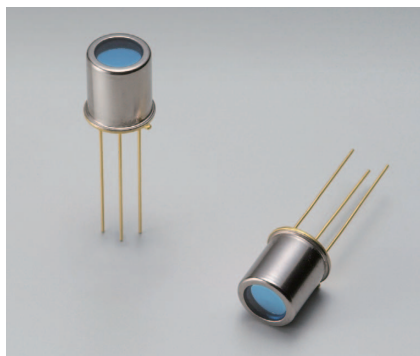


Si photodiode

S12742-254



Photodiode with interference filter for monochromatic light (254 nm) detection

The S12742-254 uses an interference filter for its window and is sensitive only to monochromatic light. The spectral response width is extremely narrow at 10 nm (FWHM), allowing accurate photometry without any effects of stray light. The center wavelength is 254 nm typ. The S12742-254 can be customized to support other peak sensitivity wavelengths such as 340 nm, 560 nm, and 650 nm.

Features

- Si photodiode with interference filter
- Monochromatic light (254 nm) detection

Applications

- Analytical instruments
- UV monitors (mercury lamp monitor, etc.)

Structure

Parameter	Specification	Unit
Package	TO-5	-
Photosensitive area	3.61 × 3.61	mm

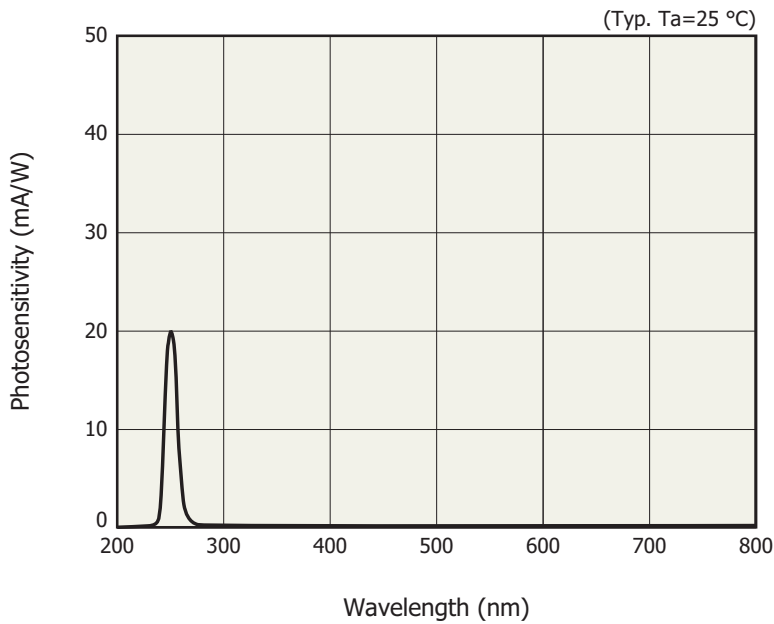
Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V _R max	T _a =25 °C	5	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.

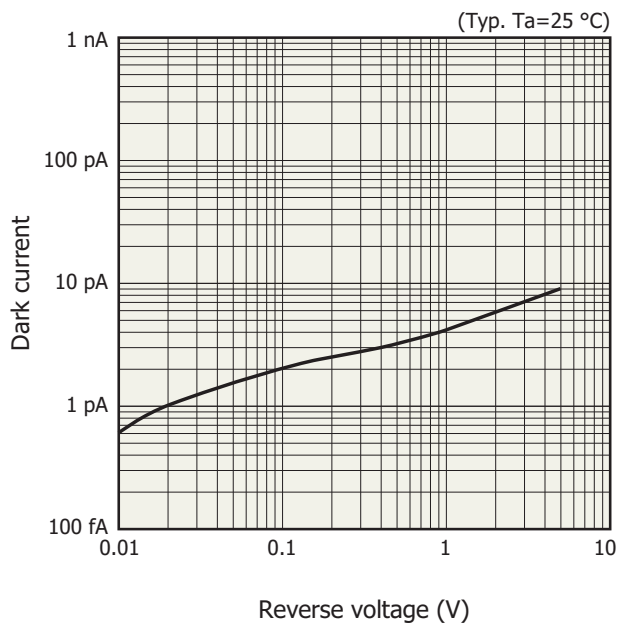
Electrical and optical characteristics (T_a=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Center wavelength	CWL		252	254	256	nm
Spectral response half-width	FWHM		8	10	12	nm
Photosensitivity	S	λ=254 nm	12	18	-	mA/W
Dark current	I _D	V _R =10 mV	-	2	25	pA
Dark current temperature coefficient	T _{CID}		-	1.12	-	times/°C
Rise time	t _r	V _R =0 V, R _L =1 kΩ 10% to 90%	-	1	-	μs
Terminal capacitance	C _t	V _R =0 V, f=10 kHz	-	500	750	pF
Shunt resistance	R _{sh}	V _R =10 mV	0.4	5	-	GΩ
Noise equivalent power	NEP	V _R =0 V, λ=λ _p	-	9.1 × 10 ⁻¹⁴	-	W/Hz ^{1/2}

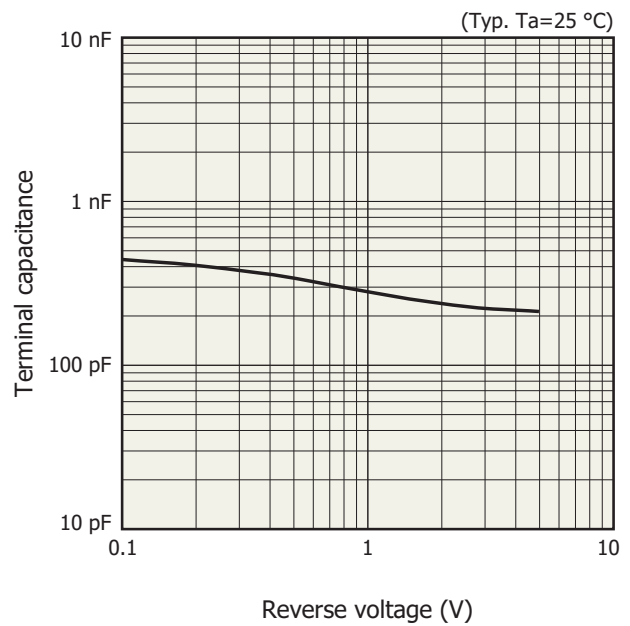
Spectral response

Note: Wavelengths other than 254 nm will be provided on a made to order basis.

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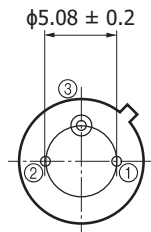
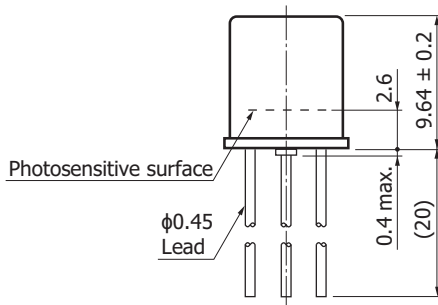
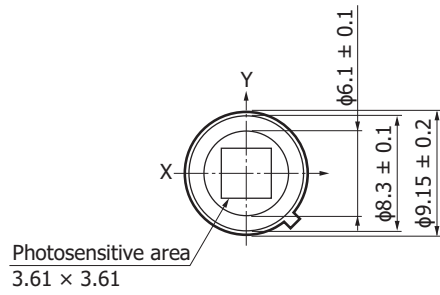
Dark current vs. reverse voltage

KSPDB0332EA

Terminal capacitance vs. reverse voltage

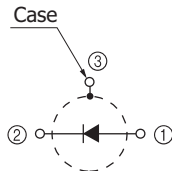
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Dimensional outline (unit: mm)



Tolerance unless otherwise noted: ± 0.2

Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$



The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

KSPDA0205EA

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 packages

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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