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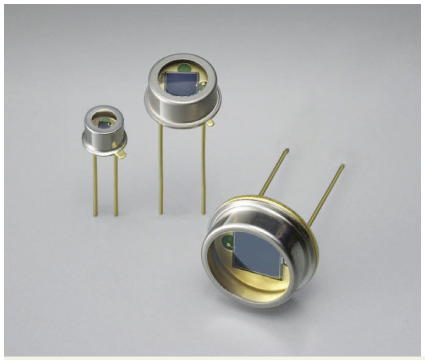
Si photodiodes



S12698 series

High UV resistance, photodiodes for UV monitor

The S12698 series are Si photodiodes that have achieved high reliability for monitoring ultraviolet light by employing a structure that does not use resin. 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 reliability for monitoring UV light irradiation**
- **Resin material not used**

Applications

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

Structure / Absolute maximum ratings

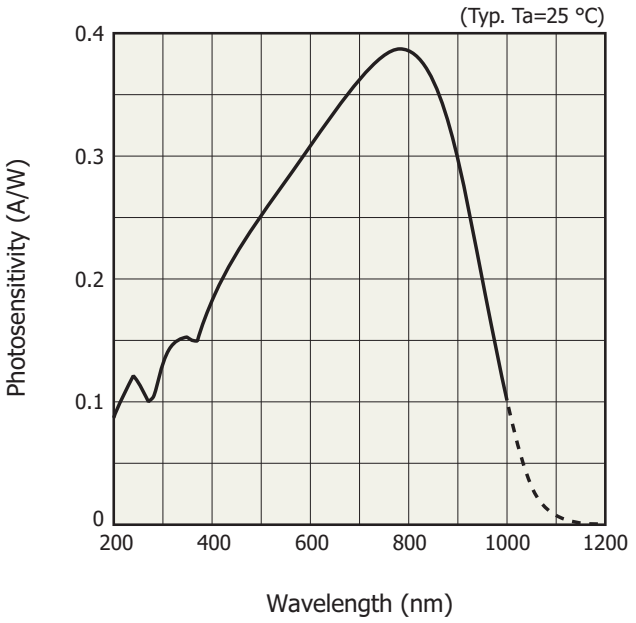
Type no.	Window material	Package	Photosensitive area size (mm)	Effective photosensitive area (mm^2)	Absolute maximum ratings		
					Reverse voltage V_R max (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S12698	UV glass	TO-18	1.1 × 1.1	1.2	5	-40 to +100	-55 to +125
S12698-01		TO-5	2.4 × 2.4	5.8			
S12698-02		TO-8	5.8 × 5.8	33.6			

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 (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photosensitivity S λ=λp (A/W)	Short circuit current Isc 100 lx		Dark current I_D V_R=10 mV max. (pA)	Temp. coefficient of I_D T_{CID} (times/°C)	Rise time tr V_R=0 V R_L=1 kΩ λ=655 nm (μs)	Terminal capacitance Ct V_R=0 V f=10 kHz (pF)	Shunt resistance Rsh max. (GΩ)	Noise equivalent power NEP ($W/Hz^{1/2}$)
				Min. (μA)	Typ. (μA)						
S12698	190 to 1000	800	0.38	0.6	0.8	10	1.12	0.1	25	1	1×10^{-14}
S12698-01				1.7	2.5	30		0.5	230	0.3	2×10^{-14}
S12698-02				12	18	100		1.5	700	0.1	3.5×10^{-14}

Spectral response



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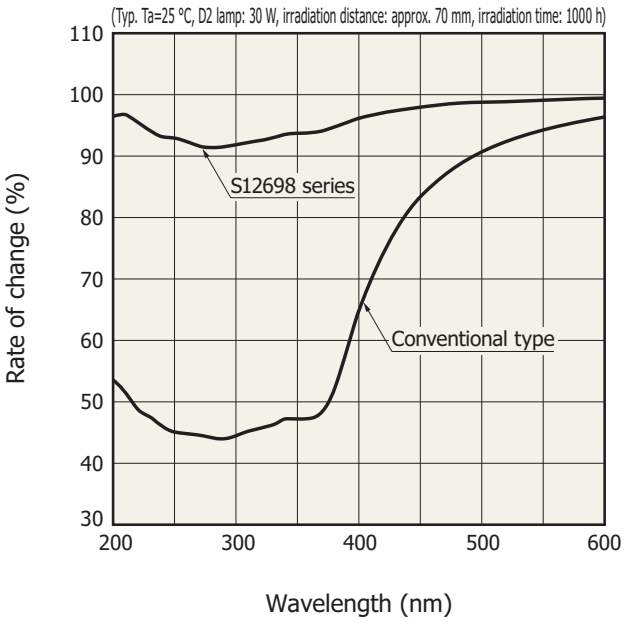
Changes in spectral response after irradiated with UV light



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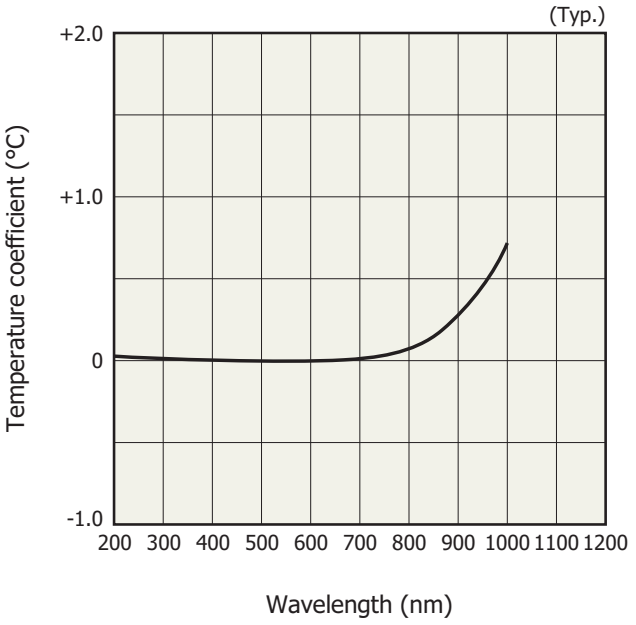
Photosensitivity temperature characteristics



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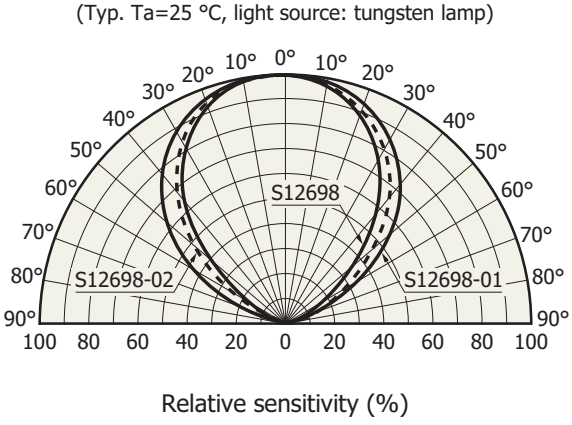
Directivity



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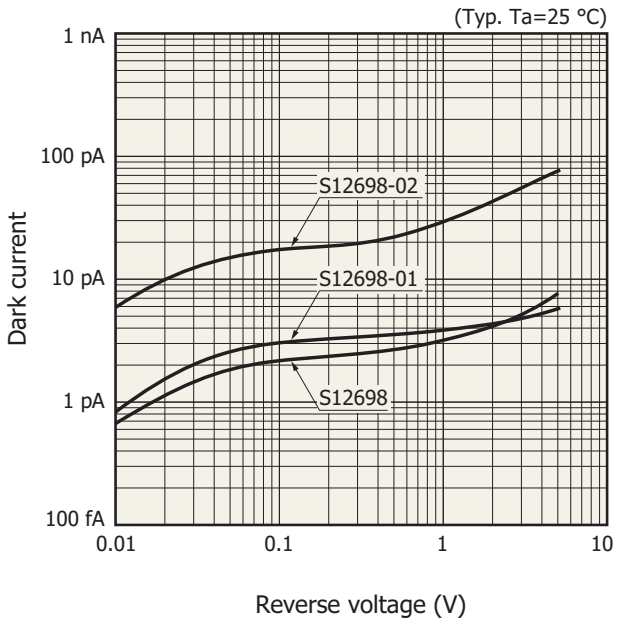
Dark current vs. reverse voltage



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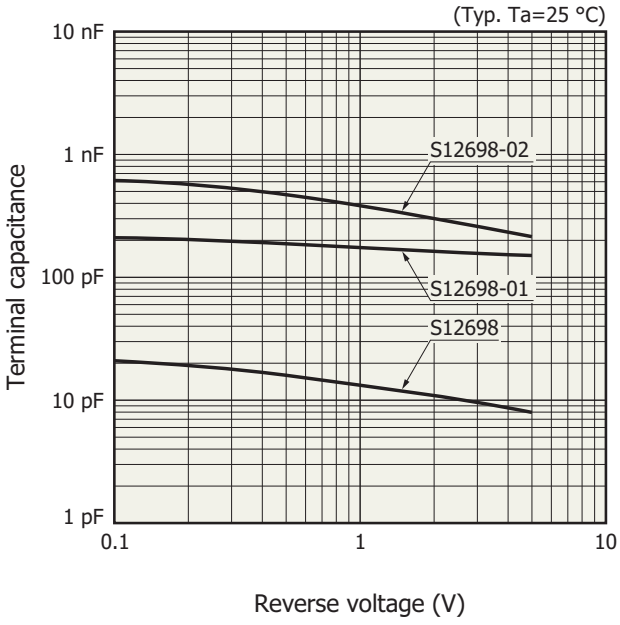
Terminal capacitance vs. reverse voltage



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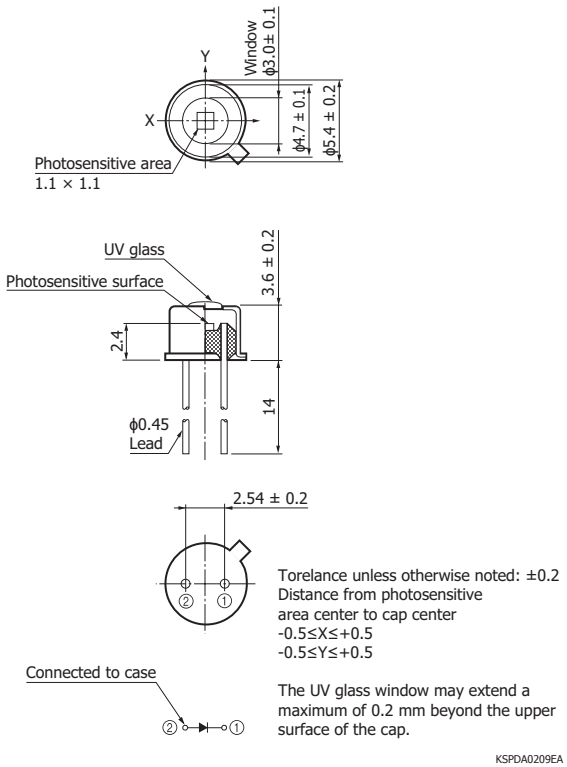
Dimensional outlines (unit: mm)

S12698



Torelance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.5≤X≤+0.5
-0.5≤Y≤+0.5

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

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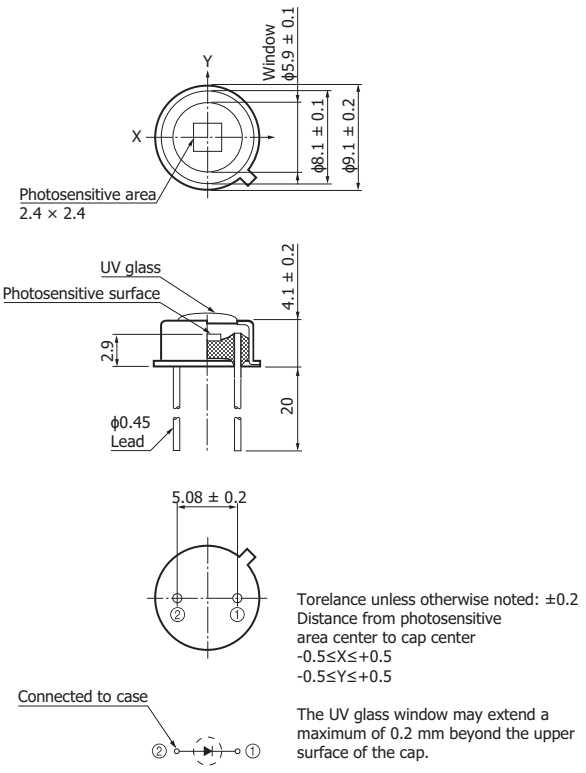
S12698-01



Torelance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.5≤X≤+0.5
-0.5≤Y≤+0.5

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

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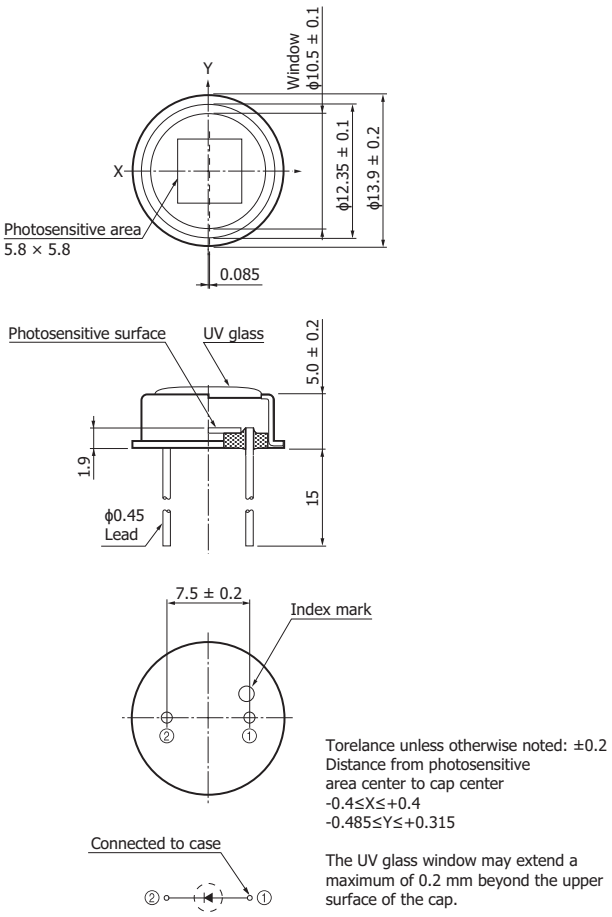
S12698-02



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 information
· Si photodiode / Application circuit example

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