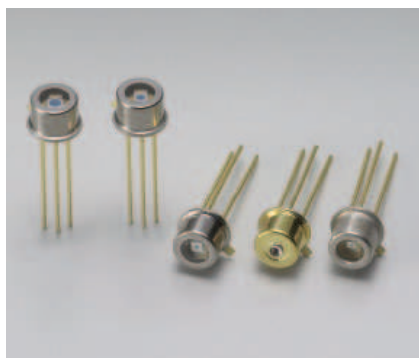


Si PIN photodiodes



S5971

S5972

S5973 series

High-speed photodiodes (S5973 series: 1 GHz)

The S5971, S5972 and S5973 series are high-speed Si PIN photodiodes designed for visible to near infrared light detection. These photodiodes provide wideband characteristics at a low bias, making them suitable for optical communications and other high-speed photometry. The S5973 series includes a mini-lens type (S5973-01) that can be efficiently coupled to an optical fiber and a violet sensitivity enhanced type (S5973-02) ideal for violet laser detection.

Features

- **High-speed response**
S5971 : 100 MHz ($V_R=10$ V)
S5972 : 500 MHz ($V_R=10$ V)
S5973 series: 1 GHz ($V_R=3.3$ V)
- **Low price**
- **High sensitivity**
S5973-02: 0.3 A/W, QE=91 % ($\lambda=410$ nm)
- **High reliability**

Applications

- **Optical fiber communications**
- **High-speed photometry**
- **Violet laser detection (S5973-02)**

Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material*1	Package (mm)	Photosensitive area size (mm)	Effective photosensitive area (mm ²)	Absolute maximum ratings			
					Reverse voltage V_R Max. (V)	Power dissipation P (mW)	Operating temperature T_{opr} (°C)	Storage temperature T_{stg} (°C)
S5971	(1)/K	TO-18	$\phi 1.2$	1.1	20	50	-40 to +100	-55 to +125
S5972			$\phi 0.8$	0.5				
S5973			$\phi 0.4$	0.12				
S5973-01	(2)/L							
S5973-02	(3)/K							

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 λ	Peak sensitivity wavelength λ_p	Photosensitivity S (A/W)				Short circuit current Isc 100 lx (μ A)	Dark current ID		Temp. coefficient of ID TCID	Cutoff frequency fc	Terminal capacitance Ct f=1 MHz	Noise equivalent power NEP VR=10 V $\lambda=\lambda_p$
			λ_p	660 nm	780 nm	830 nm		Typ. (nA)	Max. (nA)				
	(nm)	(nm)							(times/°C)	(GHz)	(pF)	(W/Hz ^{1/2})	
S5971	320 to 1060	900	0.64	0.44	0.55	0.6	1.0	0.07*3	1*3	1.15	0.1*3	3*3	7.4 × 10 ⁻¹⁵
S5972	320 to 1000	800	0.57			0.55	0.42	0.01*3	0.5*3		0.5*3		3.1 × 10 ⁻¹⁵
S5973		760	0.52		0.51	0.47	0.09	0.001*4	0.1*4		1*4	1.6*4	1.1 × 10 ⁻¹⁵ *4
S5973-01			0.45	0.42		0.37	0.07						1.9 × 10 ⁻¹⁵ *2 *4
S5973-02			0.45	0.3*2	0.42	0.37	0.07						

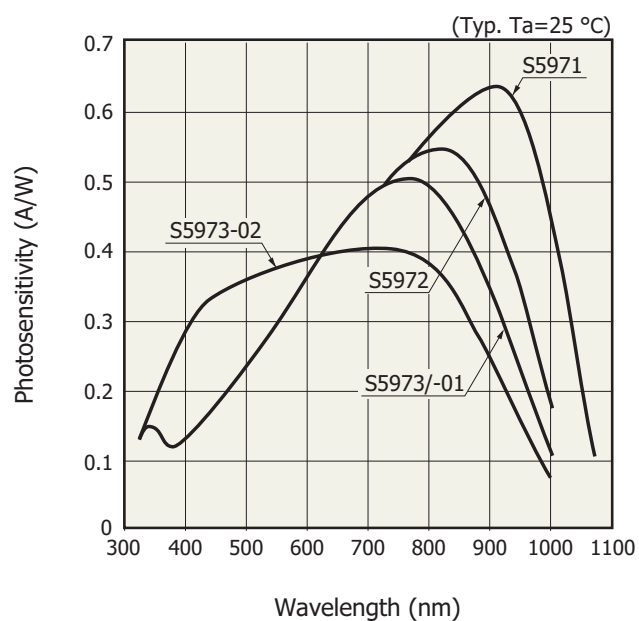
*1: Window material K: borosilicate glass, L: lens type borosilicate glass

*2: $\lambda=410$ nm

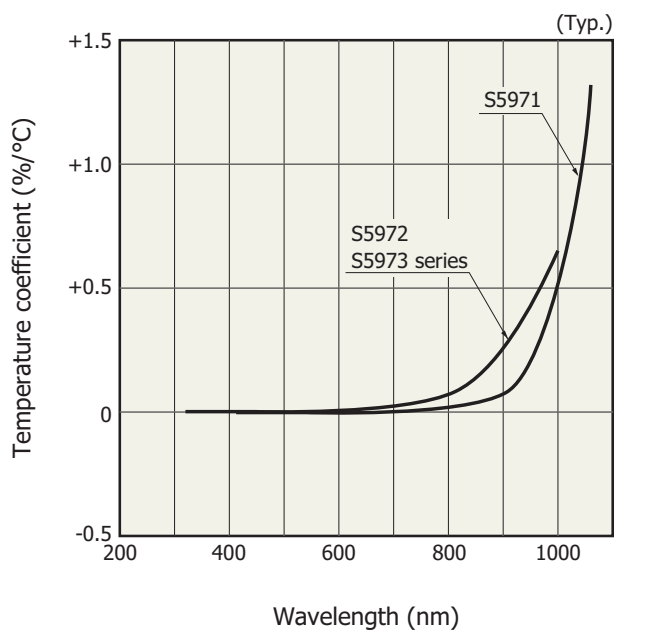
*3: $V_R=10$ V

*4: $V_R=3.3$ V

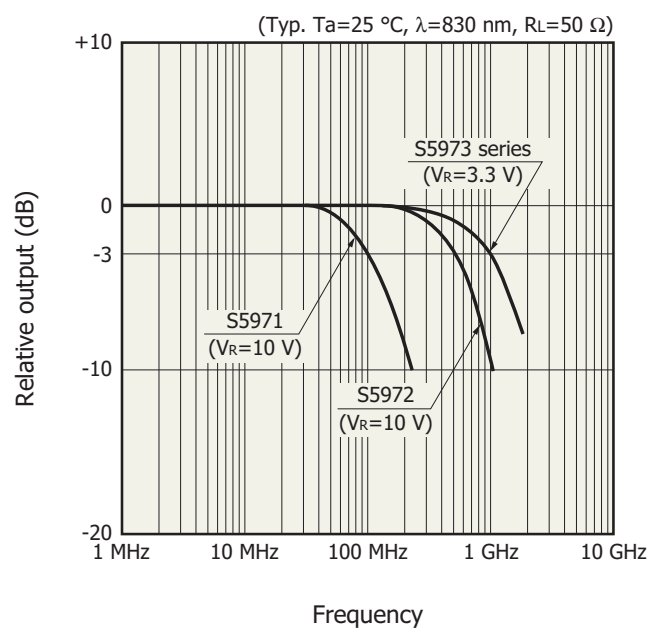
Spectral response



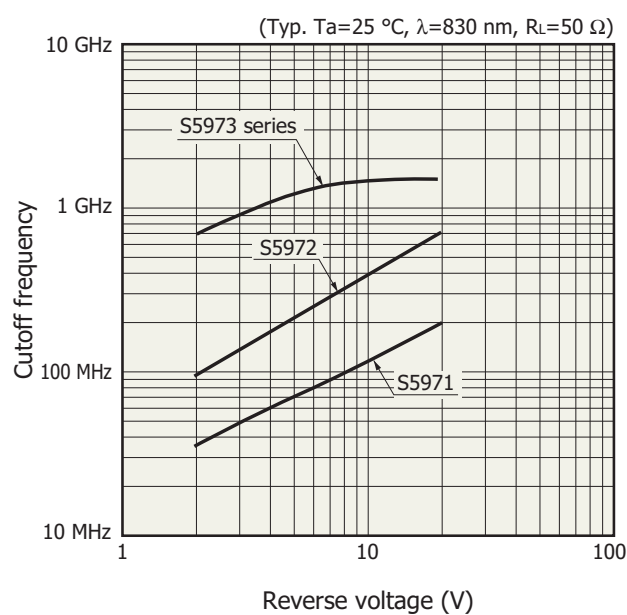
Photosensitivity temperature characteristics



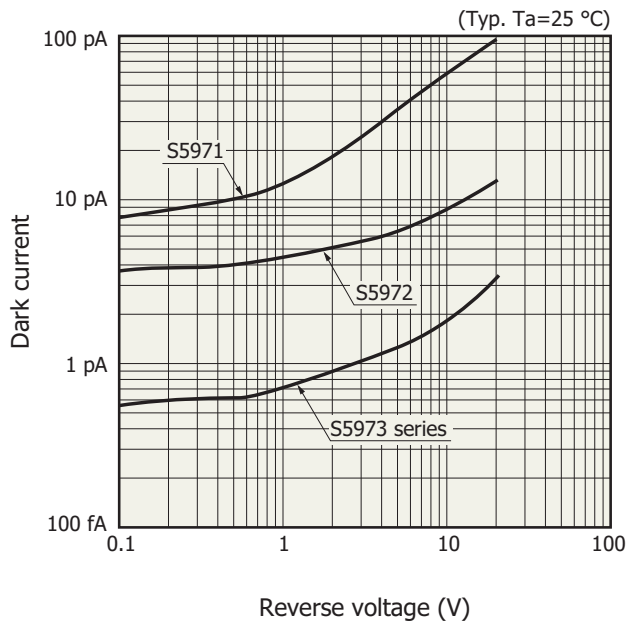
Frequency response



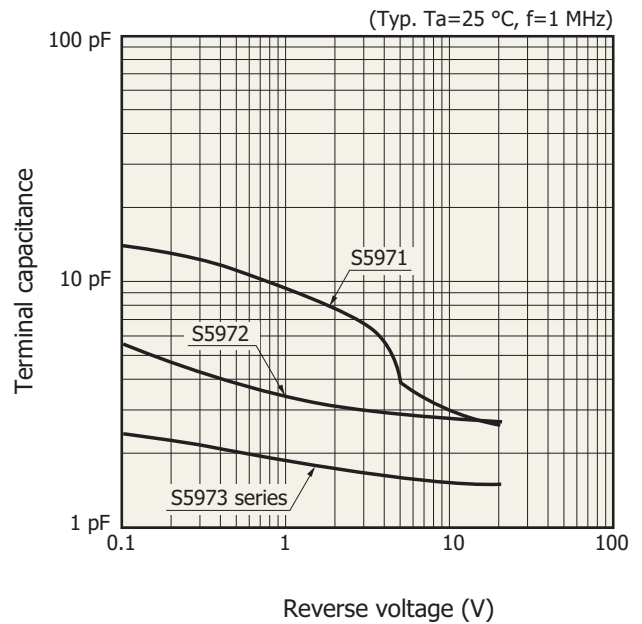
Cutoff frequency vs. reverse voltage



Dark current vs. reverse voltage

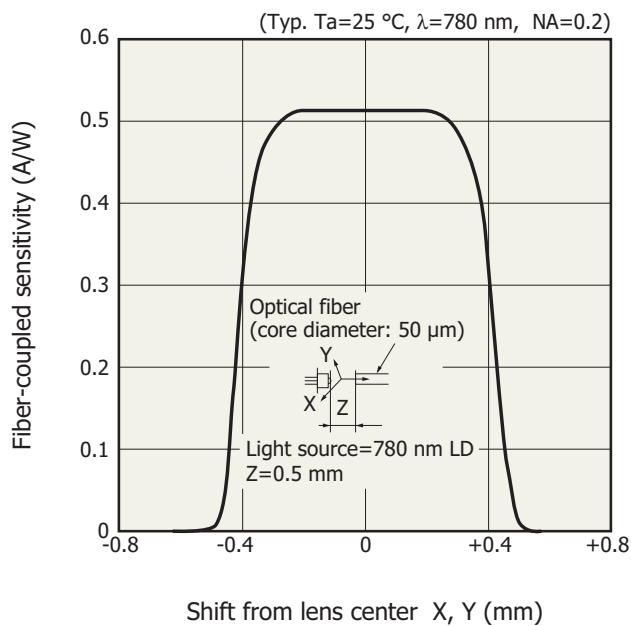


Terminal capacitance vs. reverse voltage

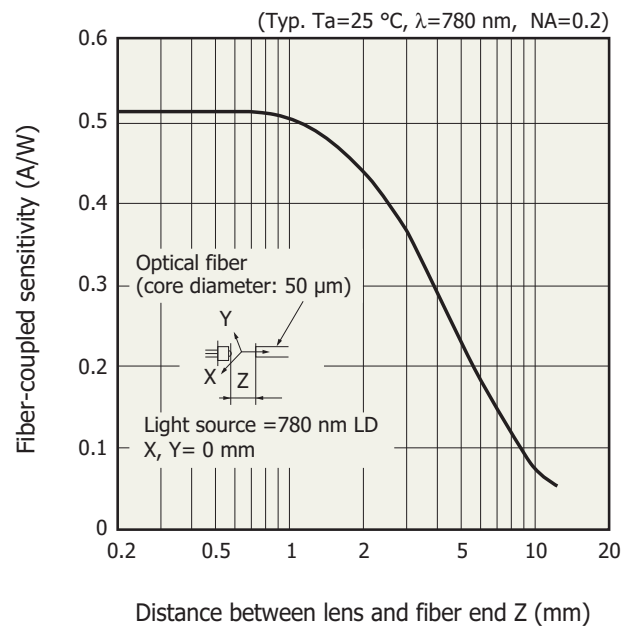


Fiber coupling characteristics (S5973-01)

X, Y direction

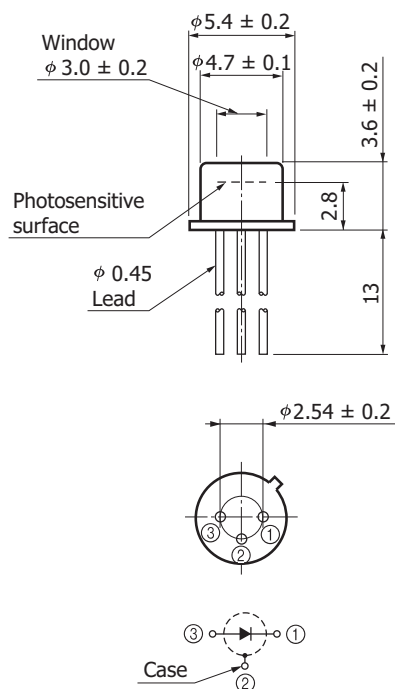


Z direction



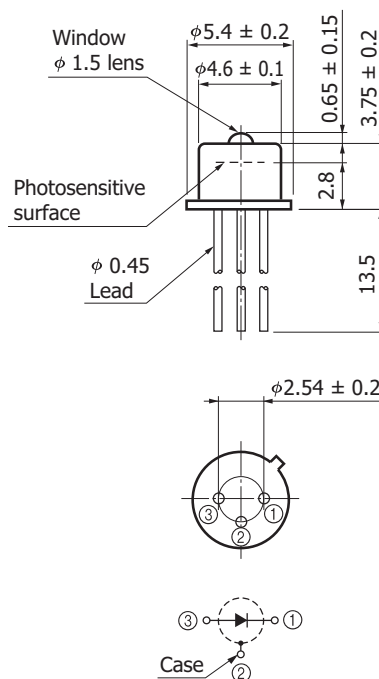
Dimensional outline (unit: mm)

(1) S5971, S5972, S5973



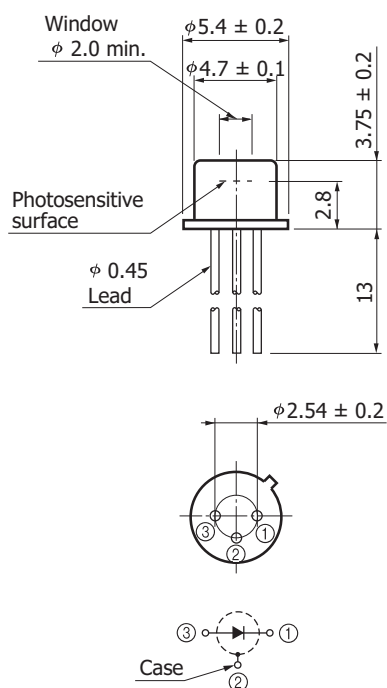
KPINA0022EB

(2) S5973-01



KPINA0023EA

(3) S5973-02



KPINA0061EB

Information described in this material is current as of November, 2012.

Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

Type numbers of products listed in the delivery specification sheets or supplied as samples may have a suffix "(X)" which means preliminary specifications or a suffix "(Z)" which means developmental 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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