

# Si PIN photodiodes



S5821 series

## High performance, high reliability Si PIN photodiodes

The S5821 series is a high-speed Si PIN photodiode having high sensitivity over a wide spectral range from visible to near infrared light. The S5821 series provides high performance and reliability at a low cost.

### Features

- High-speed response
- Wide spectral response range
- Low dark current
- Low terminal capacitance

### Applications

- Optical switches
- Automobile optical sensors
- General photometry

### Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material *	Package (mm)	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)
S5821	①/K	TO-18	φ1.2	1.1	20	50	-40 to +100	-55 to +125
S5821-01	②/L							
S5821-02	③/K							
S5821-03	④/L							

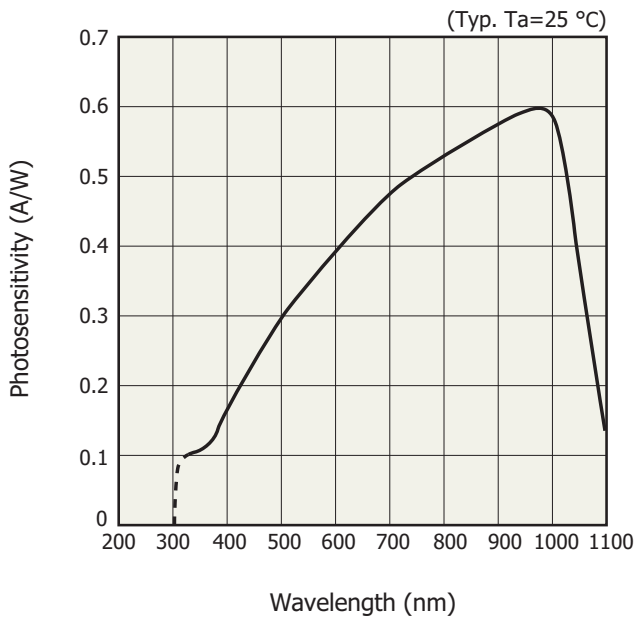
\* Window material K: borosilicate glass, L: lens type borosilicate glass

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.

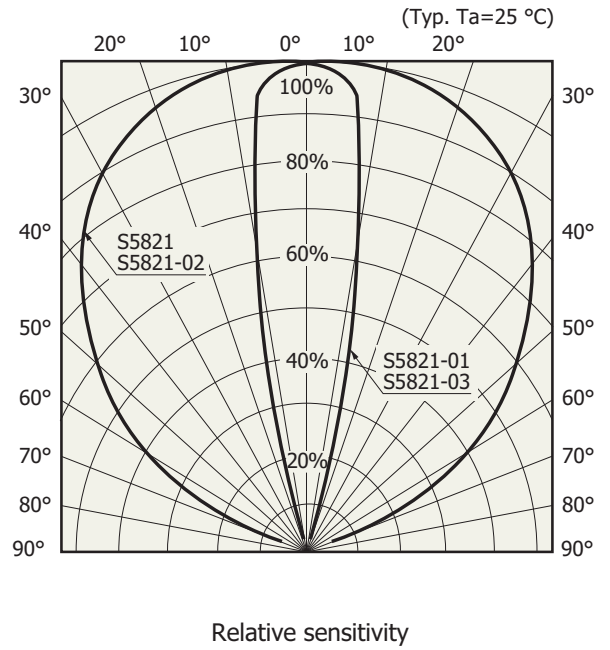
### Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ <sub>p</sub> (nm)	Photosensitivity S (A/W)				Short circuit current I <sub>sc</sub> 100 lx (μA)	Dark current I <sub>D</sub> V <sub>R</sub> =10 V (nA)		Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Cutoff frequency f <sub>c</sub> V <sub>R</sub> =10 V (MHz)	Terminal capacitance C <sub>t</sub> V <sub>R</sub> =10 V f=1 MHz (pF)	NEP V <sub>R</sub> =10 V λ=λ <sub>p</sub> (W/Hz <sup>1/2</sup> )	
			λ <sub>p</sub>	660 nm	780 nm	830 nm		Typ.	Max.					
S5821	320 to 1100	960	0.6	0.45	0.52	0.55	1.1	0.05	2	1.15	25	3	6.7 × 10 <sup>-15</sup>	
S5821-01														12
S5821-02														1.1
S5821-03														12

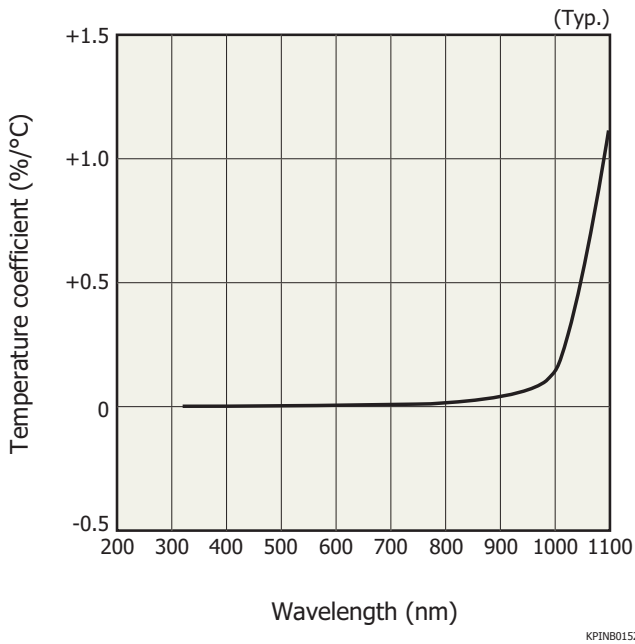
**Spectral response**



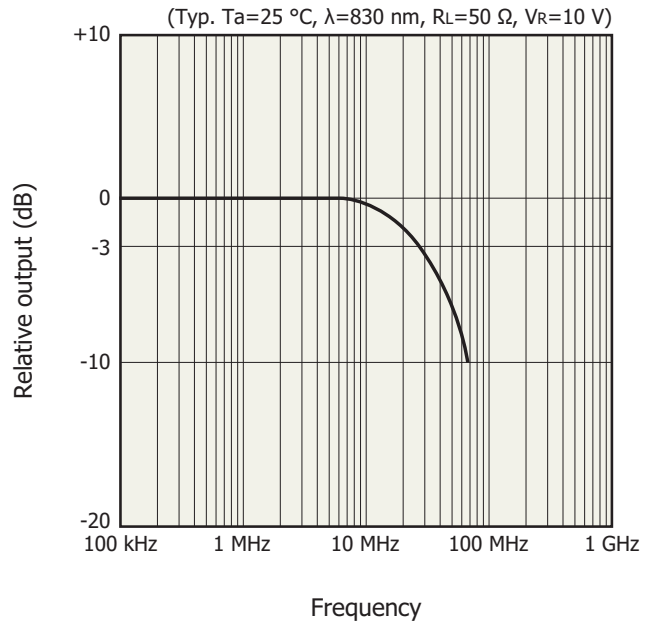
**Directivity**



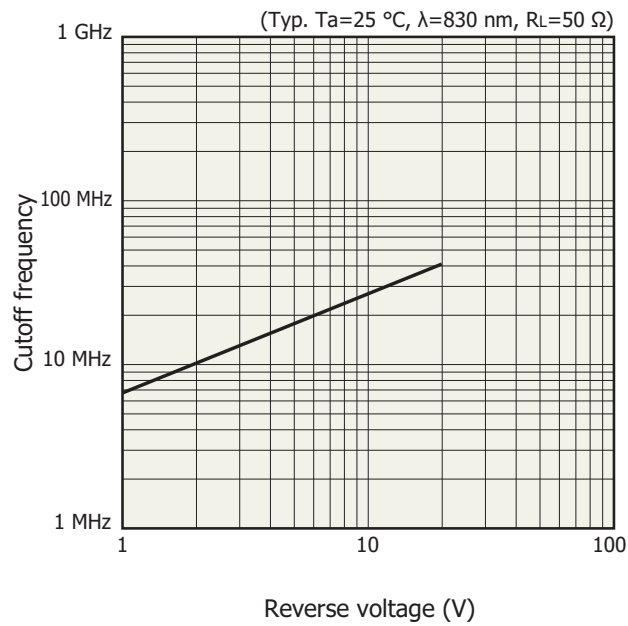
**Photosensitivity temperature characteristics**



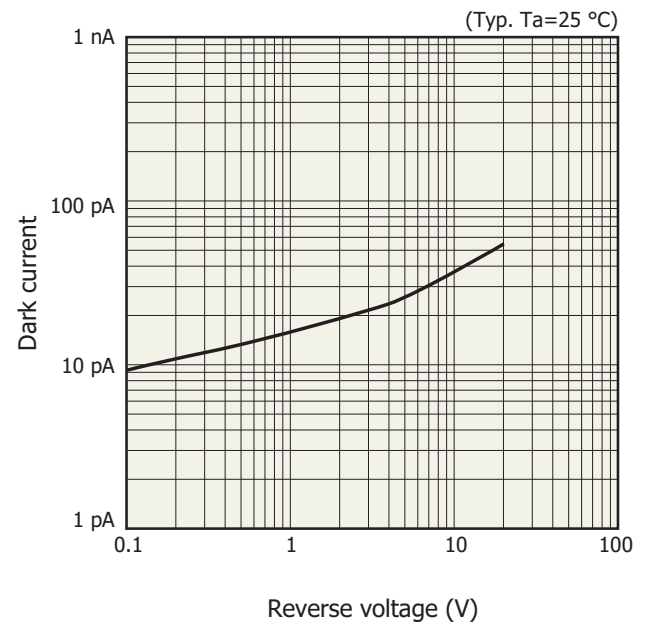
**Frequency response**



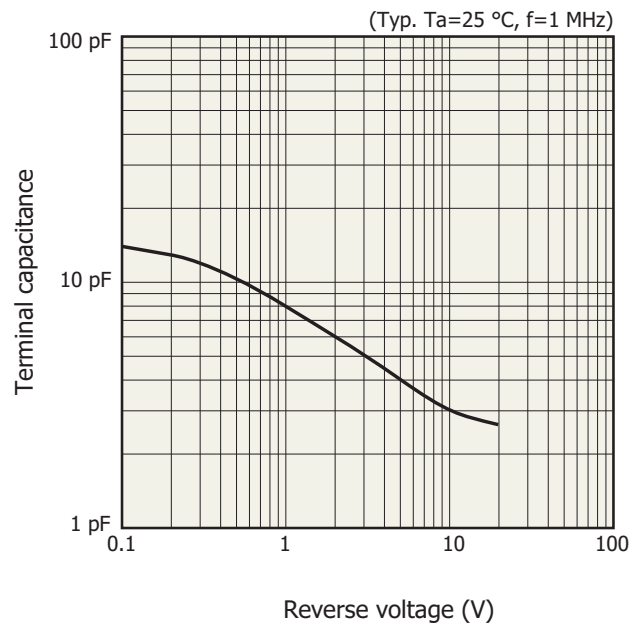
### Cutoff frequency vs. reverse voltage



### Dark current vs. reverse voltage

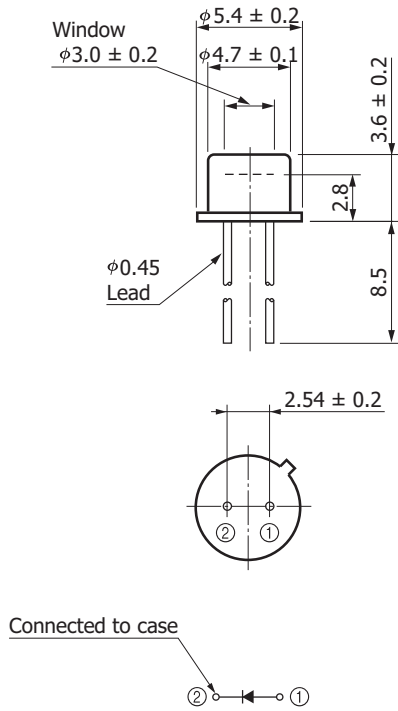


### Terminal capacitance vs. reverse voltage



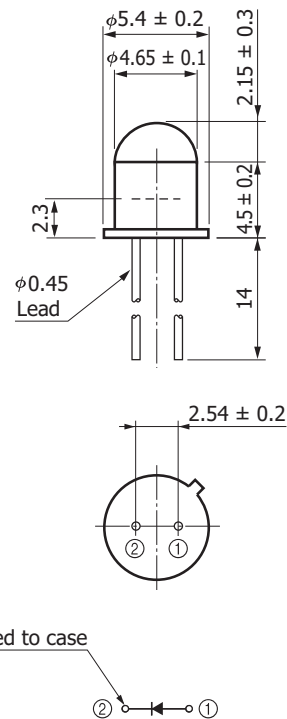
Dimensional outlines (unit: mm)

① S5821



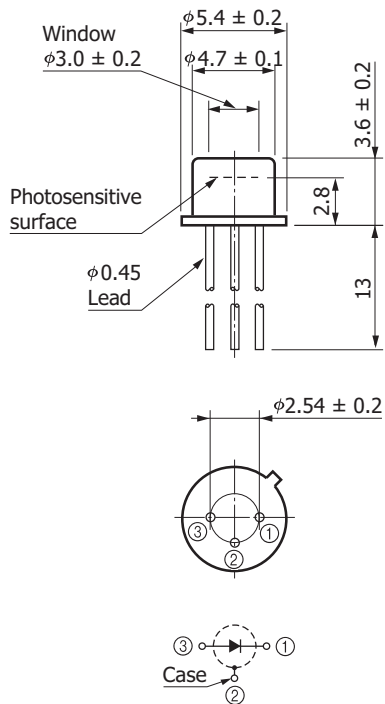
KPINA0074EC

② S5821-01



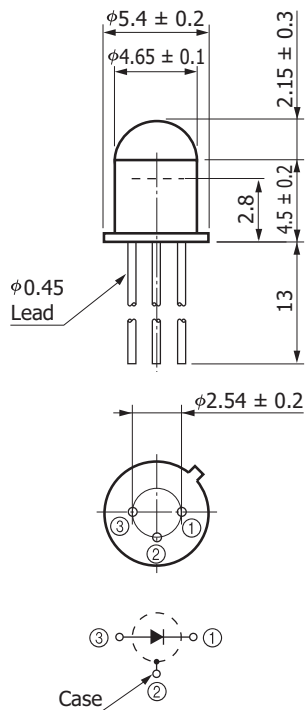
KPINA0075EB

③ S5821-02



KPINA0022EC

④ S5821-03



KPINA0046EB

## 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 2017.

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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HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218, E-mail: [usa@hamamatsu.com](mailto:usa@hamamatsu.com)

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8, E-mail: [info@hamamatsu.de](mailto:info@hamamatsu.de)

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10, E-mail: [infos@hamamatsu.fr](mailto:infos@hamamatsu.fr)

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777, E-mail: [info@hamamatsu.co.uk](mailto:info@hamamatsu.co.uk)

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01, E-mail: [info@hamamatsu.se](mailto:info@hamamatsu.se)

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41, E-mail: [info@hamamatsu.it](mailto:info@hamamatsu.it)

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866, E-mail: [hpc@hamamatsu.com.cn](mailto:hpc@hamamatsu.com.cn)

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No. 158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)03-659-0080, Fax: (886)03-659-0081, E-mail: [info@tw.hpj.co.jp](mailto:info@tw.hpj.co.jp)