HAMAMATSU
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NEW

Si PIN photodiode

S16803

High UV resistance, quadrant Si PIN photodiode

The S16803 is a quadrant Si PIN photodiode that has achieved high reliability for monitoring ultraviolet light. An element with a 4-segment photosensitive area arranged two-dimensionally is suitable for applications such as position detection and laser optical axis alignment.

Features

- **Quadrant (2 × 2) element format**
- **High sensitivity in UV region**
- **High reliability for monitoring UV light irradiation**
- **No resin that causes outgassing**

Applications

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

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

Parameter	Symbol	Condition	Specification	Unit
Photosensitive area size			1.45 × 1.45 / element	mm
Package			TO-5	-
Window material			Quartz glass	-
Reverse voltage	V_R max		30	V
Operating temperature	Topr	No dew condensation*	-20 to +60	°C
Storage temperature	Tstg	No dew condensation*	-55 to +80	°C

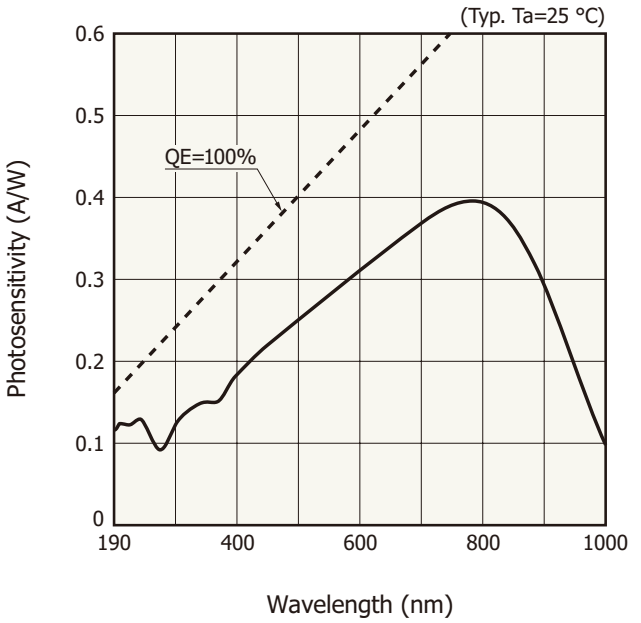
* When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation may cause deterioration in characteristics and reliability.

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, per 1 element)

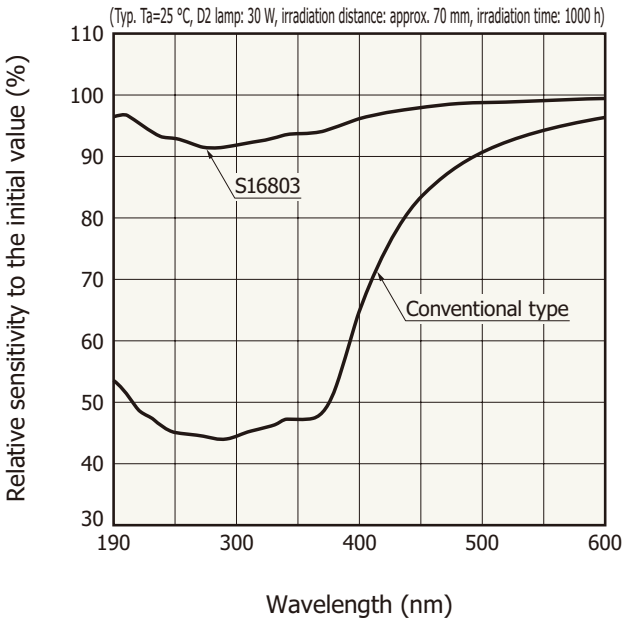
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	190 to 1000	-	nm
Peak sensitivity wavelength	λp		-	780	-	nm
Photosensitivity	S	λ=200 nm	0.1	0.125	-	A/W
Dark current	I_D	V_R=10 V	-	50	500	pA
Temperature coefficient of I_D	ΔT_{ID}	V_R=10 V	-	1.15	-	times/°C
Cutoff frequency	fc	λ=405 nm, V_R=10 V, R_L=50 Ω, -3 dB	-	90	-	MHz
Terminal capacitance	Ct	V_R=10 V, f=1 MHz	-	10	-	pF
Noise equivalent power	NEP	λ=200 nm, V_R=10 V	-	3×10^{-14}	-	$W/Hz^{1/2}$

Spectral response



KPINB0485EA

Changes in spectral response after irradiated with UV light



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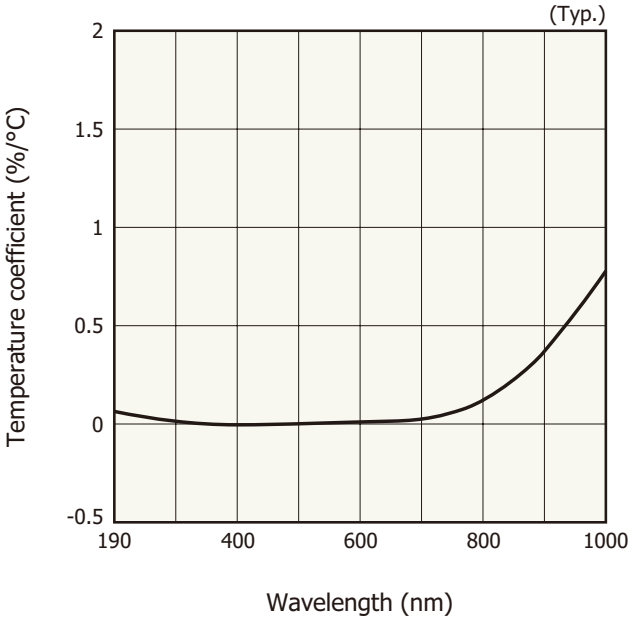
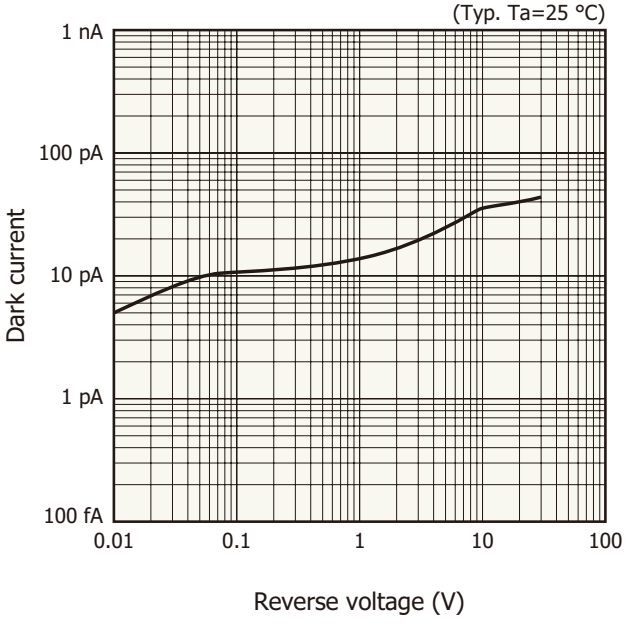
Photosensitivity temperature characteristics



KSPDB0443EA

Dark current vs. reverse voltage



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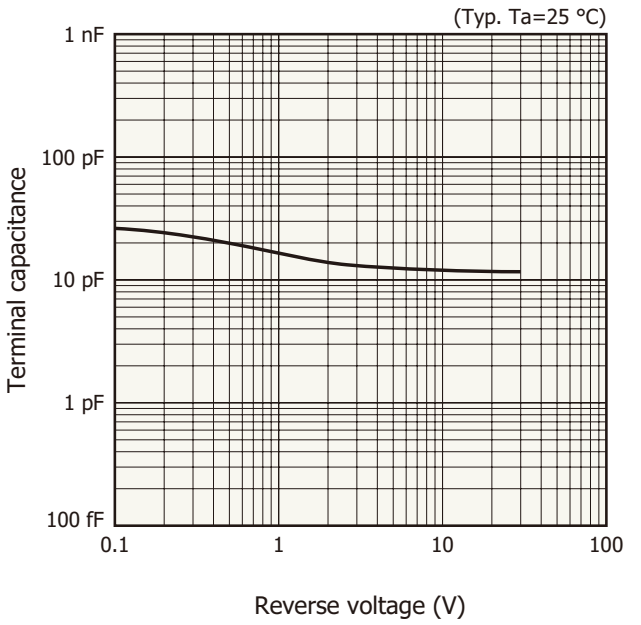
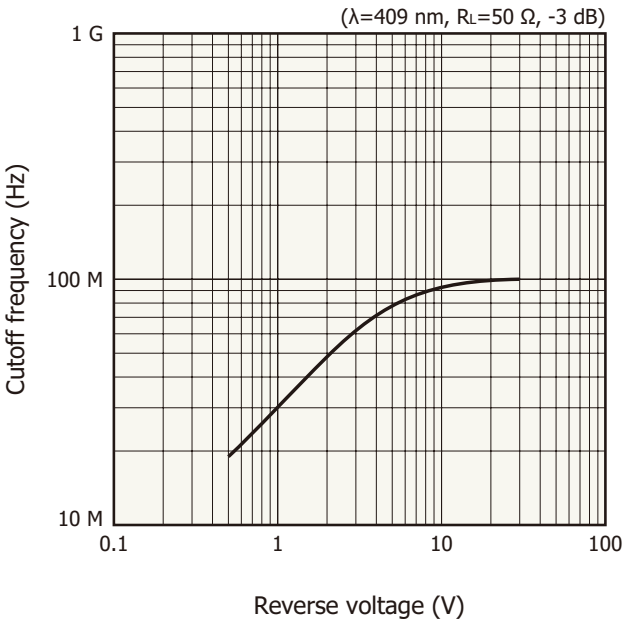
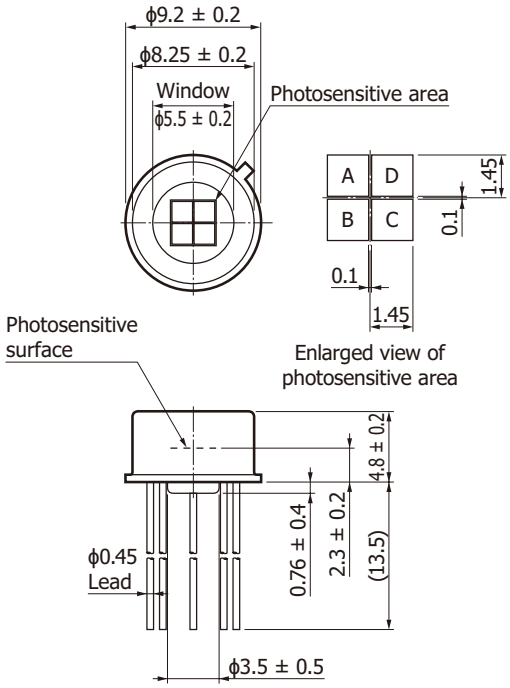
Terminal capacitance vs. reverse voltage

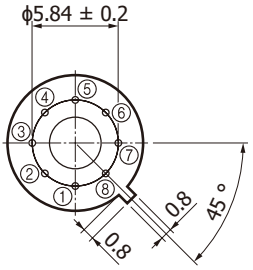


Cutoff frequency vs. Reverse voltage



Dimensional outline (unit: mm)





Torelance unless otherwise noted: ±0.3
Distance from photosensitive area center to cap center
-0.3 ≤ X ≤ +0.3
-0.3 ≤ Y ≤ +0.3

①NC	⑤NC
②Cathode A	⑥Cathode C
③Anode (case)	⑦Anode (case)
④Cathode B	⑧Cathode D

KPINA0134EA

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.
· If only a specific element is irradiated with ultraviolet light, its photosensitivity may decrease compared to the other elements. Under such conditions, even if equal photocurrents are output from each element, the correct center position may not be detected.

Related information

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

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

■ Catalogs
· Technical note / Si photodiodes

HAMAMATSU PHOTONICS K.K.
Visit our website for product and contact information.
www.hamamatsu.com
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