tolerance unless otherwise noted: ±0.2

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## 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



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