HAMAMATSU
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Si photodiodes

S2281 series

Si photodiodes with BNC connector

The S2281 series is Si photodiodes sealed in a metal package with a BNC connector. This configuration allows easy connection to Hamamatsu C9329 photosensor amplifier (The S2281-01 has a large terminal capacitance which may cause a gain peaking to occur when the C9329 is used with the gain set to the "M" range.). Two different spectral response characteristics are provided and the large photosensitive area makes the S2281 series well suited for optical power meters. A variant type S9219 with a visual compensation filter is also available. Hamamatsu also provides the E2573 BNC-BNC coaxial cable (length: 1 m) as an option.

Features

- **Metal package with BNC connector**
- **High sensitivity**
- **High reliability**

Applications

- **Analytical instruments**
- **Optical measurement equipment**

Structure

Parameter	S2281	S2281-01	S2281-04	Unit
Photosensitive area size	ϕ11.3	ϕ11.3	ϕ7.98	mm
Photosensitive area	100	100	50	mm^2
Package	Metal package with BNC connector			-
Window material	Quartz glass			-

Absolute maximum ratings

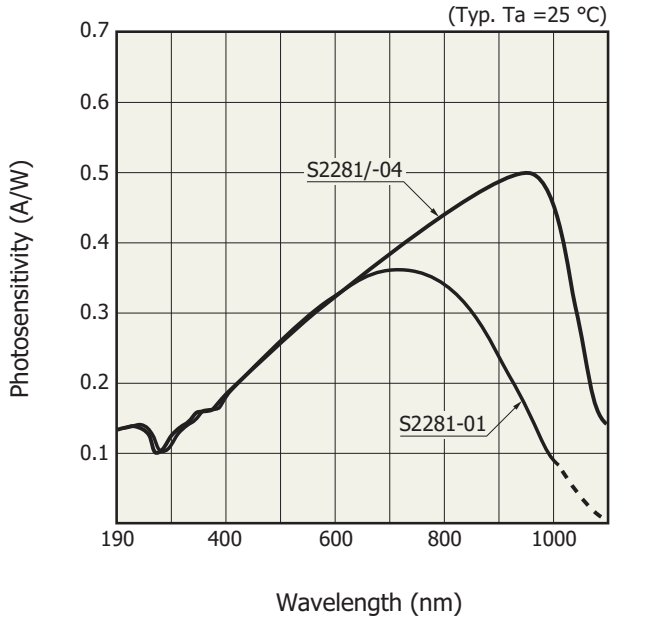
Parameter	Symbol	S2281	S2281-01	S2281-04	Unit
Reverse voltage	V_R max	5			V
Operating temperature	Topr	-10 to +60			°C
Storage temperature	Tstg	-20 to +70			°C

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, unless otherwise noted)

Parameter	Symbol	Condition	S2281			S2281-01			S2281-04			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	190 to 1100	-	-	190 to 1000	-	-	190 to 1100	-	nm
Peak sensitivity wavelength	λp		-	960	-	-	720	-	-	960	-	nm
Photosensitivity	S	λ=200 nm	0.10	0.12	-	0.10	0.12	-	0.10	0.12	-	A/W
		λ=λp	-	0.5	-	-	0.36	-	-	0.5	-	
Short circuit current	Isc	100 *lx*	64	80	-	32	40	-	32	40	-	μA
Dark current	ID	V_R=10 mV	-	50	500	-	6	300	-	50	500	pA
Shunt resistance	Rsh	V_R=10 mV	20	200	-	30	1700	-	20	200	-	MΩ
Rise time	tr	V_R=0 V R_L=1 kΩ	-	3	-	-	7	-	-	3	-	μs
Terminal capacitance	Ct	V_R=0 V f=10 kHz	-	1300	-	-	3200	-	-	1300	-	pF
Noise equivalent power	NEP	V_R=0 V, λ=λp	-	1.8×10^{-14}	-	-	8.6×10^{-15}	-	-	1.8×10^{-14}	-	$W/Hz^{1/2}$

Spectral response



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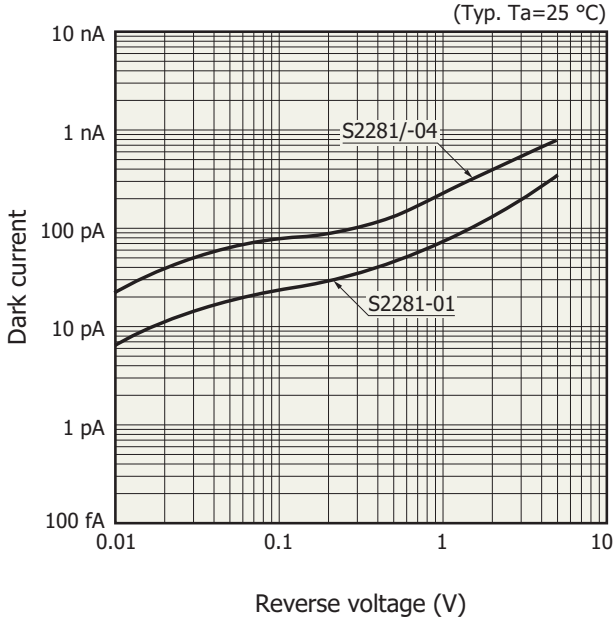
Dark current vs. reverse voltage



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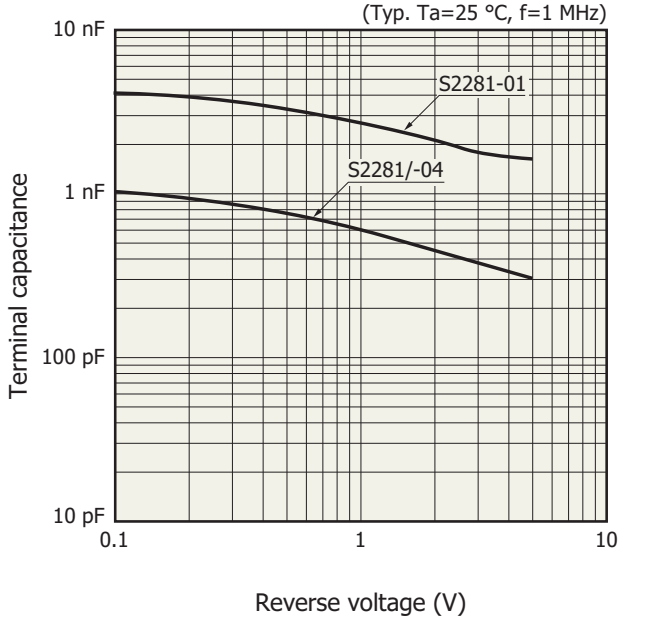
Terminal capacitance vs. reverse voltage



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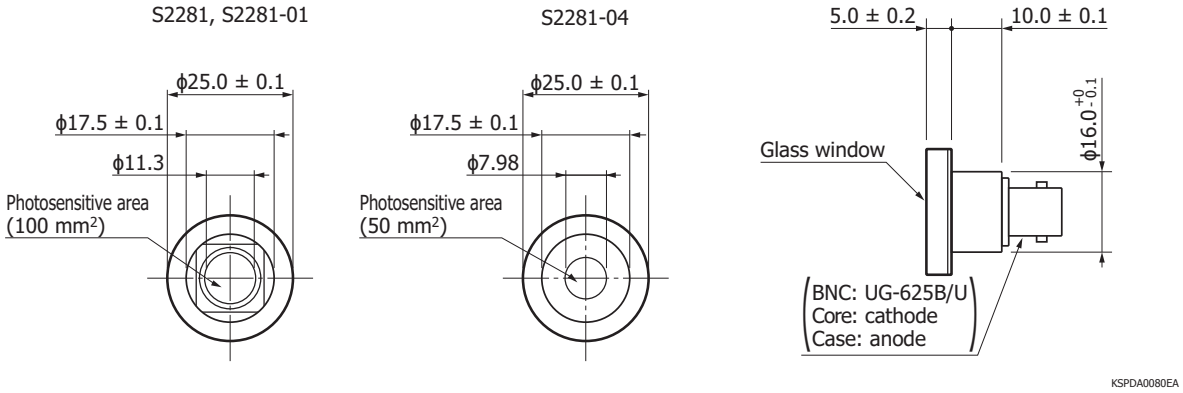
Dimensional outlines (unit: mm)



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.
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