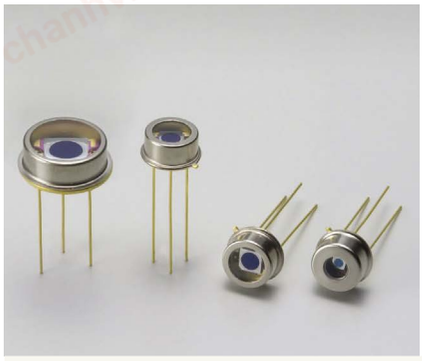
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HAMAMATSU
PHOTON IS OUR BUSINESS

Si PIN photodiodes



S3071 S3072 S3399 S3883

Large area, high-speed Si PIN photodiodes

The S3071, S3072, S3399 and S3883 are Si PIN photodiodes having a relatively large photosensitive area from ϕ1.5 to ϕ5.0 mm yet they offer excellent frequency response from 40 to 300 MHz. These photodiodes are suitable for FSO (free space optics) and high-speed pulsed light detection.

Features

- **Photosensitive area size**
  S3071: ϕ5.0 mm
  S3072: ϕ3.0 mm
  S3399: ϕ3.0 mm
  S3883: ϕ1.5 mm
- **Cutoff frequency**
  S3071: 40 MHz (VR=24 V)
  S3072: 45 MHz (VR=24 V)
  S3399: 100 MHz (VR=10 V)
  S3883: 300 MHz (VR=20 V)
- **High reliability: TO-5/8 metal package**

Applications

- **FSO**
- **High-speed pulsed light detection**

Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material*1	Package	Photosensitive area size (mm)	Effective photosensitive area (mm²)	Absolute maximum ratings			
					Reverse voltage VR max. (V)	Power dissipation Pd (mW)	Operating temperature*2 Topr (°C)	Storage temperature*2 Tstg (°C)
S3071	(1)/K	TO-8	ϕ5.0	19.6	50	50	-40 to +100	-55 to +125
S3072	(2)/K	TO-5	ϕ3.0	7.0				
S3399	(3)/K		ϕ3.0	7.0	30			
S3883	(4)/K		ϕ1.5	1.7				

*1: Window material K=borosilicate glass
*2: No condensation
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.

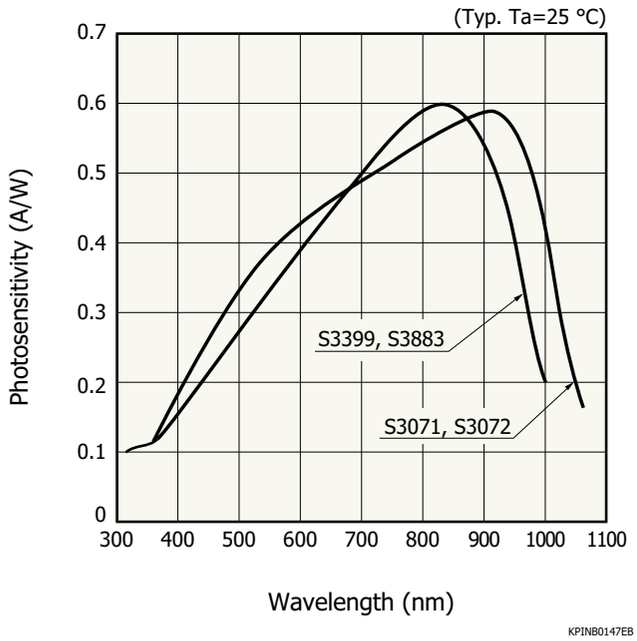
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photosensitivity S (A/W)				Short circuit current Isc 100 lx (μA)	Dark current ID (nA)		Temp. coefficient of ID TCID (times/°C)	Cutoff frequency fc RL=50 Ω (MHz)	Terminal capacitance Ct f=1 MHz (pF)	Noise equivalent power NEP λ=λp (W/Hz^1/2)
			λp	660 nm	780 nm	830 nm		Typ.	Max.				
S3071	320 to 1060	920	0.6	0.47	0.54	0.56	17	0.5*3	10*3	1.15	40*3	18*3	2.1×10^{-14} *3
S3072							6.5	0.3*3	10*3		45*3	7*3	1.6×10^{-14} *3
S3399	320 to 1000	840	0.6	0.45	0.58	0.6	5.6	0.1*4	1.0*4	1.12	100*4	20*4	9.4×10^{-15} *4
S3883							1.4	0.05*5	1.0*5		300*5	6*5	6.7×10^{-15} *5

*3: VR=24 V *4: VR=10 V *5: VR=20 V

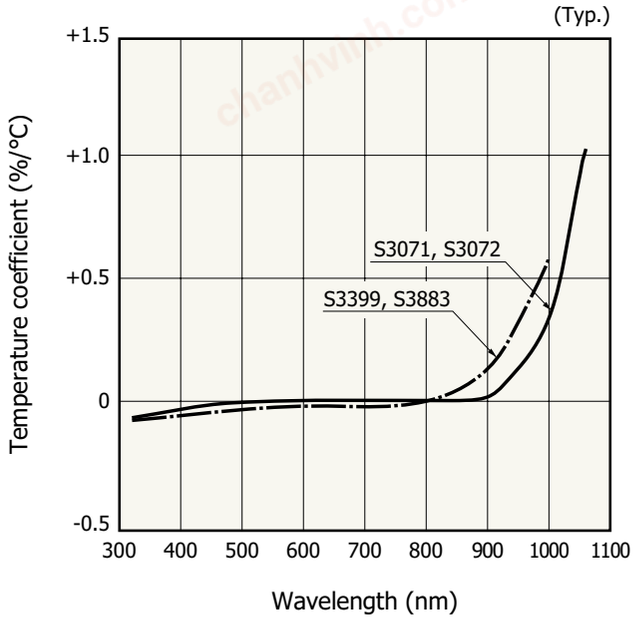
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Spectral response



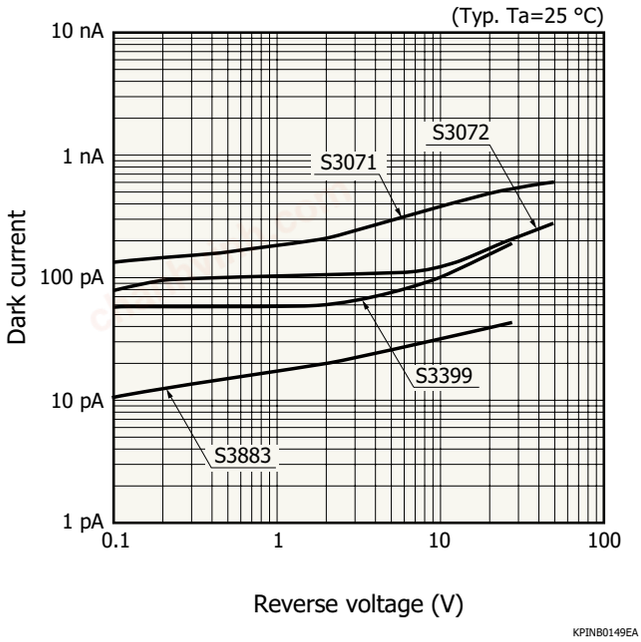
KPINB0147EB

Photosensitivity temperature characteristics



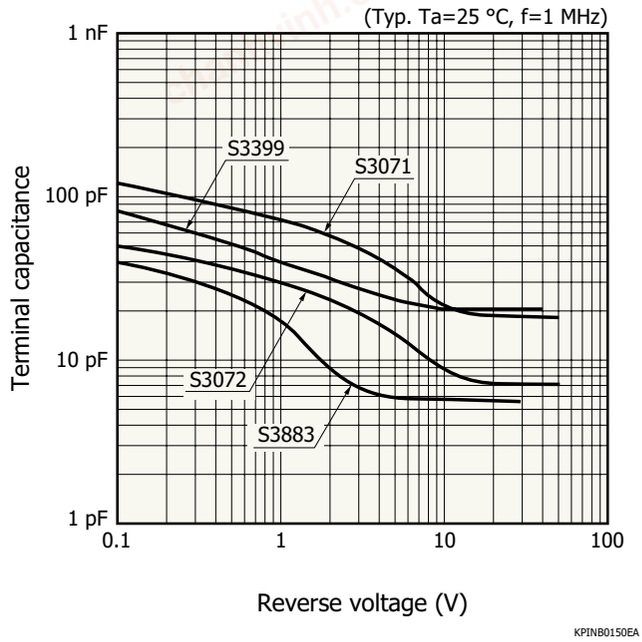
KPINB0148EB

Dark current vs. reverse voltage



KPINB0149EA

Terminal capacitance vs. reverse voltage

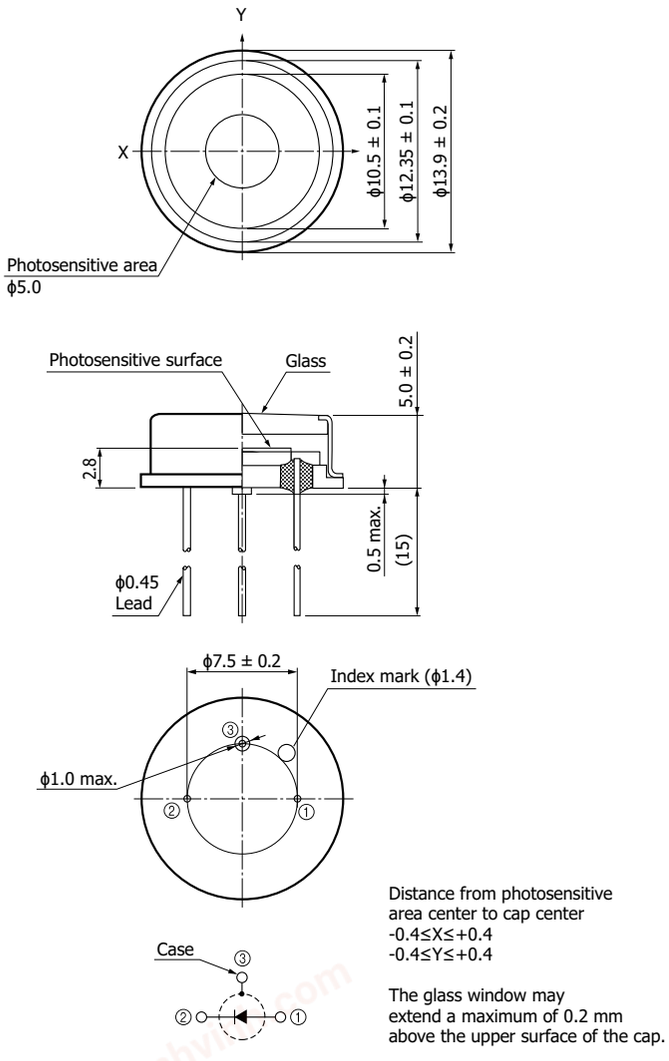


KPINB0150EA

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Dimensional outlines (unit: mm)

(1) S3071

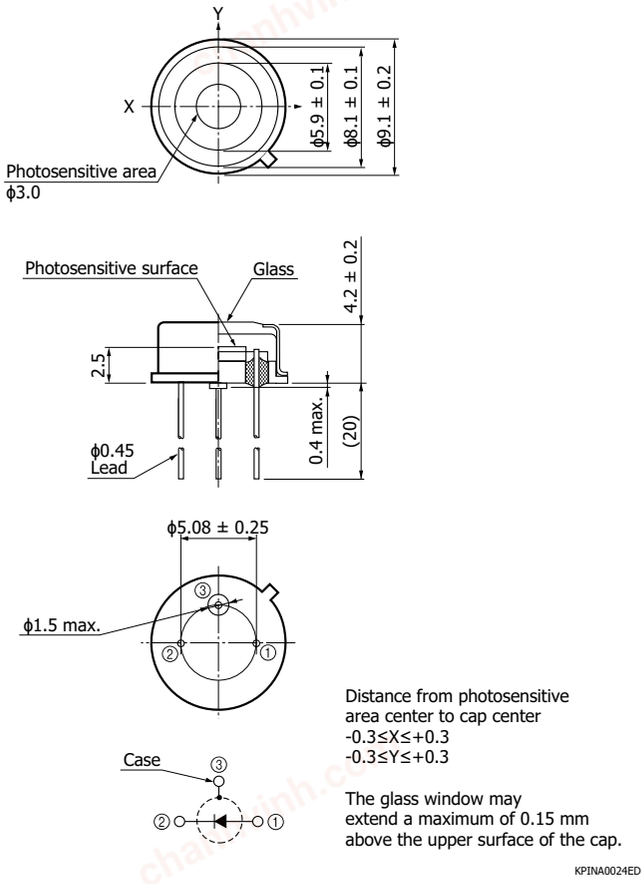


Distance from photosensitive area center to cap center
-0.4≤X≤+0.4
-0.4≤Y≤+0.4

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

KPINA0027ED

(2) S3072



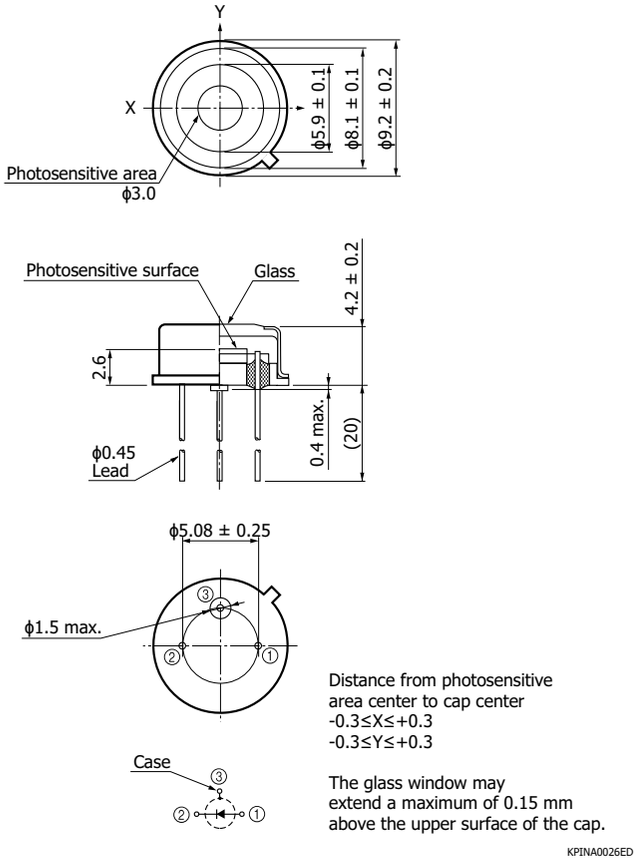
Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

The glass window may extend a maximum of 0.15 mm above the upper surface of the cap.

KPINA0024ED

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(3) S3399

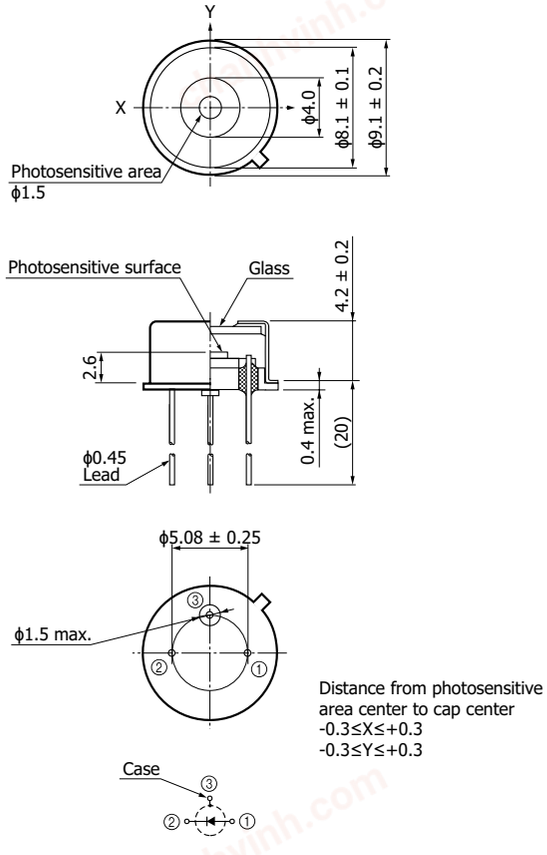


Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

The glass window may extend a maximum of 0.15 mm above the upper surface of the cap.

KPINA0026ED

(4) S3883



Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

KPINA0025ED

Related information

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

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

■ Catalog
· Technical note / Si photodiodes

Information described in this material is current as of April, 2025.

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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