

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: $f_c=20$ 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

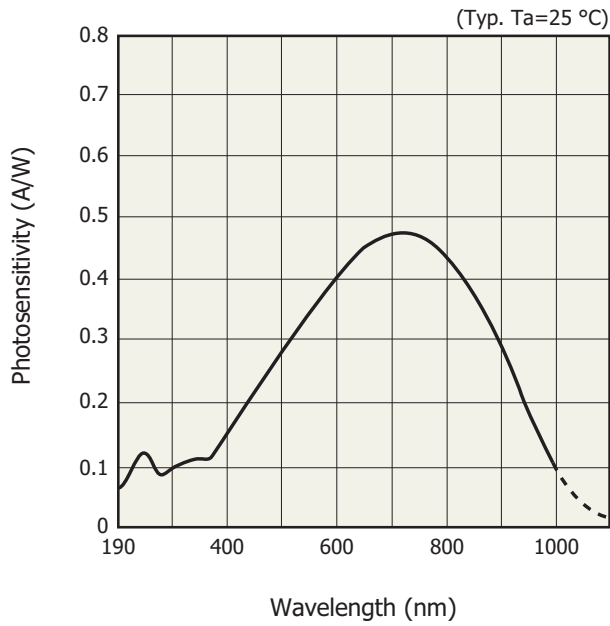
Parameter	Symbol	Value	Unit
Reverse voltage	V_R max	20	V
Operating temperature	T_{opr}	-20 to +60	°C
Storage temperature	T_{stg}	-55 to +80	°C

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 ($T_a=25$ °C, per 1 element)

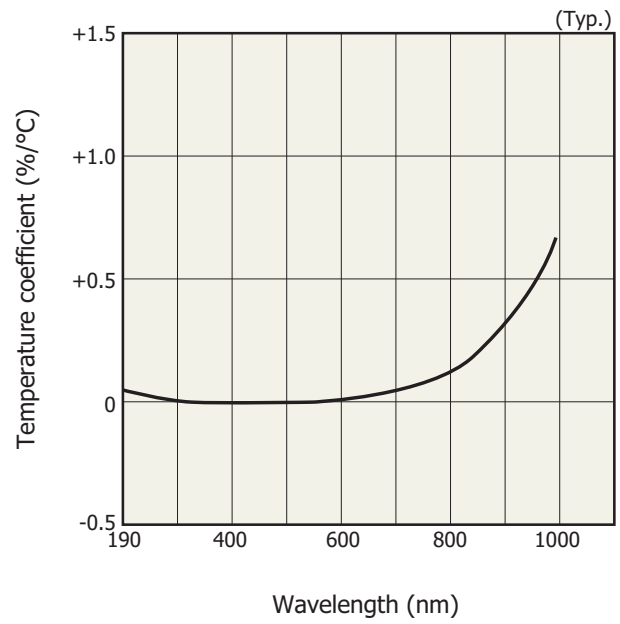
Parameter	Symbol	Condition	Typ.	Max.	Unit
Spectral response range	λ		190 to 1000	-	nm
Peak sensitivity wavelength	λ_p		720	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	0.45	-	A/W
Dark current	I_D	$V_R=5$ V	0.01	0.2	nA
Temperature coefficient of I_D	T_{CID}		1.12	-	times/°C
Cutoff frequency	f_c	$V_R=5$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

Spectral response



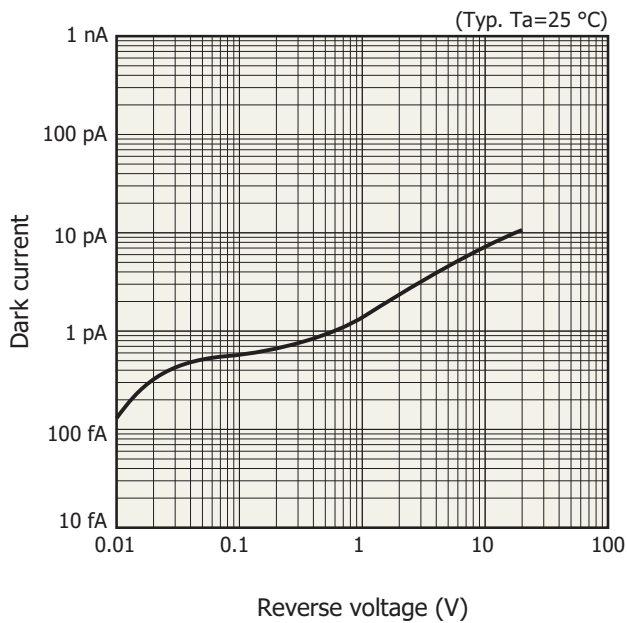
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Photosensitivity temperature characteristics



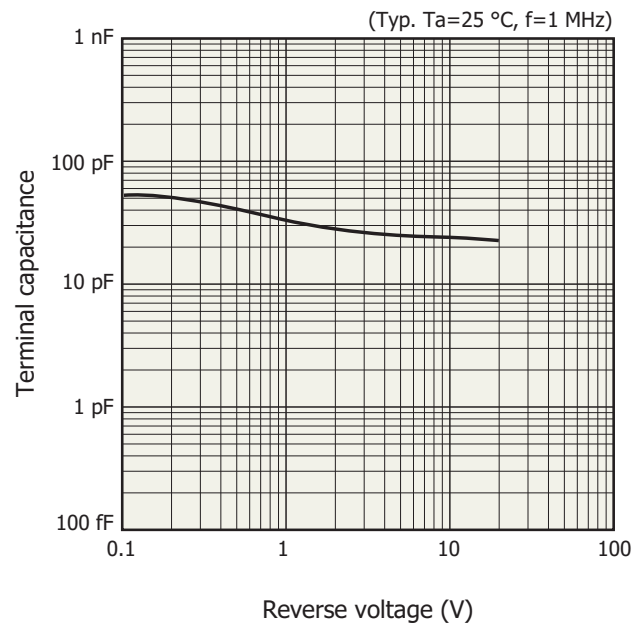
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Dark current vs. reverse voltage



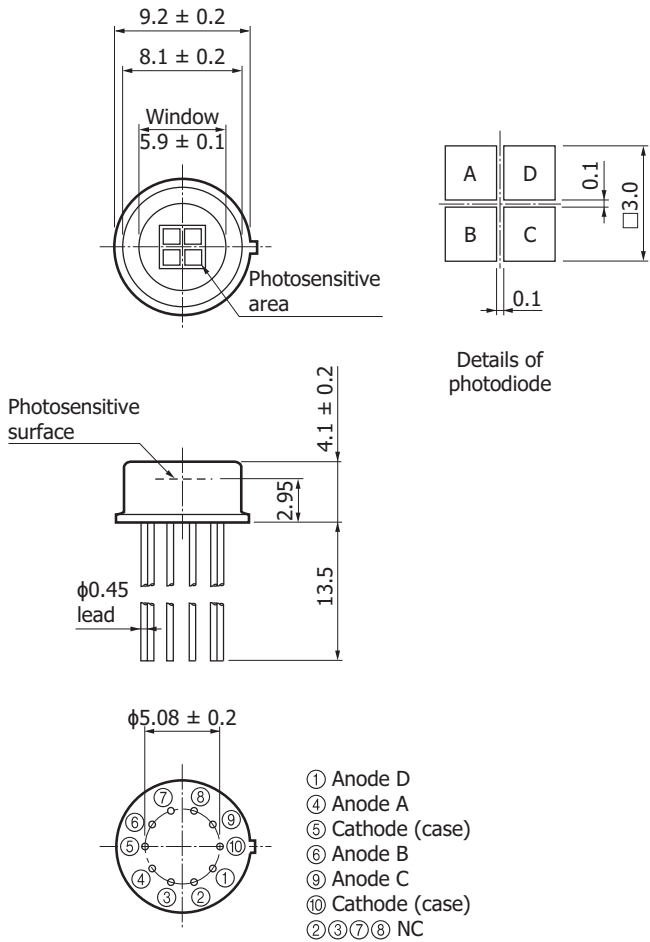
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Terminal capacitance vs. reverse voltage



KMPDB0129EA

Dimensional outline (unit: mm)



KMPDA0114EA

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

Information described in this material is current as of October, 2015.

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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