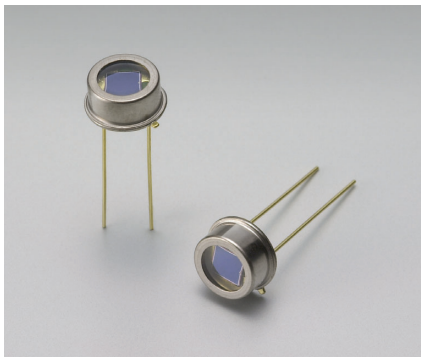
HAMAMATSU
PHOTON IS OUR BUSINESS

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: fc=30 MHz
  S1223-01: fc=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

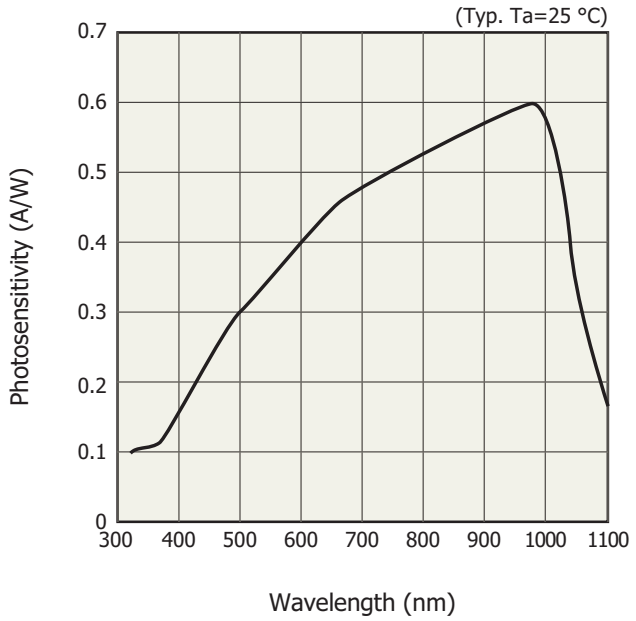
Parameter	Symbol	S1223	S1223-01	Unit
Reverse voltage	V_R max	30		V
Power dissipation	P	100		mW
Operating temperature	Topr	-40 to +100		°C
Storage temperature	Tstg	-55 to +125		°C

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 (Ta=25 °C)

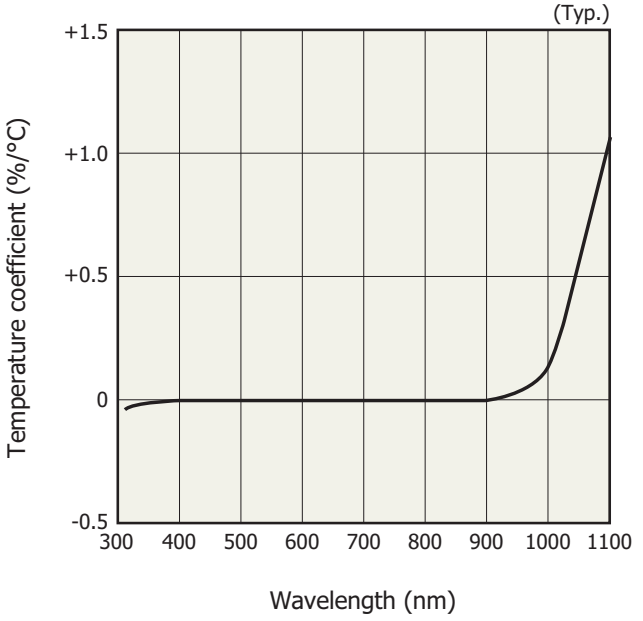
Parameter	Symbol	Condition	S1223			S1223-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	λp		-	960	-	-	960	-	nm
Photosensitivity	S	λ=λp	-	0.6	-	-	0.6	-	A/W
		λ=660 nm	-	0.45	-	-	0.45	-	
		λ=780 nm	-	0.52	-	-	0.52	-	
		λ=830 nm	-	0.54	-	-	0.54	-	
Short circuit current	Isc	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	fc	V_R=20 V, -3 dB	-	30	-	-	20	-	MHz
Terminal capacitance	Ct	V_R=20 V, f=1 MHz	-	10	-	-	20	-	pF
Noise equivalent power	NEP	V_R=20 V, λ=λp	-	9.4×10^{-15}	-	-	1.3×10^{-14}	-	$W/Hz^{1/2}$

Spectral response



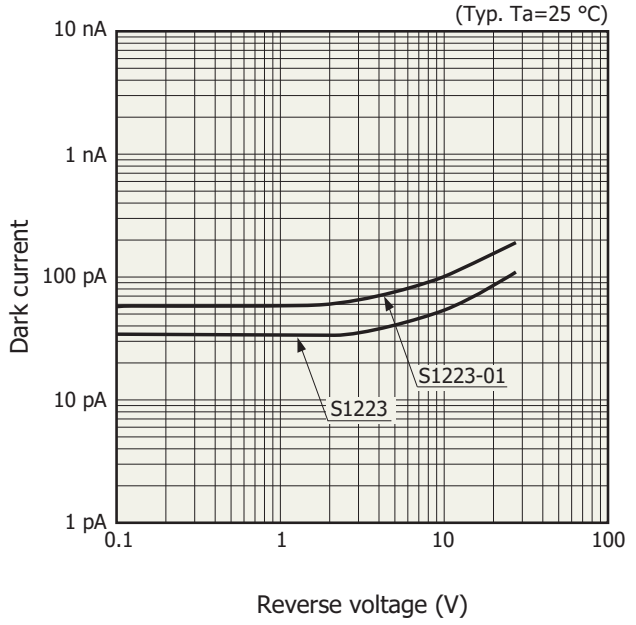
KPINB0143EB

Photosensitivity temperature characteristic



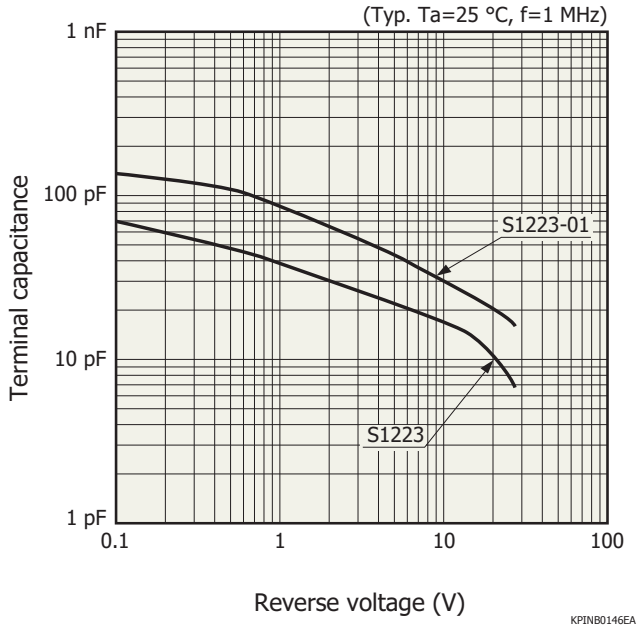
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Dark current vs. reverse voltage



KPINB0145EA

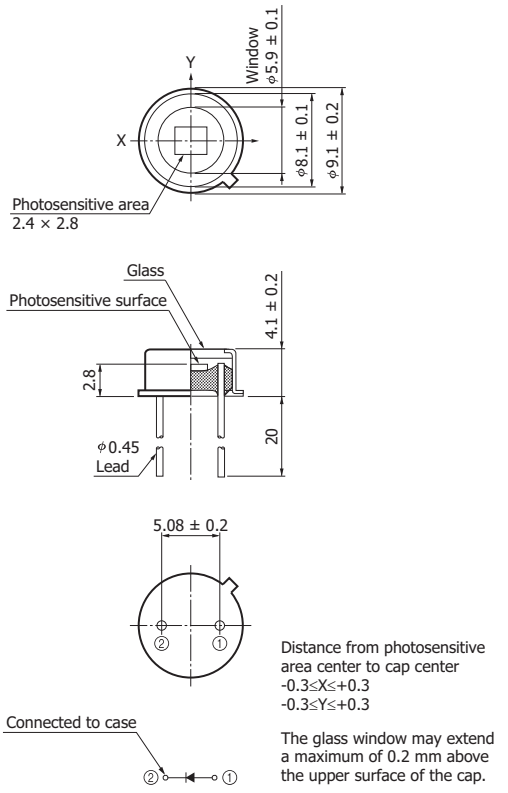
Terminal capacitance vs. reverse voltage



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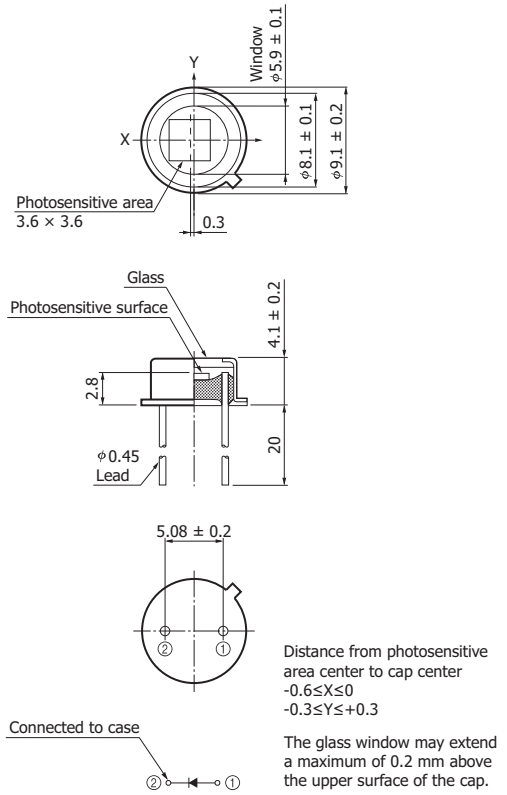
Dimensional outlines (unit: mm)

(1) S1223



KSPDA0196EB

(2) S1223-01



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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