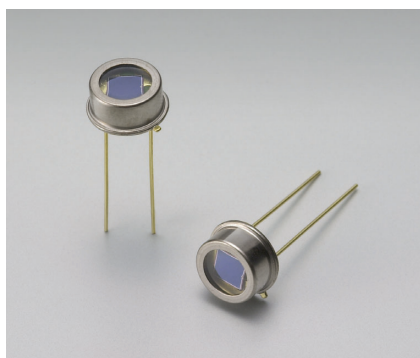




Si PIN photodiodes

S1223 series

For visible to near IR, precision photometry

Features

- High sensitivity in visible to near infrared range
- High reliability
- High-speed response
S1223: $f_c=30$ MHz
S1223-01: $f_c=20$ MHz
- Low capacitance

Applications

- Optical measurement equipment
- Analytical equipment, etc.

Structure

Parameter	S1223	S1223-01	Unit
Dimensional outline	(1)	(2)	-
Window material	Borosilicate glass		-
Package	TO-5		-
Photosensitive area size	2.4×2.8	3.6×3.6	mm
Effective photosensitive area	6.6	13	mm ²

Absolute maximum ratings

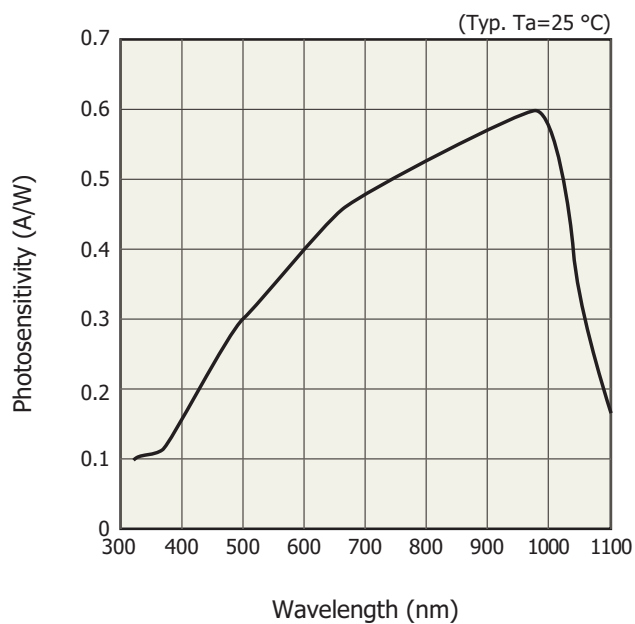
Parameter	Symbol	S1223	S1223-01	Unit
Reverse voltage	V_R max	30		V
Power dissipation	P	100		mW
Operating temperature	T _{opr}	-40 to +100		°C
Storage temperature	T _{stg}	-55 to +125		°C

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.

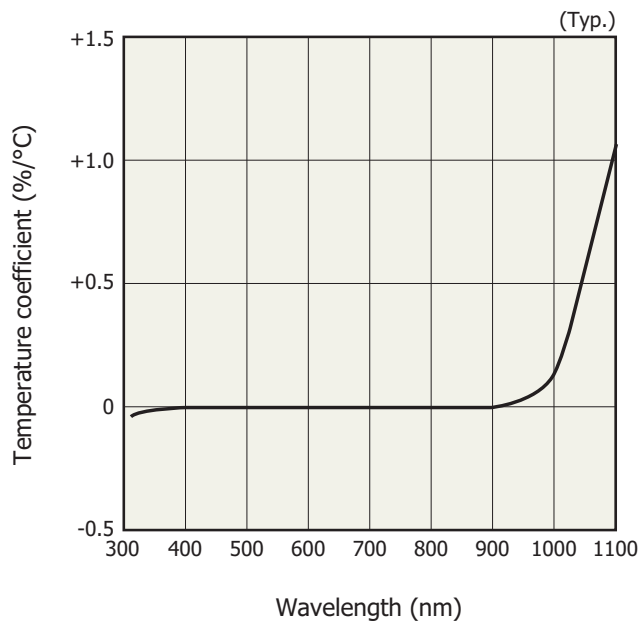
Electrical and optical characteristics (T_a=25 °C)

Parameter	Symbol	Condition	S1223			S1223-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	-	960	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	-	0.6	-	-	0.6	-	A/W
		$\lambda=660$ nm	-	0.45	-	-	0.45	-	
		$\lambda=780$ nm	-	0.52	-	-	0.52	-	
		$\lambda=830$ nm	-	0.54	-	-	0.54	-	
Short circuit current	I _{sc}	100 lx	5	6.3	-	10	13	-	μA
Dark current	I _D	V _R =20 V	-	0.1	10	-	0.2	10	nA
Temp. coefficient of I _D	T _{CID}		-	1.15	-	-	1.15	-	times/°C
Cutoff frequency	f _c	V _R =20 V, -3 dB	-	30	-	-	20	-	MHz
Terminal capacitance	C _t	V _R =20 V, f=1 MHz	-	10	-	-	20	-	pF
Noise equivalent power	NEP	V _R =20 V, $\lambda=\lambda_p$	-	9.4×10^{-15}	-	-	1.3×10^{-14}	-	W/Hz ^{1/2}

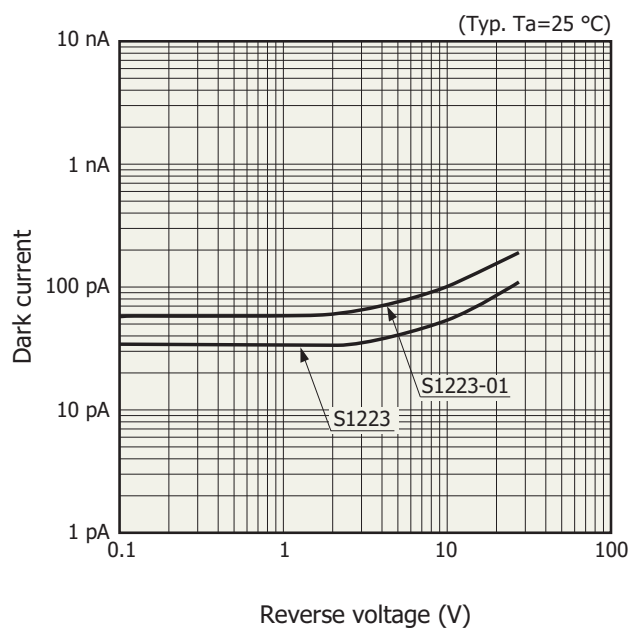
Spectral response



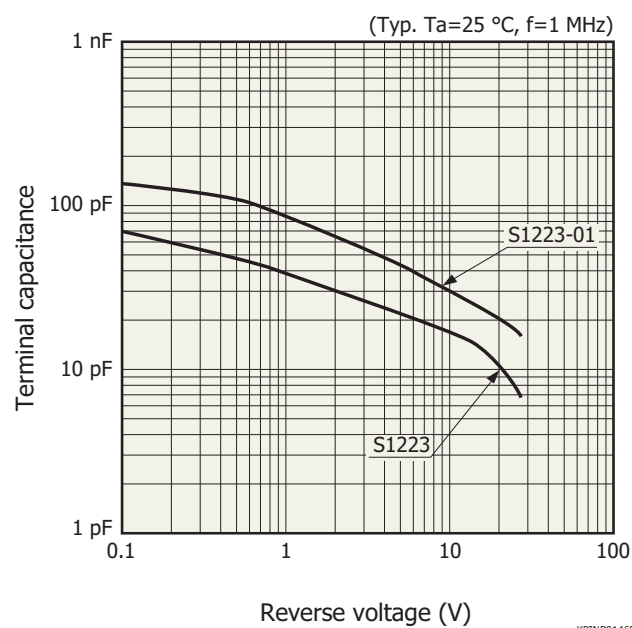
Photosensitivity temperature characteristic



Dark current vs. reverse voltage

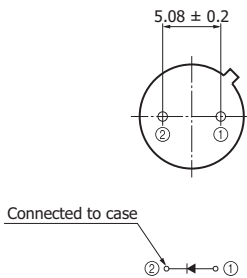
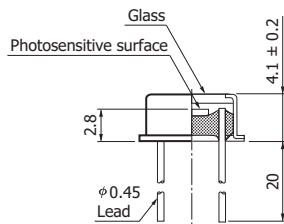
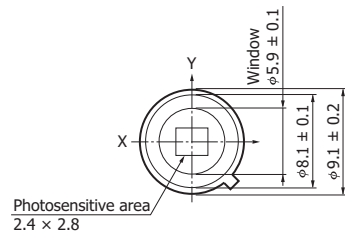


Terminal capacitance vs. reverse voltage



Dimensional outlines (unit: mm)

(1) S1223

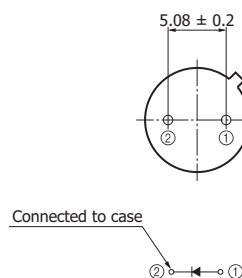
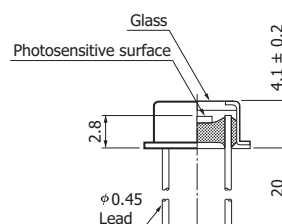
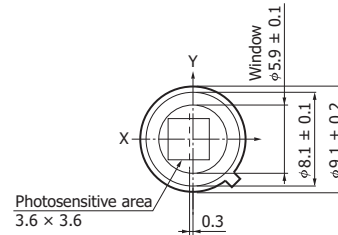


Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$

The glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

KSPDA0196EB

(2) S1223-01



Distance from photosensitive area center to cap center
 $-0.6 \leq X \leq 0$
 $-0.3 \leq Y \leq +0.3$

The glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

KSPDA0193EC

Information described in this material is current as of February, 2013.

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.

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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