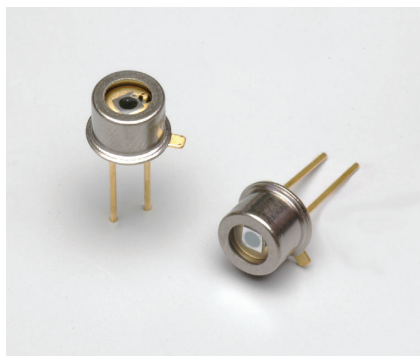


IR-enhanced Si PIN photodiode



S12028

Enhanced near IR sensitivity, using a MEMS technology

The S12028 is Si PIN photodiode that offers enhanced near infrared sensitivity due to a MEMS structure formed on the backside of the photodiode. The S12028 offers significantly higher sensitivity than our previous product (S5821).

Features

- High sensitivity in near infrared range: 0.5 A/W ($\lambda=1060$ nm)
- Photosensitive area: $\phi 1.2$ mm
- High reliability package : 2-pin TO-18

Applications

- Analytical instruments
- NOx detection
- YAG laser monitor

Structure

Parameter	Specification	Unit
Photosensitive area	$\phi 1.2$	mm
Package	TO-18	-
Window material	Borosilicate glass	-

Absolute maximum ratings

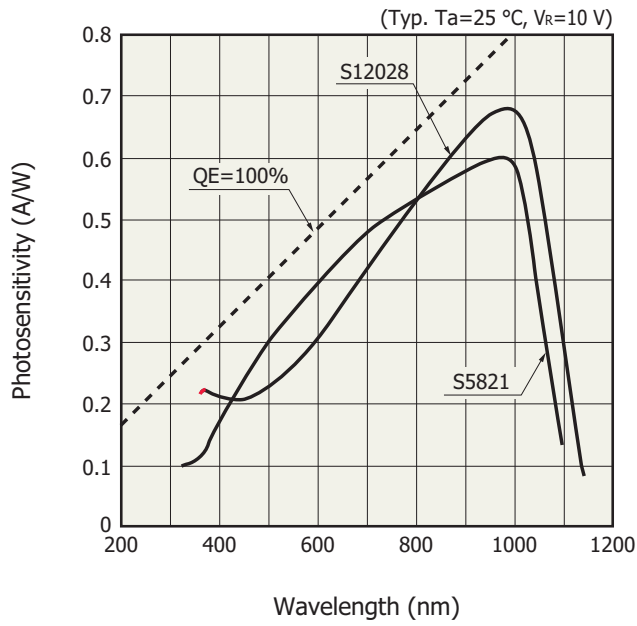
Parameter	Symbol	Condition	Specification	Unit
Reverse voltage	V_R max	$T_a=25$ °C	20	V
Operating temperature	T_{opr}		-40 to +100	°C
Storage temperature	T_{stg}		-55 to +125	°C

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 ($T_a=25$ °C)

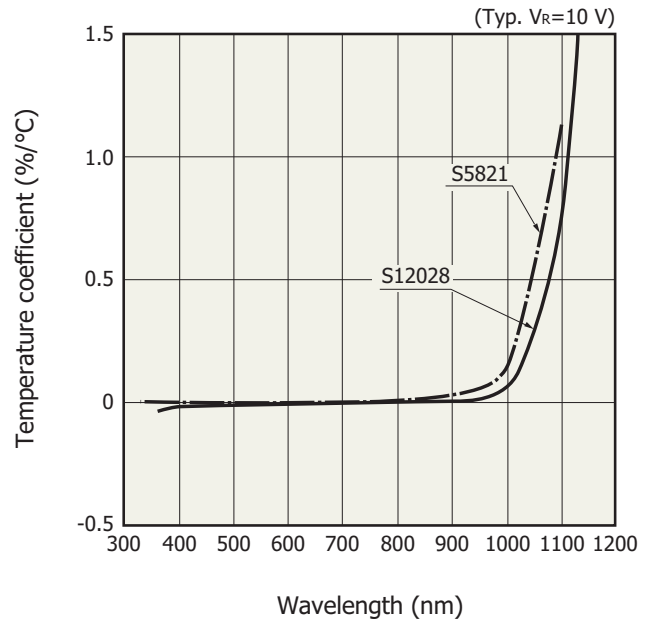
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	360 to 1140	-	nm
Peak sensitivity wavelength	λ_p		-	980	-	nm
Photosensitivity	S	$\lambda=\lambda_p, V_R=10$ V	0.55	0.68	-	A/W
		$\lambda=1060$ nm, $V_R=10$ V	0.4	0.5	-	
Short circuit current	I_{sc}	100 lx, 2856 K	-	1.2	-	μ A
Dark current	I_D	$V_R=10$ V	-	0.05	2	nA
Rise time	t_r	$V_R=10$ V, $R_L=1$ k Ω $\lambda=1060$ nm 10% to 90%	-	10	-	μ s
Terminal Capacitance	C_t	$V_R=10$ V, $f=1$ MHz	-	4	6	pF

Spectral response



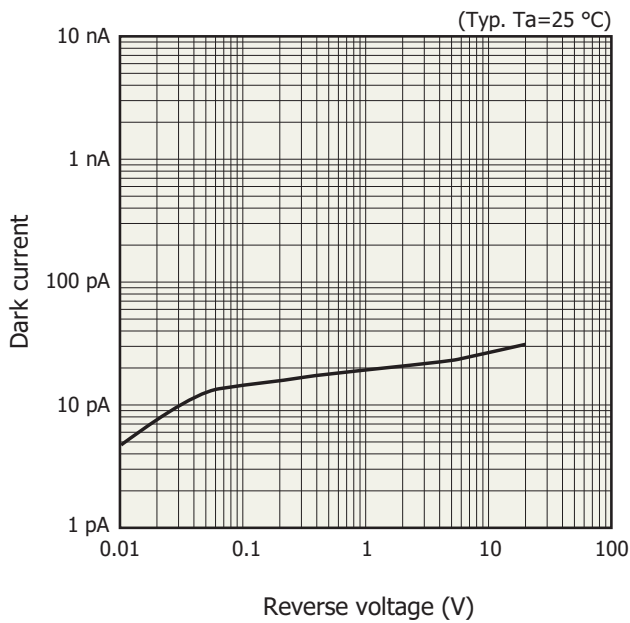
KPINB0376EB

Photosensitivity temperature characteristics



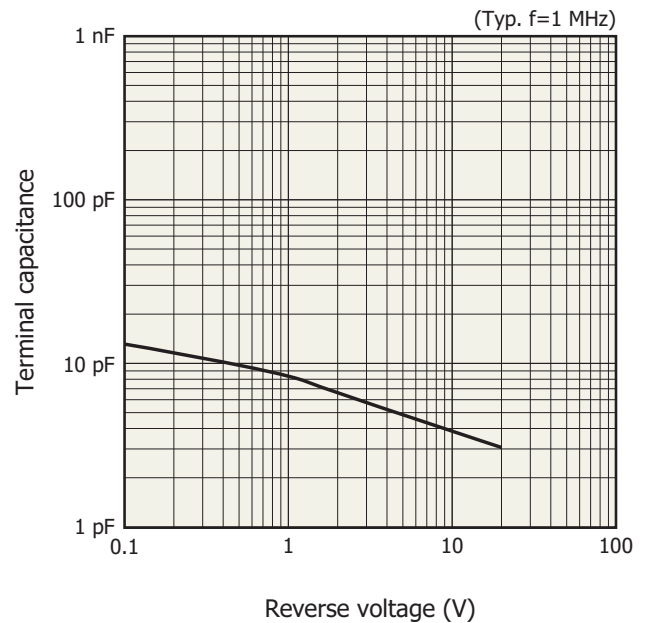
KPINB0377EB

Dark current vs. reverse voltage



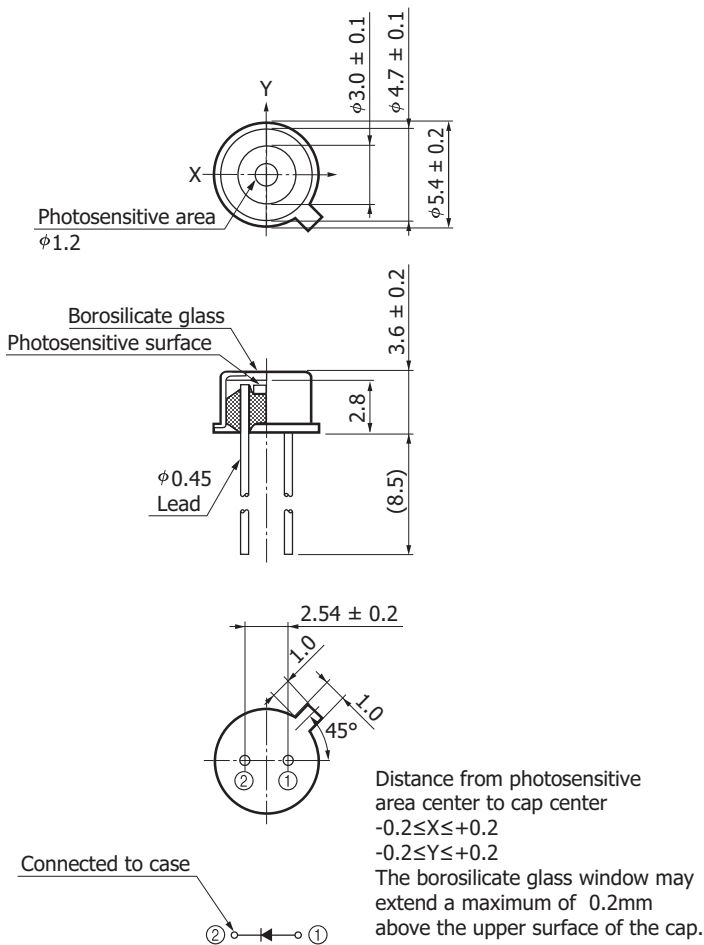
KPINB0378EA

Terminal capacitance vs. reverse voltage



KPINB0379EA

Dimensional outline (unit: mm)



KPINA0112EA

Information described in this material is current as of October, 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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