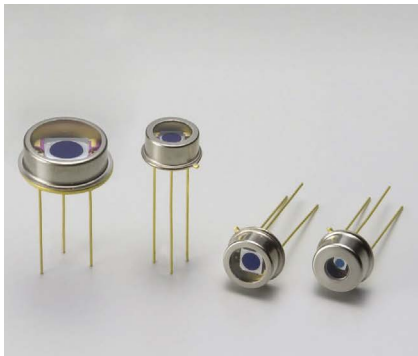


Si PIN photodiodes



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 $\phi 1.5$ to $\phi 5.0$ 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: $\phi 5.0$ mm
S3072: $\phi 3.0$ mm
S3399: $\phi 3.0$ mm
S3883: $\phi 1.5$ mm
- ➔ **Cutoff frequency**
S3071: 40 MHz ($V_R=24$ V)
S3072: 45 MHz ($V_R=24$ V)
S3399: 100 MHz ($V_R=10$ V)
S3883: 300 MHz ($V_R=20$ 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 (mm ²)	Absolute maximum ratings			
					Reverse voltage V_R max. (V)	Power dissipation P_d (mW)	Operating temperature*2 T_{opr} (°C)	Storage temperature*2 T_{stg} (°C)
S3071	(1)/K	TO-8	$\phi 5.0$	19.6	50	50	-40 to +100	-55 to +125
S3072	(2)/K	TO-5	$\phi 3.0$	7.0				
S3399	(3)/K		$\phi 3.0$	7.0				
S3883	(4)/K		$\phi 1.5$	1.7	30			

*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.

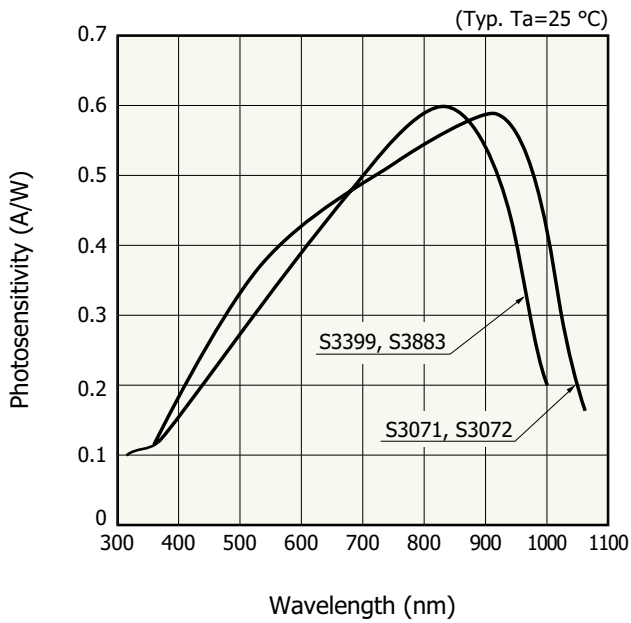
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

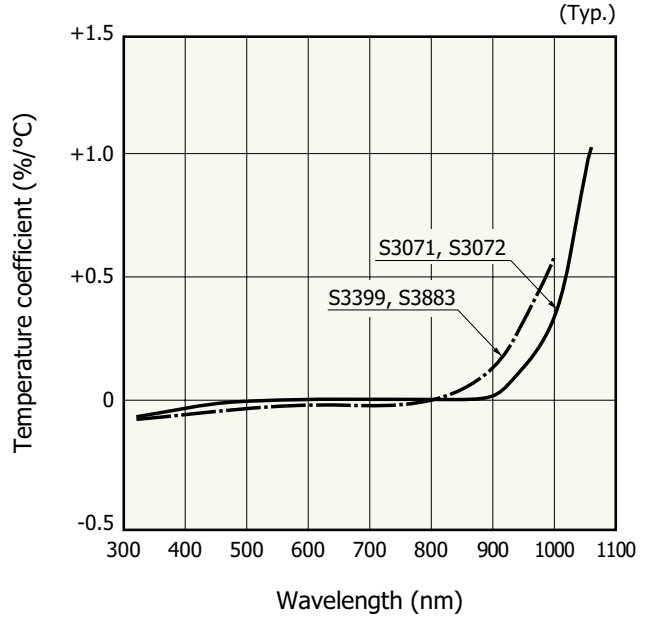
Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photosensitivity S (A/W)			Short circuit current I_{sc} 100 lx (μ A)	Dark current I_D (nA)		Temp. coefficient of I_D T_{CID} (times/°C)	Cutoff frequency f_c $R_L=50 \Omega$ (MHz)	Terminal capacitance C_t $f=1$ MHz (pF)	Noise equivalent power NEP $\lambda=\lambda_p$ (W/Hz ^{1/2})	
			λ_p	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: $V_R=24$ V *4: $V_R=10$ V *5: $V_R=20$ V

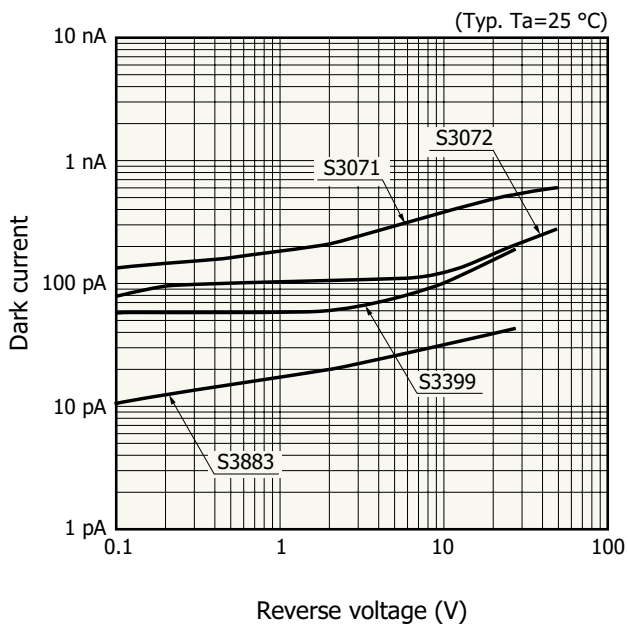
Spectral response



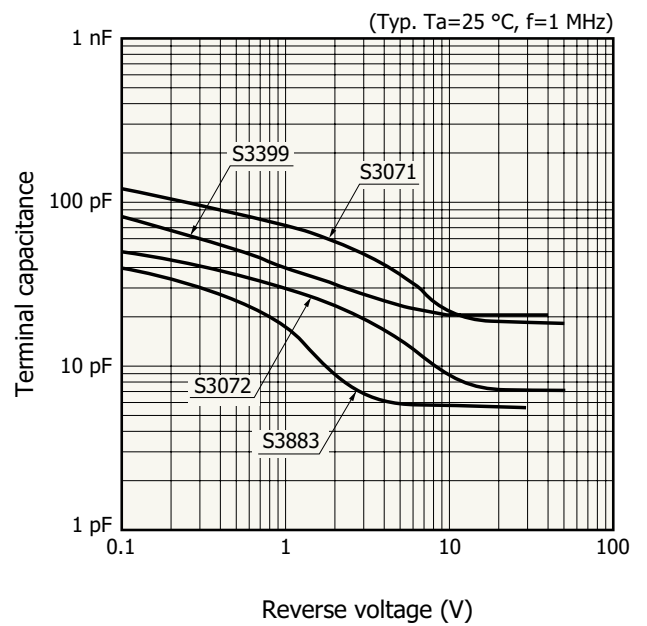
Photosensitivity temperature characteristics



Dark current vs. reverse voltage

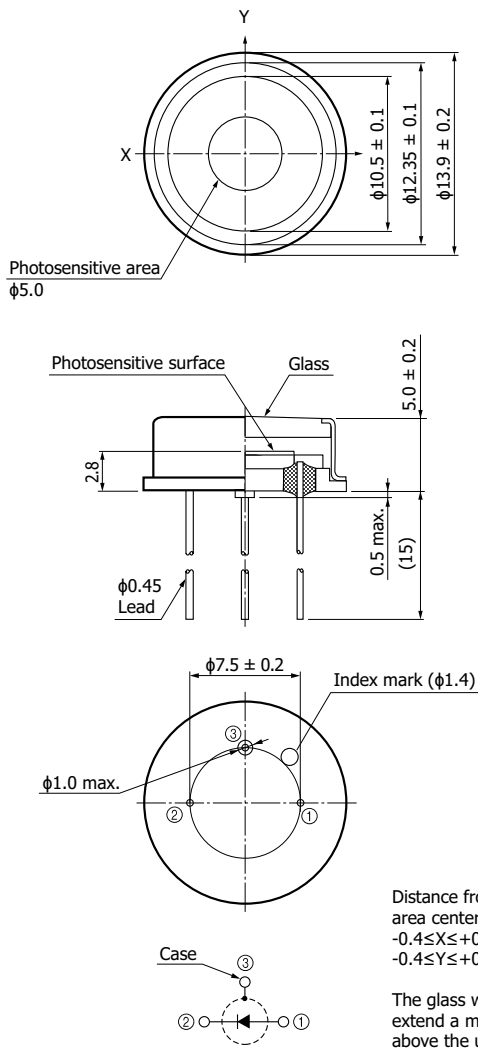


Terminal capacitance vs. reverse voltage



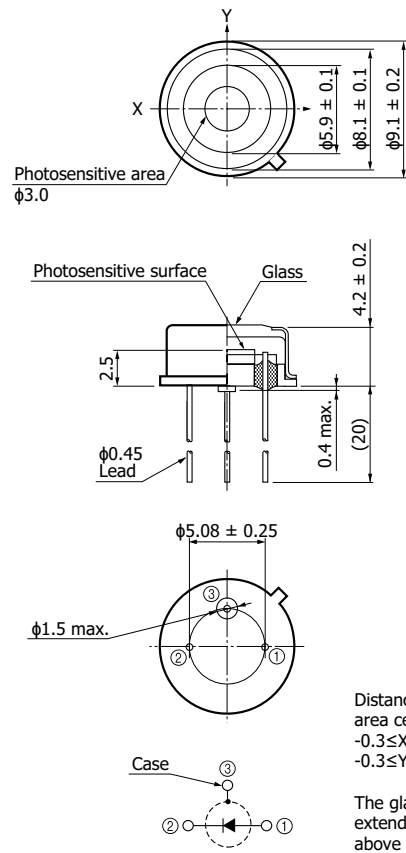
Dimensional outlines (unit: mm)

(1) S3071



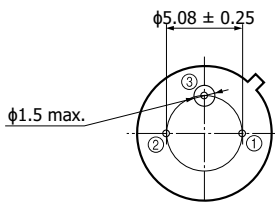
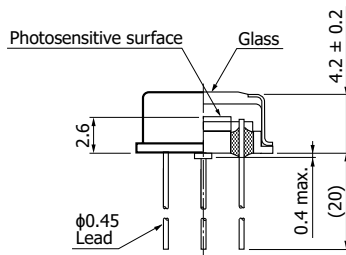
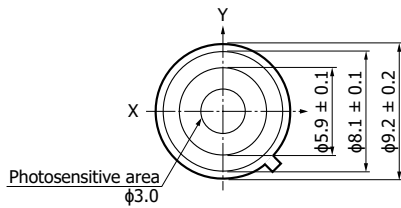
KPINA0027ED

(2) S3072

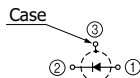


KPINA0024ED

(3) S3399



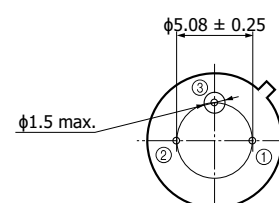
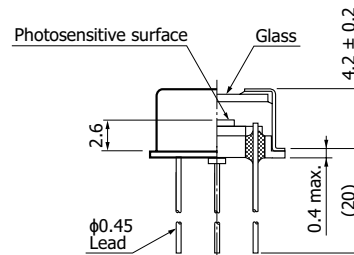
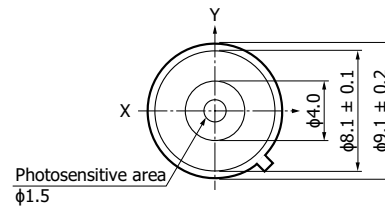
Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$



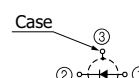
The glass window may extend a maximum of 0.15 mm above the upper surface of the cap.

KPINA0026ED

(4) S3883



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



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.

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