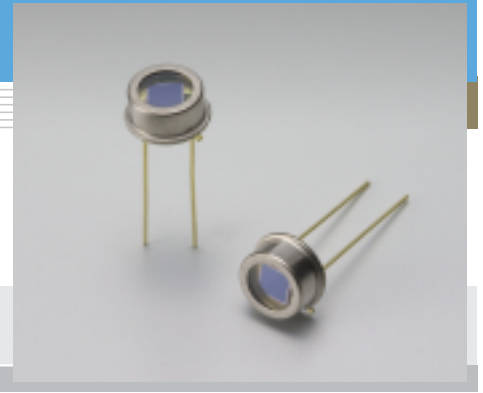


# Si PIN photodiode S1223 series

For visible to IR, precision photometry



## Features

- High sensitivity
- 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.

### General ratings

Parameter	Symbol	S1223	S1223-01	Unit
Window material	-	borosilicate glass		-
Package	-	TO-5		-
Active area size	A	2.4 × 2.8	3.6 × 3.6	mm
Effective active area	-	6.6	13	mm <sup>2</sup>

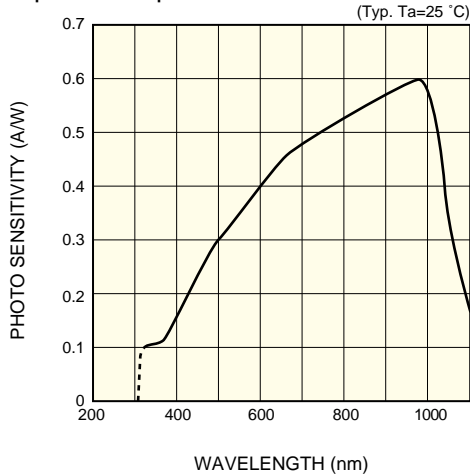
### Absolute maximum ratings

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

### Electrical and optical characteristics ( $T_a=25$ °C)

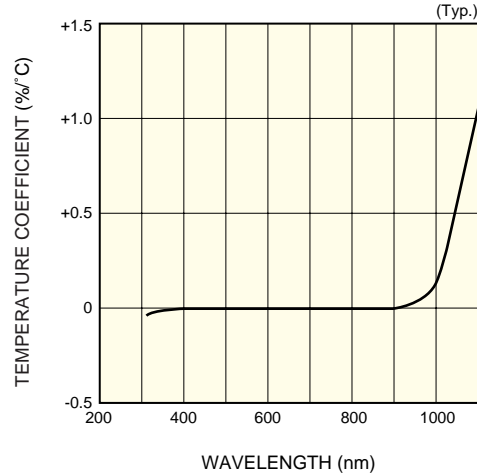
Parameter	Symbol	Condition	S1223			S1223-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	$\lambda$		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	$\lambda_p$		-	960	-	-	960	-	nm
Photo sensitivity	S	$\lambda=\lambda_p$	-	0.6	-	-	0.6	-	A/W
		$\lambda=660$ nm	-	0.45	-	-	0.45	-	
		$\lambda=780$ nm	-	0.52	-	-	0.52	-	
		$\lambda=830$ nm	-	0.54	-	-	0.54	-	
Short circuit current	$I_{sc}$	100 $I_x$	5	6.3	-	10	13	-	$\mu$ A
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
Cut-off 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, $\lambda=\lambda_p$	-	$9.4 \times 10^{-15}$	-	-	$1.3 \times 10^{-14}$	-	W/Hz <sup>1/2</sup>

## Spectral response



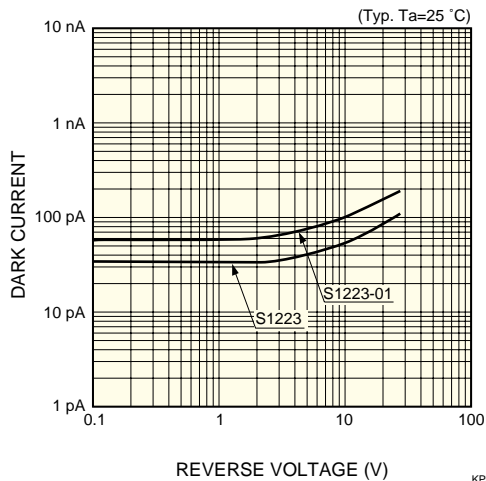
KPINB0143EA

## Photo sensitivity temperature characteristic



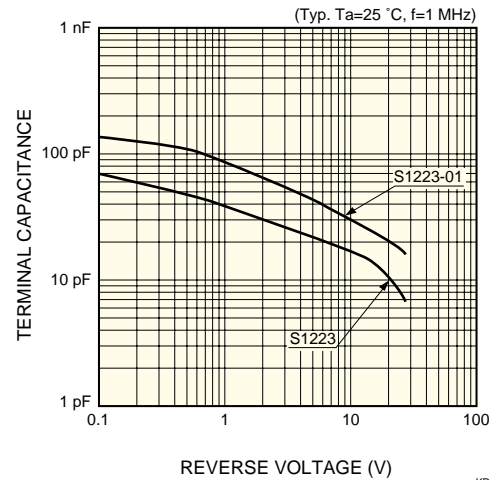
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## Dark current vs. reverse voltage



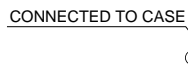
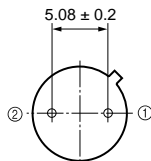
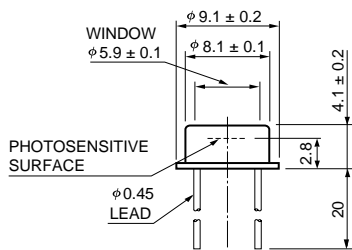
KPINB0145EA

## Terminal capacitance vs. reverse voltage



KPINB0146EA

## Dimensional outline (unit: mm)



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

KPINA0073EA

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