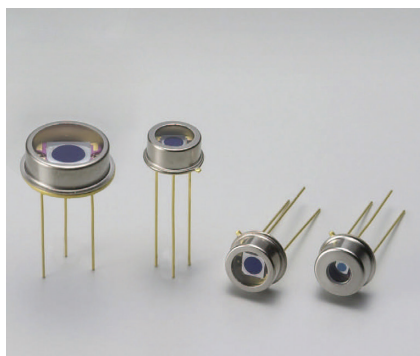


Si PIN photodiodes



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				

*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.

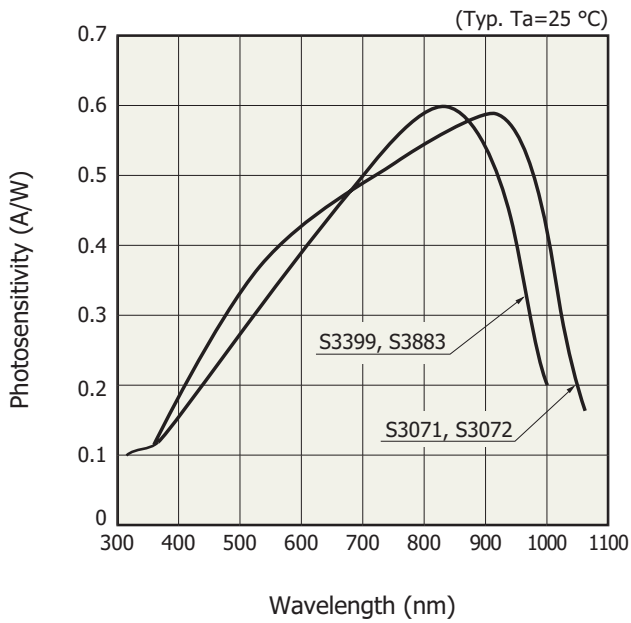
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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 $R_L=50$ Ω (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

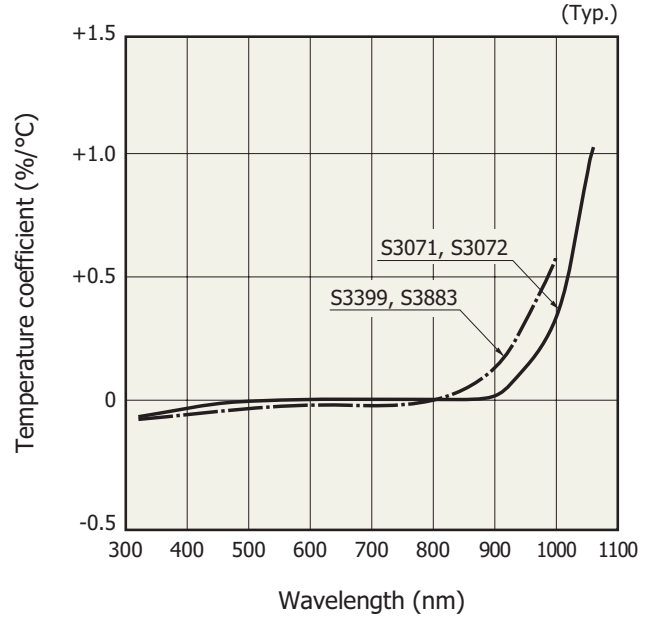
*3: $V_R=24$ V *4: $V_R=10$ V *5: $V_R=20$ V

Spectral response



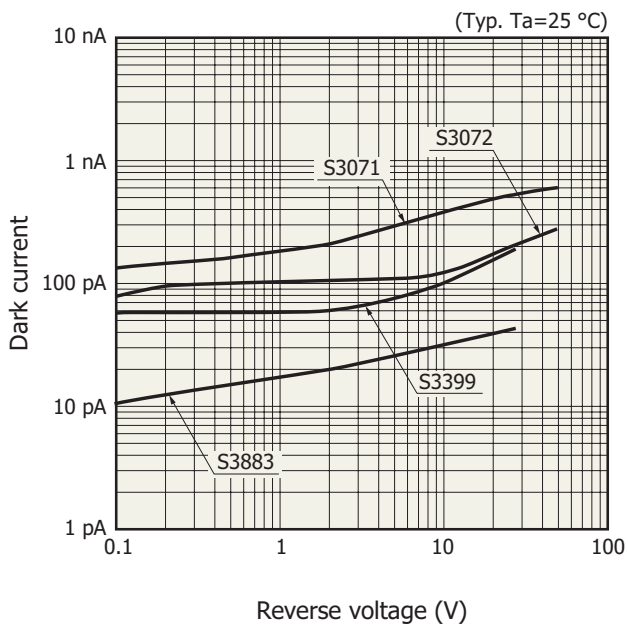
KPINB0147EB

Photosensitivity temperature characteristics



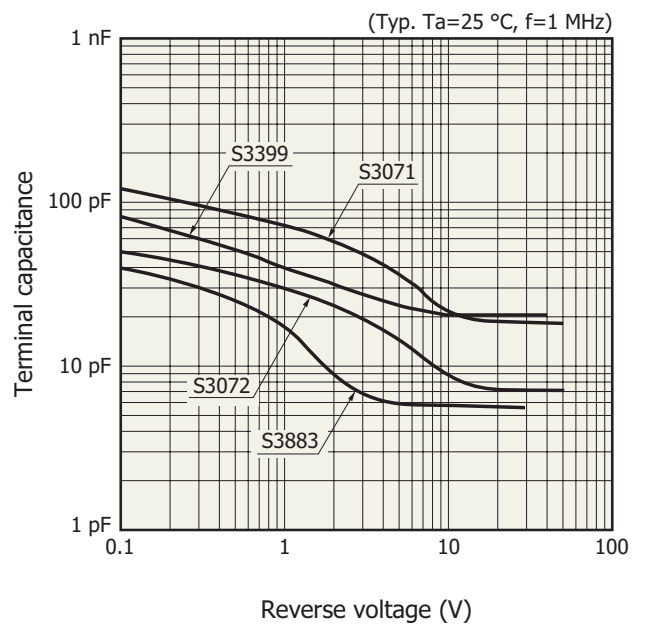
KPINB0148EB

Dark current vs. reverse voltage



KPINB0149EA

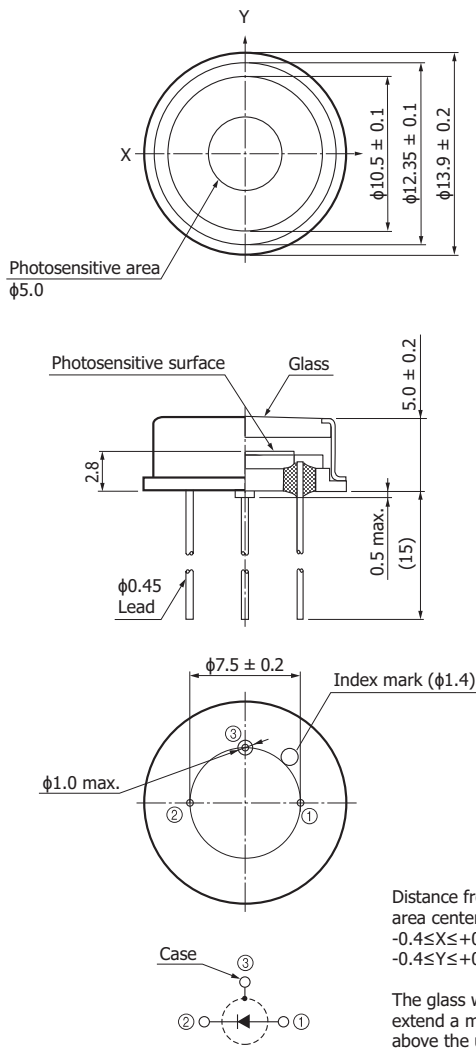
Terminal capacitance vs. reverse voltage



KPINB0150EA

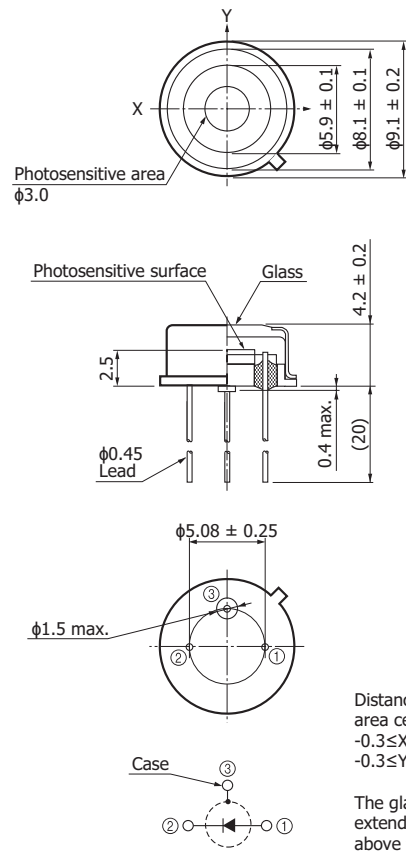
Dimensional outlines (unit: mm)

(1) S3071



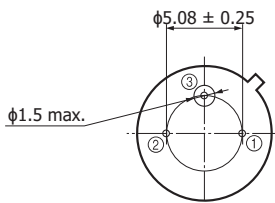
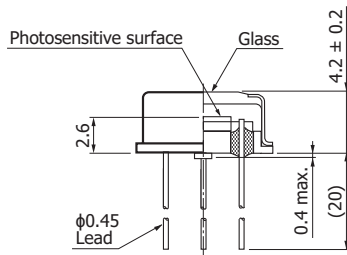
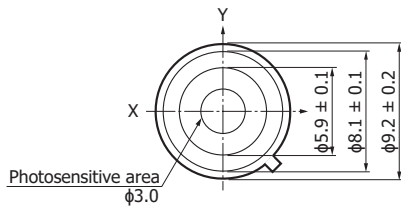
KPINA0027ED

(2) S3072

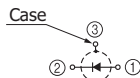


KPINA0024EC

(3) S3399



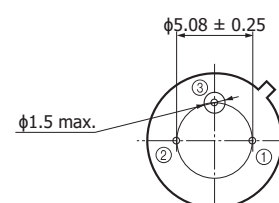
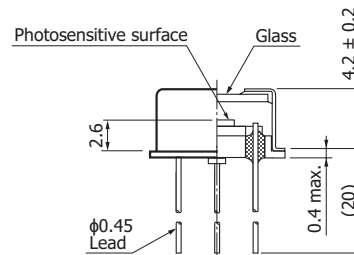
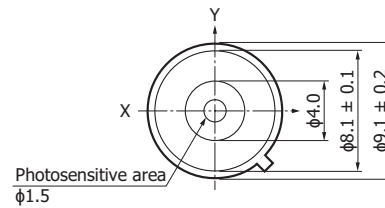
Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$



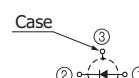
The glass window may extend a maximum of 0.15 mm above the upper surface of the cap.

KPINA0026EC

(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

Technical note

- Si photodiodes

Information described in this material is current as of October, 2022.

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