

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 <sup>2</sup>

## Absolute maximum ratings

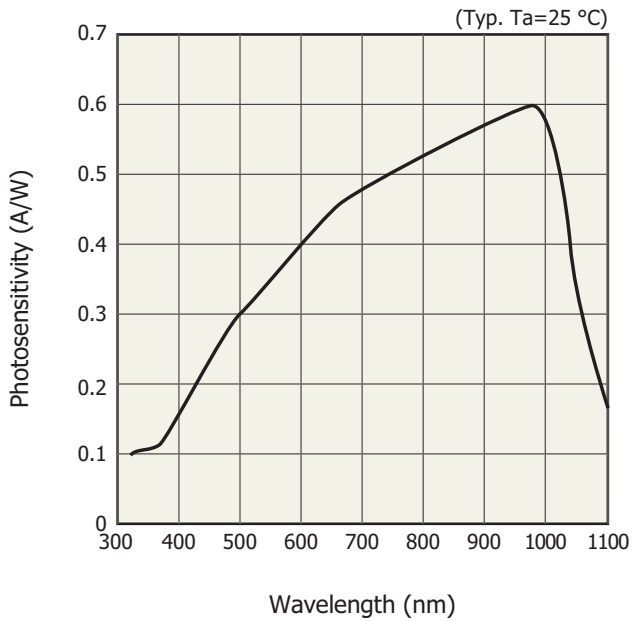
Parameter	Symbol	S1223	S1223-01	Unit
Reverse voltage	$V_R$ max	30		V
Power dissipation	P	100		mW
Operating temperature	$T_{opr}$	-40 to +100		°C
Storage temperature	$T_{stg}$	-55 to +125		°C

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 (Ta=25 °C)

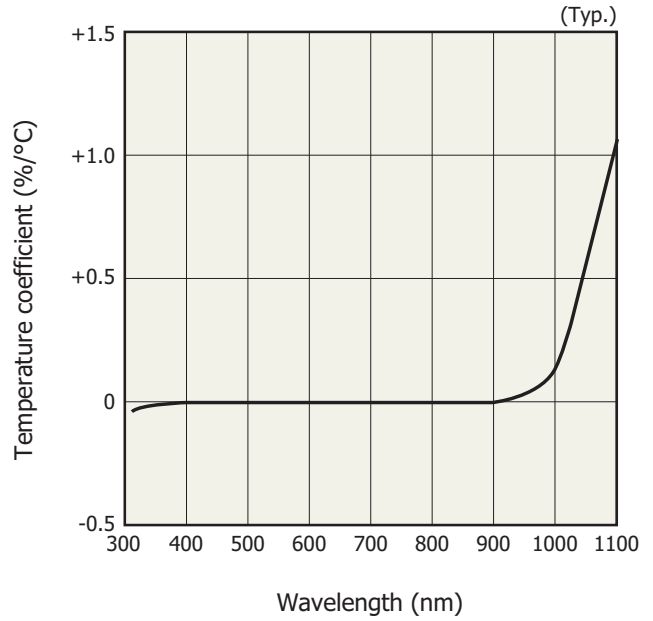
Parameter	Symbol	Condition	S1223			S1223-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	$\lambda$		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	$\lambda_p$		-	960	-	-	960	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	-	0.6	-	-	0.6	-	A/W
		$\lambda=660$ nm	-	0.45	-	-	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 <sub>c</sub>	$V_R=20$ V, -3 dB	-	30	-	-	20	-	MHz
Terminal capacitance	C <sub>t</sub>	$V_R=20$ V, f=1 MHz	-	10	-	-	20	-	pF
Noise equivalent power	NEP	$V_R=20$ V, $\lambda=\lambda_p$	-	$9.4 \times 10^{-15}$	-	-	$1.3 \times 10^{-14}$	-	W/Hz <sup>1/2</sup>

**Spectral response**



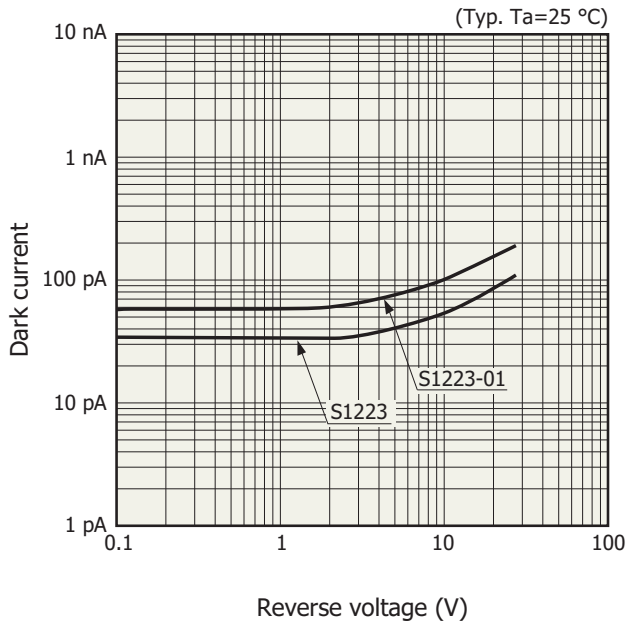
KPINB0143EB

**Photosensitivity temperature characteristic**



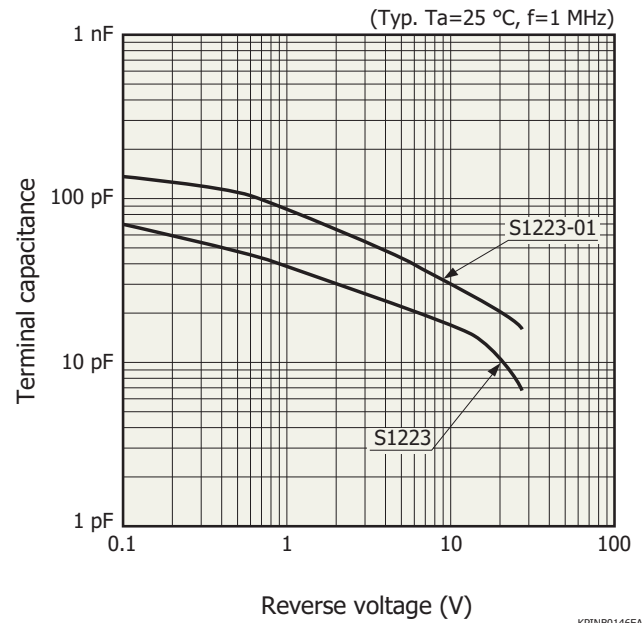
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**Dark current vs. reverse voltage**



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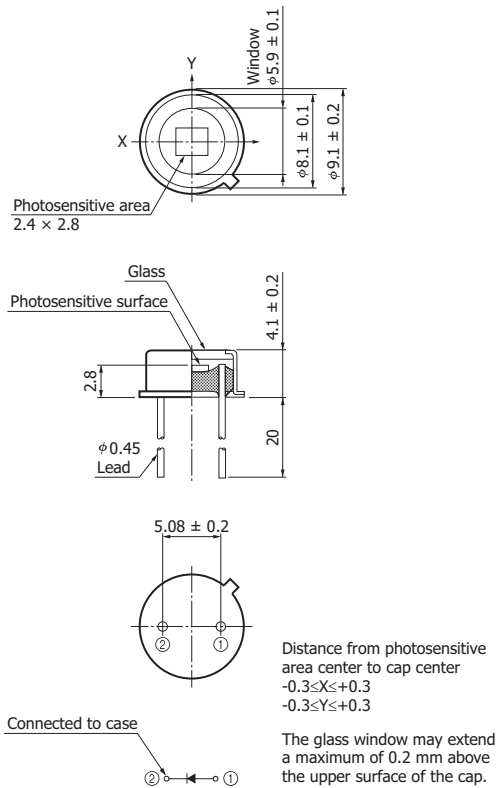
**Terminal capacitance vs. reverse voltage**



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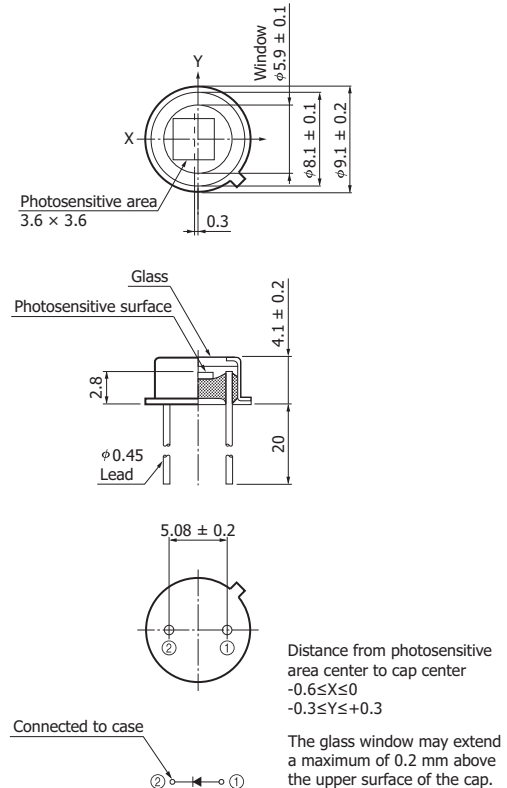
### Dimensional outlines (unit: mm)

(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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# HAMAMATSU

[www.hamamatsu.com](http://www.hamamatsu.com)

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Thorshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1 int. 6, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741

China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866