HAMAMATSU
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NEW

Si PIN photodiode

S16586

High UV resistance, high-speed response, photodiodes for UV monitor

The S16586 is a high-speed response Si PIN photodiode that has achieved high reliability for monitoring ultraviolet light. They exhibit low sensitivity deterioration under UV light irradiation and are suitable for applications such as monitoring intense UV light sources.

Features

- **With UV glass window (hermetically sealed)**
- **High sensitivity in UV region**
- **High-speed response**
- **High reliability for monitoring UV light irradiation**
- **No resin that causes outgassing**

Applications

- **Power monitor for UV light sources**
- **Analytical instruments**
- **Optical measurement equipment**

Structure/Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Specification	Unit
Photosensitive area size			ϕ0.8	mm
Package			TO-18	-
Window material			UV glass	-
Reverse voltage	V_R		30	V
Operating temperature	Topr	No dew condensation*	-40 to +100	°C
Storage temperature	Tstg	No dew condensation*	-55 to +125	°C

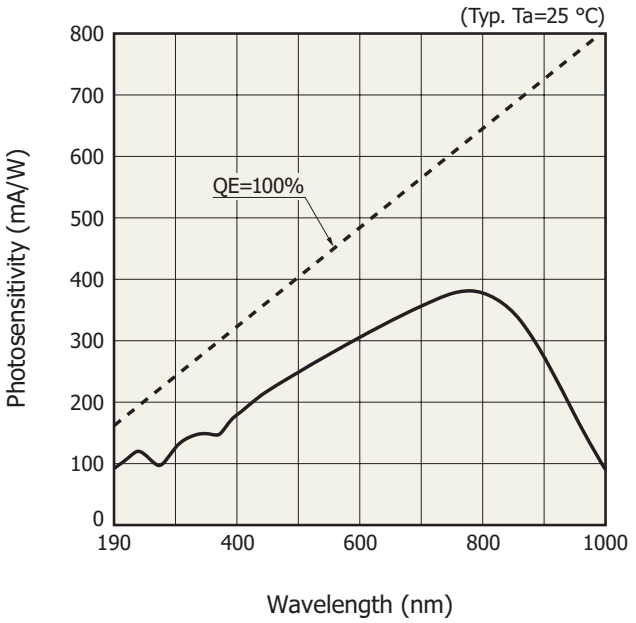
* When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation may cause deterioration in characteristics and reliability.

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 (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	190 to 1000	-	nm
Peak sensitivity wavelength	λp		-	780	-	nm
Photosensitivity	S	λ=λp	-	0.38	-	mA/W
Dark current	I_D	V_R=10 V	-	15	500	pA
Temperature coefficient of I_D	I_{CID}	V_R=10 V	-	1.15	-	times/°C
Cutoff frequency	fc	V_R=10 V, R_L=50 Ω -3 dB	-	300	-	MHz
Terminal capacitance	Ct	V_R=10 V, f=1 MHz	-	3.5	-	pF
Noise equivalent power	NEP	V_R=10 V, λ=λp		5.8×10^{-15}		$W/Hz^{1/2}$

Spectral response



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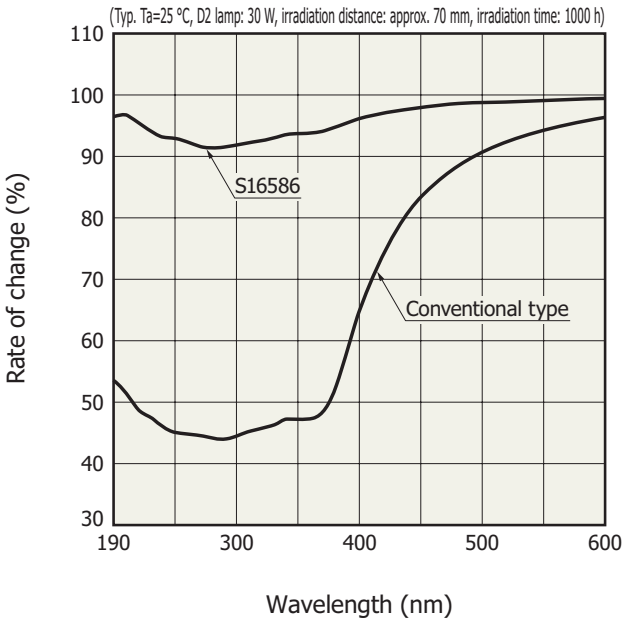
Changes in spectral response after irradiated with UV light



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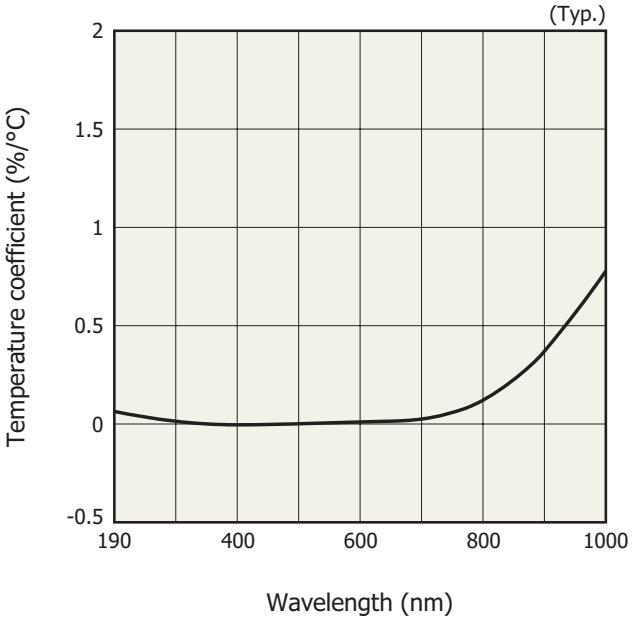
Photosensitivity temperature characteristics



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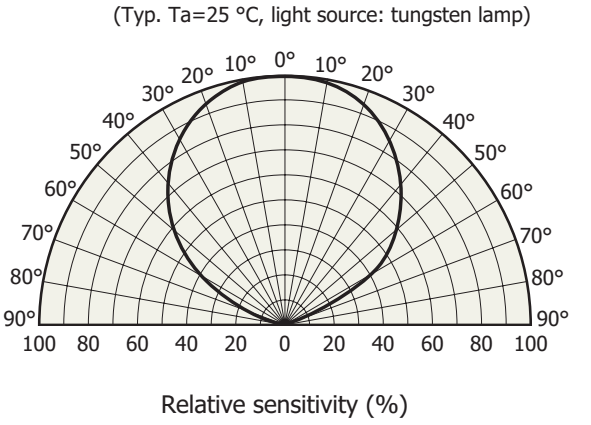
Directivity



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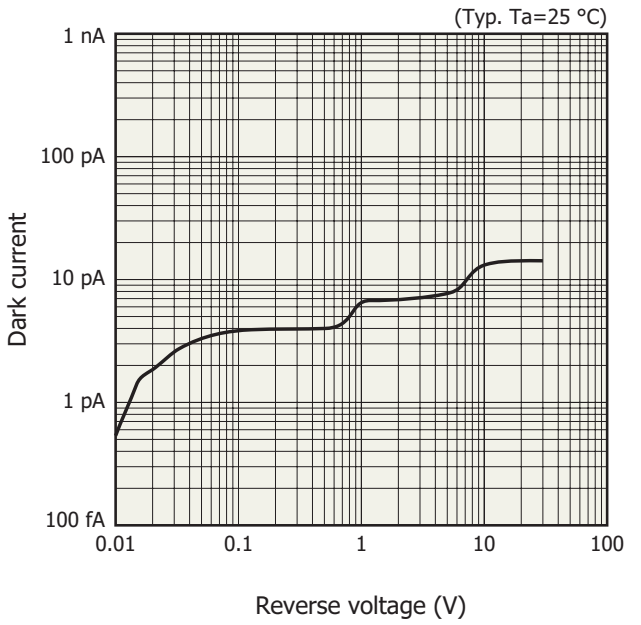
Dark current vs. reverse voltage



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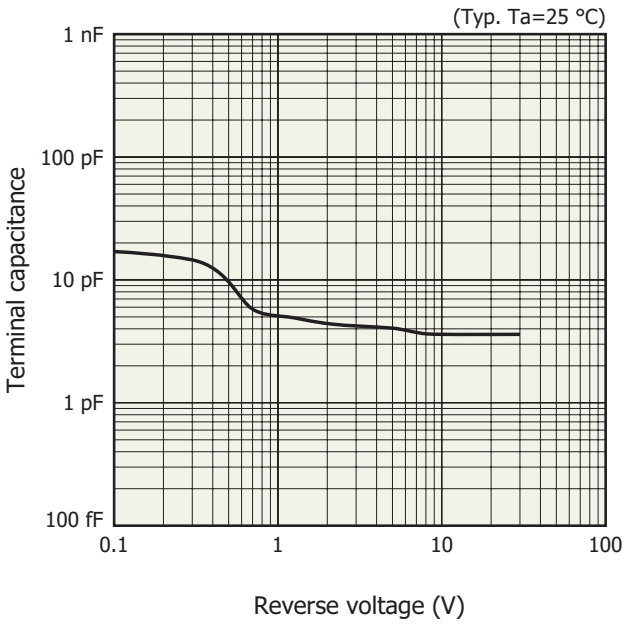
Terminal capacitance vs. reverse voltage



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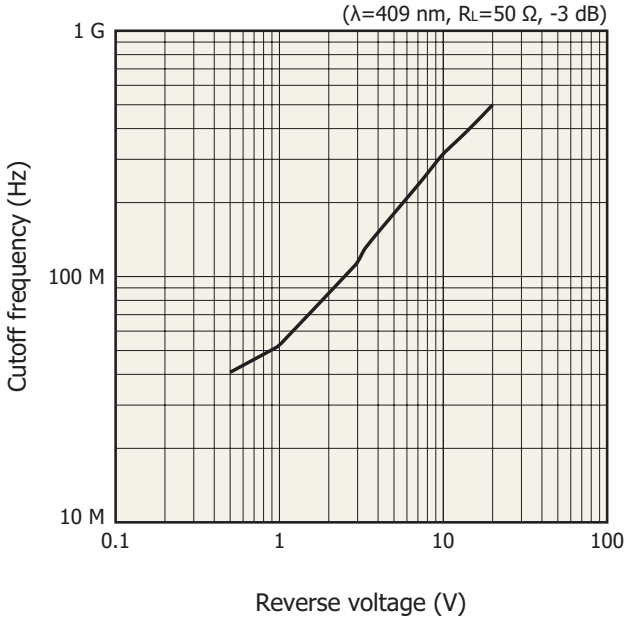
Cutoff frequency vs. Reverse voltage



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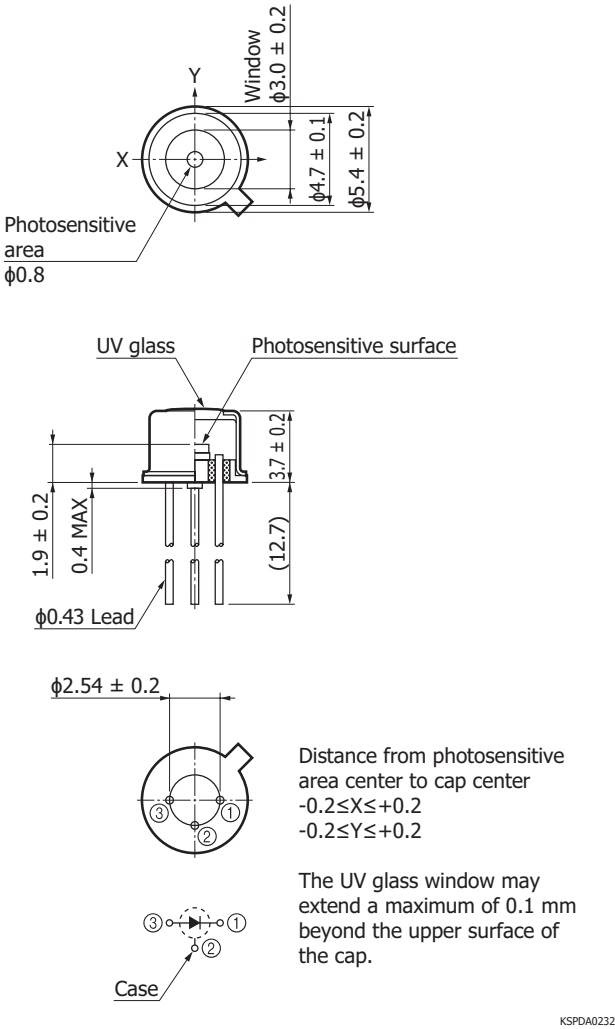
Dimensional outline (unit: mm)



Distance from photosensitive area center to cap center
-0.2≤X≤+0.2
-0.2≤Y≤+0.2

The UV glass window may extend a maximum of 0.1 mm beyond the upper surface of the cap.

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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.

Related information

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

■ Precautions
· Disclaimer
· Metal, ceramic, plastic package products

■ Technical note
· Si photodiodes

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