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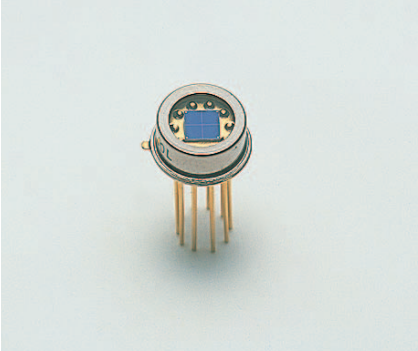
Si photodiode



S4349

Quadrant Si PIN photodiode

The S4349 is a quadrant Si PIN photodiode having sensitivity in the UV to near IR spectral range. A quadrant element format allows position sensing such as for laser beam axis alignment.

Features

- **Quadrant (2 × 2) element format**
- **Low crosstalk: 2% max.**
- **Wide spectral response range: 190 to 1000 nm**
- **High-speed response: fc=20 MHz**
- **TO-5 metal package**

Applications

- **Laser beam axis alignment**
- **Position sensing**

Structure

Parameter	Symbol	Value	Unit
Window material	-	Quartz glass	-
Photosensitive area	A	□3.0/4 elements	mm
Element gap	-	100	μm

Absolute maximum ratings

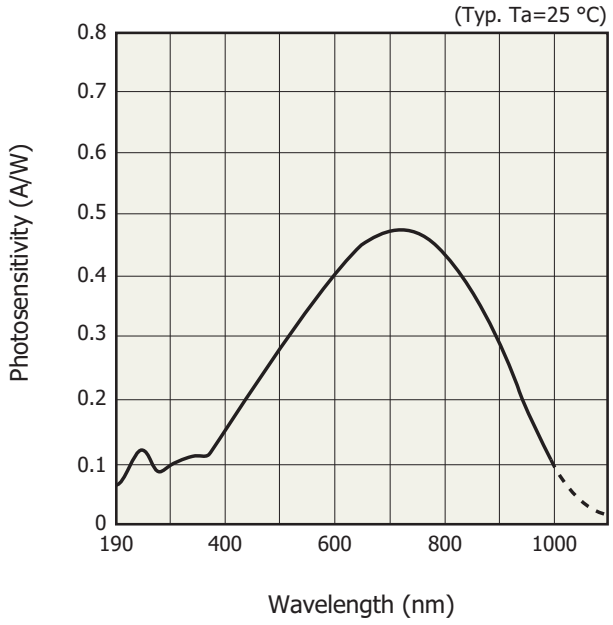
Parameter	Symbol	Value	Unit
Reverse voltage	V_R max	20	V
Operating temperature	Topr	-20 to +60	°C
Storage temperature	Tstg	-55 to +80	°C

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 (Ta=25 °C, per 1 element)

Parameter	Symbol	Condition	Typ.	Max.	Unit
Spectral response range	λ		190 to 1000	-	nm
Peak sensitivity wavelength	λp		720	-	nm
Photosensitivity	S	λ=λp	0.45	-	A/W
Dark current	I_D	V_R=5 V	0.01	0.2	nA
Temperature coefficient of I_D	T_{CID}		1.12	-	times/°C
Cutoff frequency	fc	V_R=5 V, R_L=50 Ω λ=780 nm, -3 dB	20	-	MHz
Terminal capacitance	Ct	V_R=5 V, f=1 MHz	25	-	pF
Noise equivalent power	NEP	V_R=5 V, λ=λp	4.0×10^{-15}	-	$W/Hz^{1/2}$
Crosstalk	C_L	V_R=5 V, λ=780 nm	-	2	%

Spectral response



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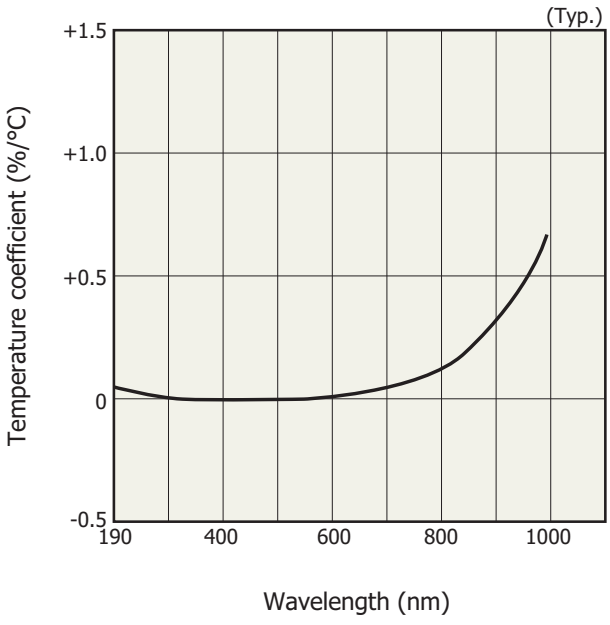
Photosensitivity temperature characteristics



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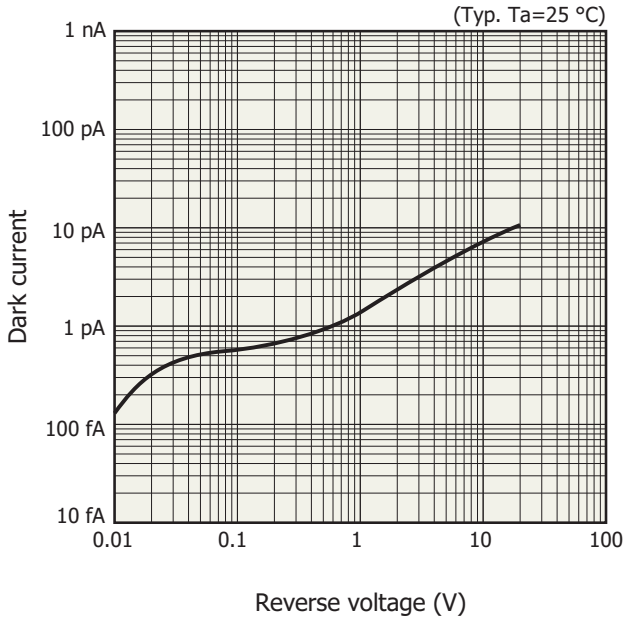
Dark current vs. reverse voltage



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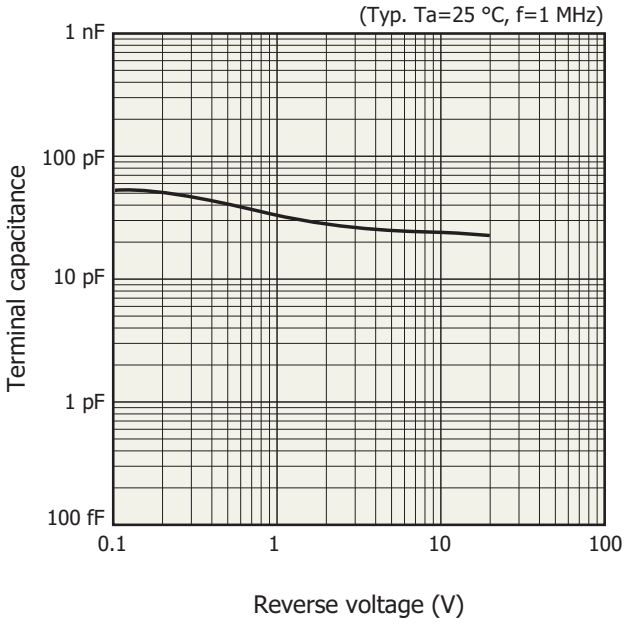
Terminal capacitance vs. reverse voltage



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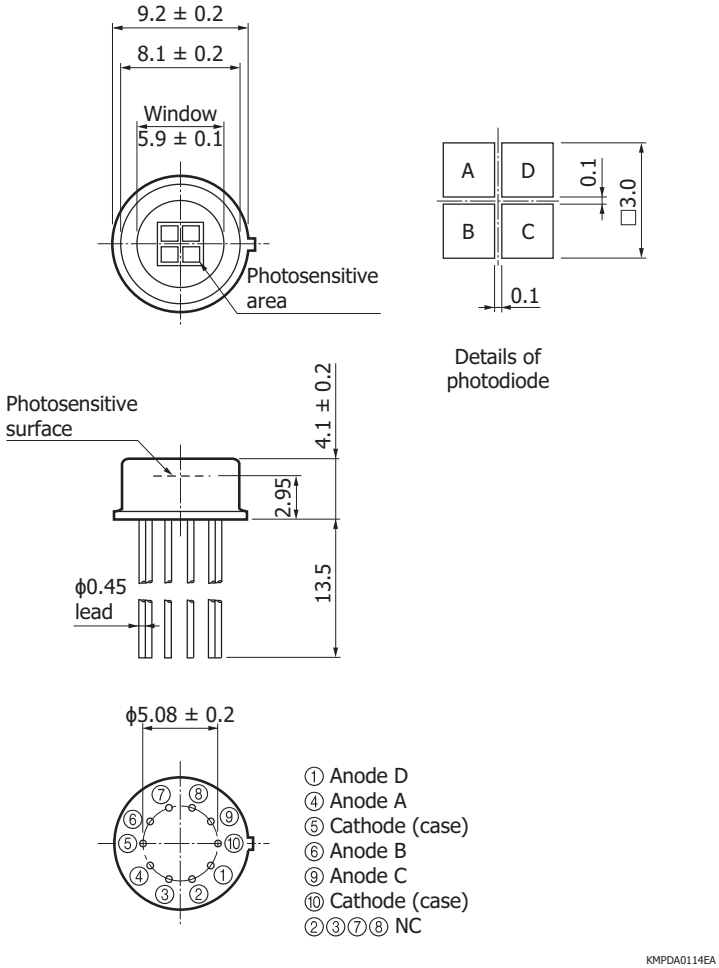
Dimensional outline (unit: mm)



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Precautions against UV light exposure

- When UV light irradiation is applied, the product characteristics may degrade. Such examples include degradation of the product's UV sensitivity and increase in dark current. This phenomenon varies depending on the irradiation level, irradiation intensity, usage time, and ambient environment and also varies depending on the product model. Before employing the product, we recommend that you check the tolerance under the ultraviolet light environment that the product will be used in.
- Exposure to UV light may cause the characteristics to degrade due to gas released from the resin bonding the product's component materials. As such, we recommend that you avoid applying UV light directly on the resin and apply it on only the inside of the photosensitive area by using an aperture or the like.

Related information

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

■ Precautions

· Disclaimer
· Metal, ceramic, plastic package products

■ Technical information

· Si photodiode/Application circuit examples

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