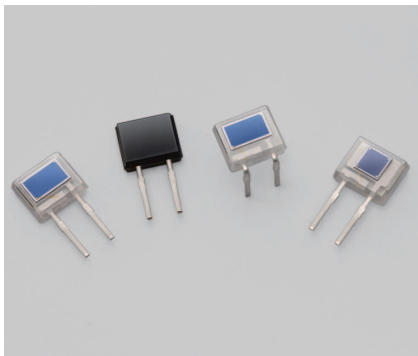


# Si PIN photodiodes

S8385/S8729 series



## SIP plastic package

The S8385/S8729 series is a family of large area Si PIN photodiodes molded into a miniature plastic SIP package (75% smaller in cubic volume than conventional types). Also available are lead forming types that save space when mounted on a PC board.

### Features

- ➔ **Small plastic package: 4 × 4.8 × 1.8<sup>t</sup> mm**
- ➔ **2-pin SIP lead type (lead length: 4.9 mm)**
- ➔ **High sensitivity, high-speed response**
- ➔ **2 types of spectral response characteristics available**  
S8385, S8729, S8729-10: for visible to infrared range ( $\lambda=320$  to 1100 nm)  
S8385-04, S8729-04: for infrared ( $\lambda=760$  to 1100 nm)
- ➔ **Lead forming type also available (S8729-10)**
- ➔ **Photosensitive area**  
S8385 series: 2 × 2 mm  
S8729 series: 2 × 3.3 mm

### Applications

- ➔ **Barcode scanners**
- ➔ **FSO**
- ➔ **Optical switches**
- ➔ **Laser radar, etc.**

### Structure / Absolute maximum ratings

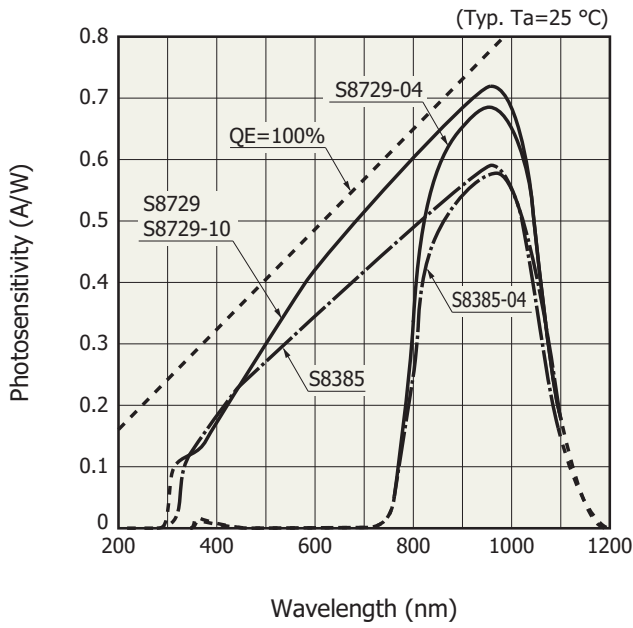
Type no.	Dimensional outline	Package	Photosensitive area size (mm)	Effective photosensitive area (mm <sup>2</sup> )	Absolute maximum ratings			
					Reverse voltage V <sub>R</sub> max (V)	Power dissipation P (mW)	Operating temperature T <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°C)
S8385	①	Plastic	2 × 2	4	20	50	-25 to +85	-40 to +100
S8385-04								
S8729			2 × 3.3	6.6				
S8729-04								
S8729-10	②							

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.

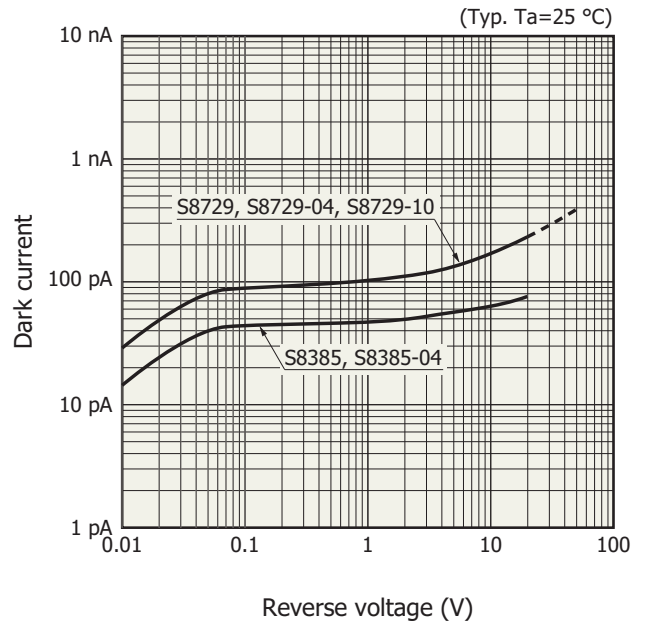
### Electrical and optical characteristics

Type no.	Spectral response range $\lambda$ (nm)	Peak sensitivity wavelength $\lambda_p$ (nm)	Photosensitivity S (A/W)				Short circuit current I <sub>sc</sub> 100 lx ( $\mu$ A)	Dark current I <sub>D</sub> V <sub>R</sub> =5 V		Temperature coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Cutoff frequency f <sub>c</sub> V <sub>R</sub> =5 V $\lambda=780$ nm R <sub>L</sub> =50 $\Omega$ -3 dB (MHz)	Terminal capacitance C <sub>t</sub> V <sub>R</sub> =5 V f=1 MHz (pF)	NEP $\lambda=\lambda_p$ (W/Hz <sup>1/2</sup> )
			$\lambda_p$	660 nm	780 nm	830 nm		Typ. (nA)	Max. (nA)				
S8385	320 to 1100	960	0.56	0.4	0.48	0.5	4.2	0.1	1.0	1.15	25	12	1.0 × 10 <sup>-14</sup>
S8385-04	760 to 1100			-	-	0.44	2.8						
S8729	320 to 1100		0.7	0.45	0.55	0.6	7.5	0.2	2.0			16	1.1 × 10 <sup>-14</sup>
S8729-04	760 to 1100		0.68	-	-	0.52	5						
S8729-10	320 to 1100		0.7	0.45	0.55	0.6	7.5						

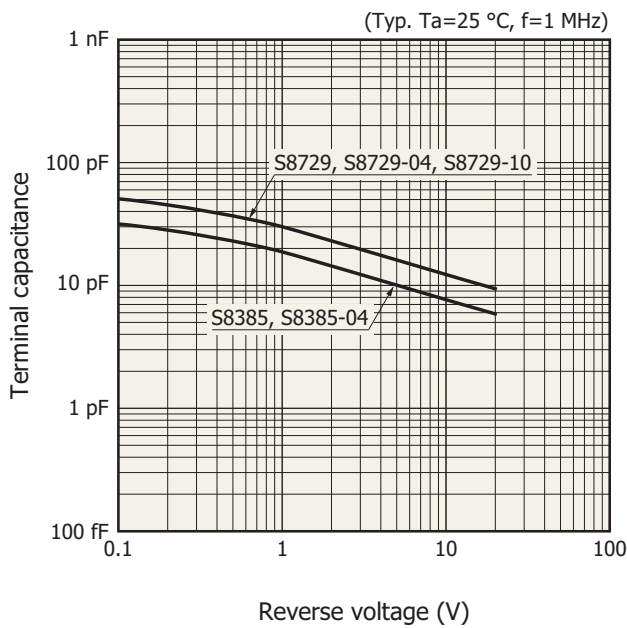
**Spectral response**



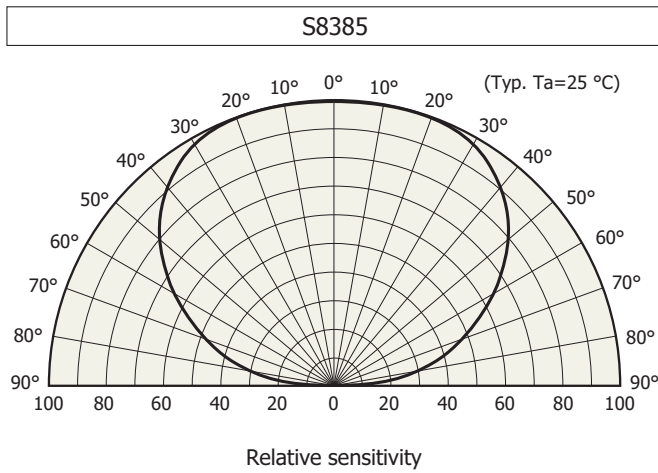
**Dark current vs. reverse voltage**



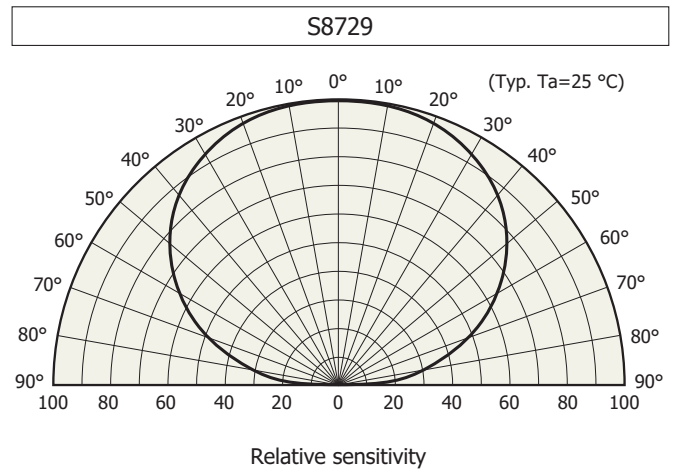
**Terminal capacitance vs. reverse voltage**



**Directivity**



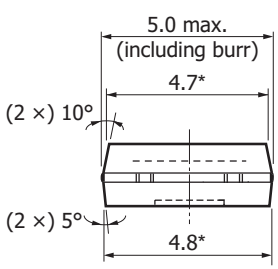
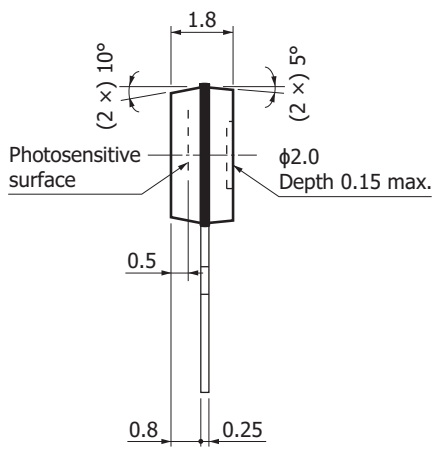
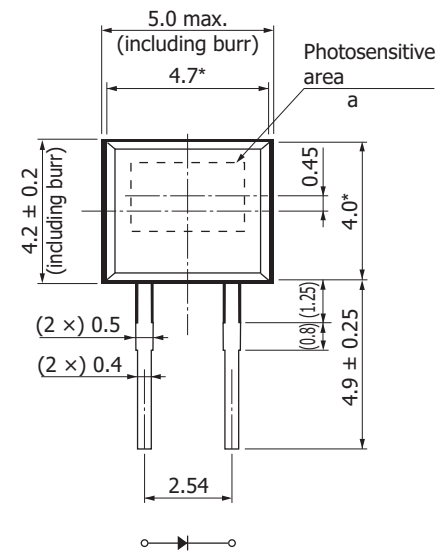
KPINB0404EA



KPINB0405EA

**Dimensional outlines (unit: mm)**

S8385, S8385-04, S8729, S8729-04



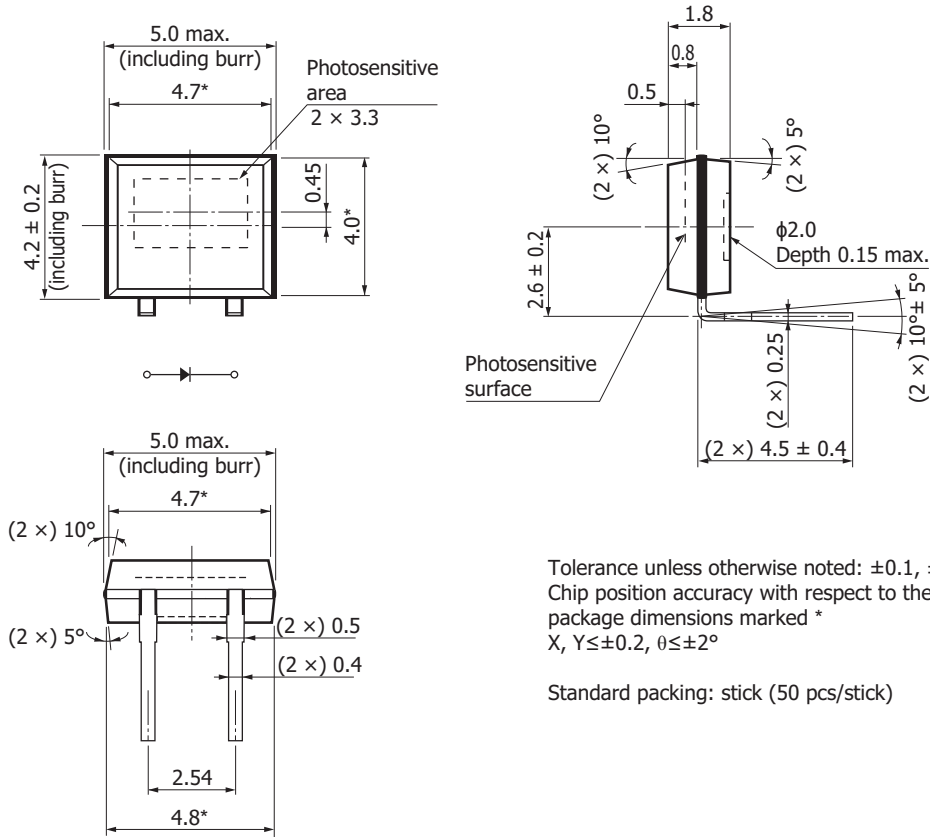
Symbol	S8385 S8385-04	S8729 S8729-04
a	2 × 2	2 × 3.3

Tolerance unless otherwise noted:  $\pm 0.1$ ,  $\pm 2^\circ$   
 Chip position accuracy with respect to the package dimensions marked \*  
 $X, Y \leq \pm 0.2$ ,  $\theta \leq \pm 2^\circ$

Standard packing: stick (50 pcs/stick)

KPINA0090EB

S8729-10



KPINA0091EC

## Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://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 September, 2015.

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