

Si PIN photodiode S5971, S5972, S5973 series

High-speed photodiodes (S5973 series: 1.5 GHz)



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. 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: 1.5 GHz ($V_R=10$ 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)

General ratings / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package (mm)	Active area size (mm)	Effective active area (mm ²)	Absolute maximum ratings			
					Reverse voltage VR Max. (V)	Power dissipation P (mW)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S5971	①/K	TO-18	φ1.2	1.1	20	50	-40 to +100	-55 to +125
S5972			φ0.8	0.5				
S5973			φ0.4	0.12				
S5973-01	②/L							
S5973-02	③/K							

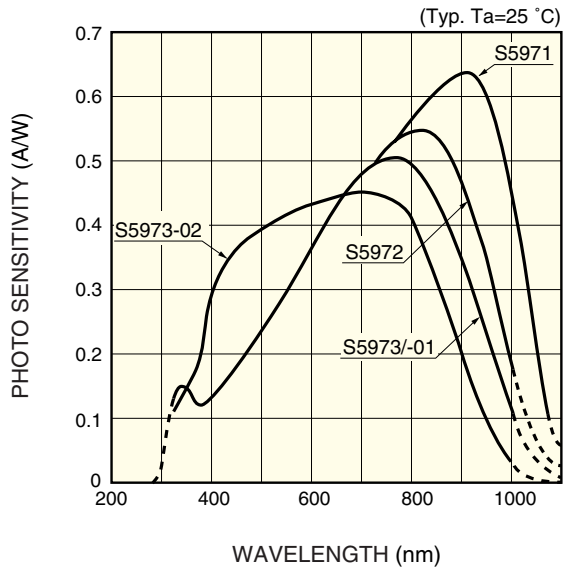
Electrical and optical characteristics

Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photo sensitivity S (A/W)				Short circuit current I_{sc} 100 μ A	Dark current I_D $V_R=10$ V (nA)		Temp. coefficient of I_D T_{CID} (times/°C)	Cut-off frequency f_c $V_R=10$ V (GHz)	Terminal capacitance C_t $V_R=10$ V $f=1$ MHz (pF)	NEP $V_R=10$ V (W/Hz ^{1/2})		
			λ_p	660 nm	780 nm	830 nm									
								Typ.	Max.						
S5971	320 to 1060	900	0.64	0.44	0.55	0.6	1.0	0.07	1	1.15	0.1	3	7.4×10^{-15}		
S5972	320 to 1000	800	0.57		0.51	0.55	0.42	0.01	0.5		0.002	0.1	0.5	1.5	3.1×10^{-15}
S5973		760	0.52			0.47	0.09	0.002	0.1				1.5		1.5
S5973-01			0.45	0.3 *2	0.42	0.37	0.06				1.6				
S5973-02															

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

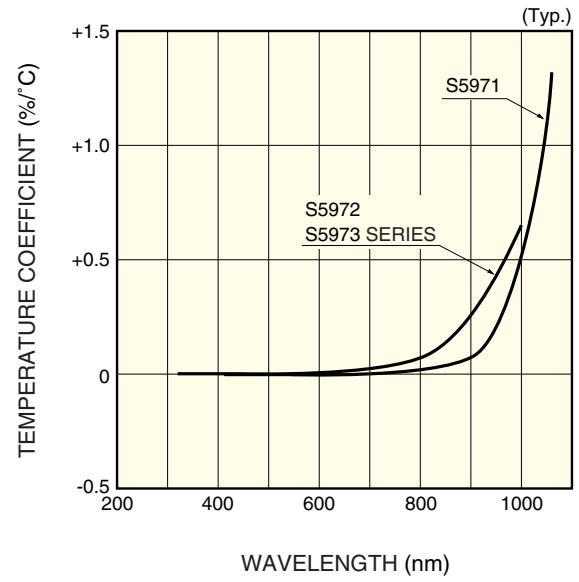
*2: $\lambda=410$ nm

■ Spectral response



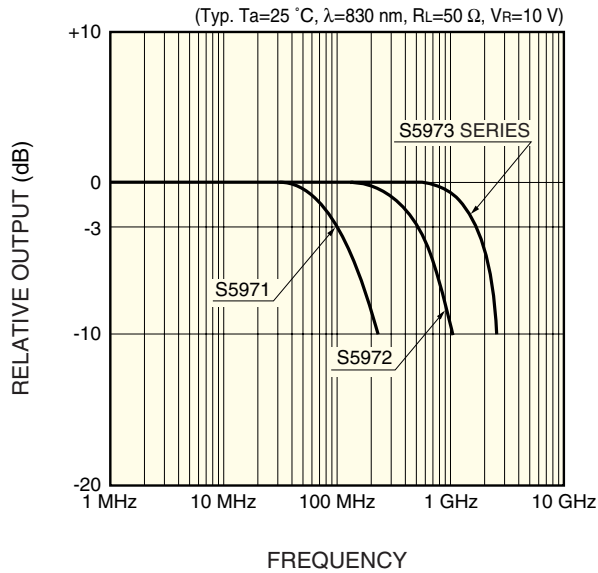
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■ Photo sensitivity temperature characteristics



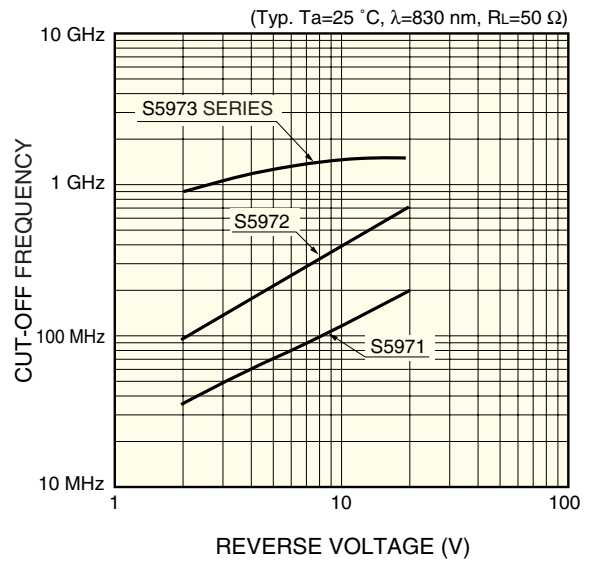
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■ Frequency response



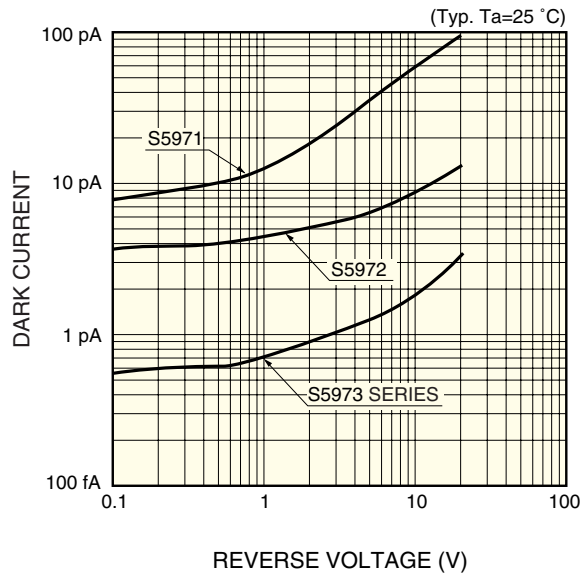
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■ Cut-off frequency vs. reverse voltage



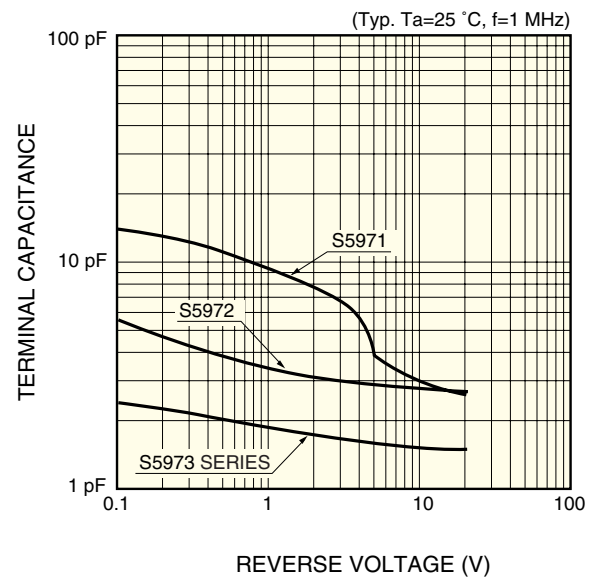
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■ Dark current vs. reverse voltage



KPINB0161EA

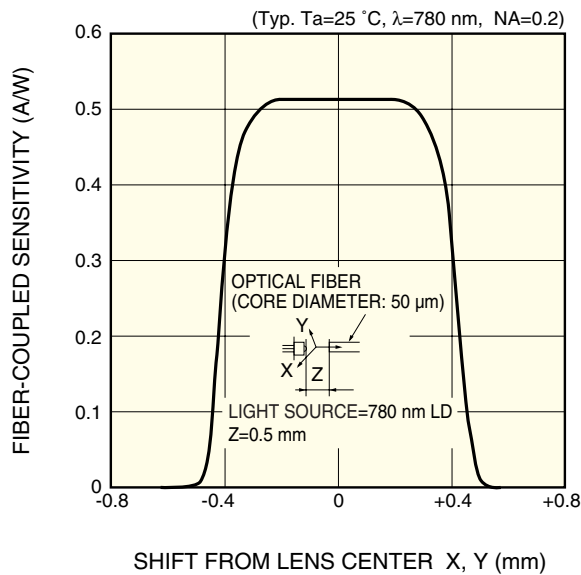
■ Terminal capacitance vs. reverse voltage



KPINB0162EA

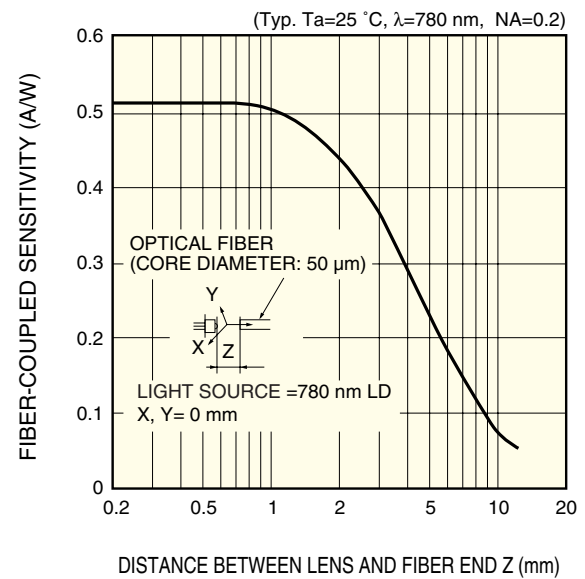
■ Fiber coupling characteristics (S5973-01)

X, Y direction



KPINB0088EA

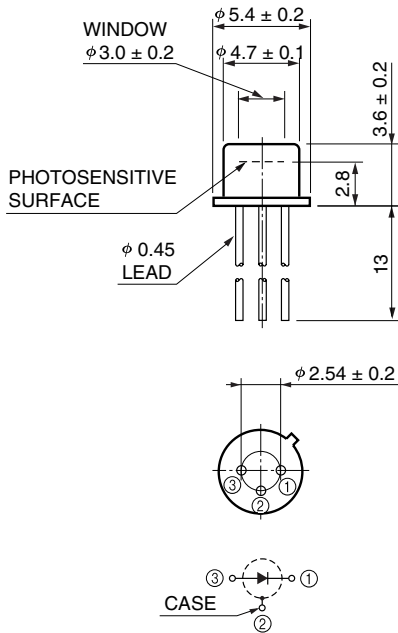
Z direction



KPINB0089EA

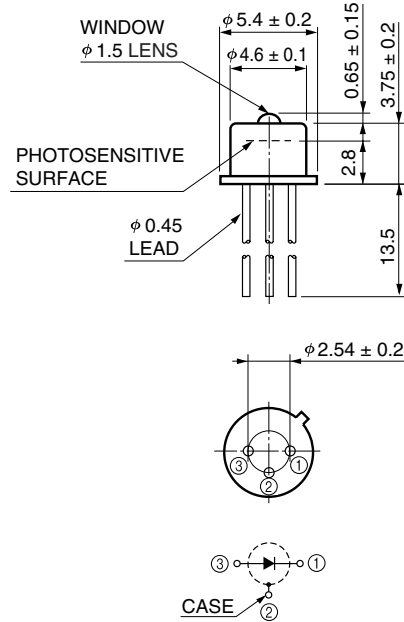
■ Dimensional outlines (unit: mm)

① S5971, S5972, S5973



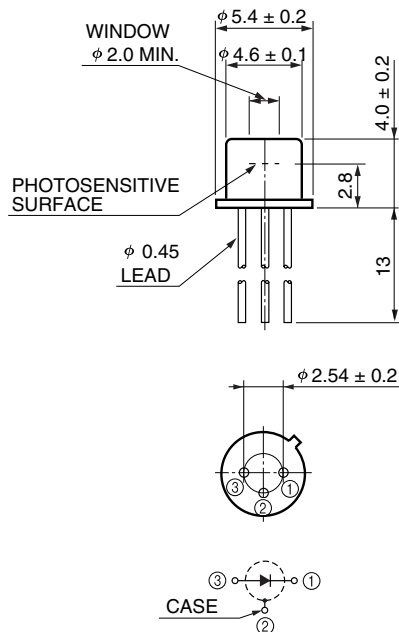
KPINA0022EB

② S5973-01



KPINA0023EA

③ S5973-02



KPINA0061EA

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