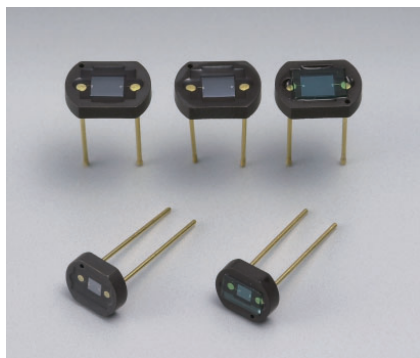


Si photodiodes

S1087/S1133 series



Ceramic package photodiodes with low dark current

The S1087/S1133 series are ceramic package photodiodes that offer low dark current. Ceramic package used is light-impervious, so no stray light can reach the photosensitive area from the side or backside. This allows reliable optical measurements in the visible to near infrared range, over a wide dynamic range from low light levels to high light levels.

Features

- **S1087, S1133** : For visible range
- S1087-01, S1133-01** : For visible to IR range
- S1133-14** : For visible to near IR range

Applications

- Exposure meters
- Illuminometers
- Copiers
- Display light control
- Optical switches

Structure / Absolute maximum ratings

Type no.	Dimensional outline/ Window material*1	Photosensitive area size (mm)	Absolute maximum ratings		
			Reverse voltage VR max (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S1087	(1)/V	1.3 × 1.3	10	-10 to +60*2	-20 to +70*2
S1087-01	(2)/R				
S1133	(3)/V				
S1133-01	(4)/R	2.4 × 2.8			
S1133-14					

*1: Window material R=resin coating, V=visual-compensation filter

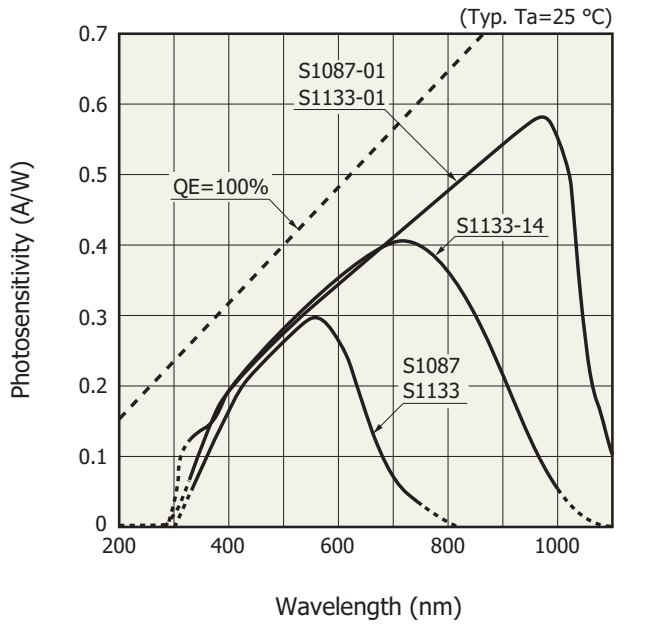
*2: No condensation

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.

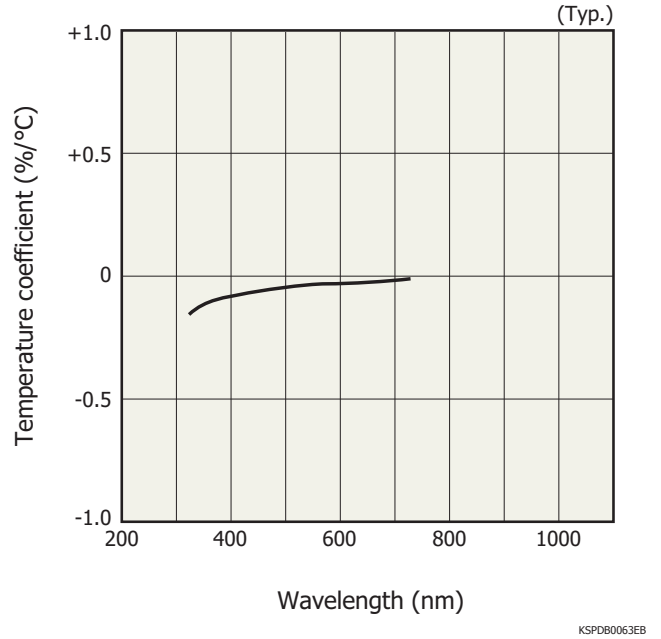
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photosensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current Isc 100 lx (μA)	Temp. coefficient of Isc (%/°C)	Dark current ID VR=1 V max. (pA)	Temp. coefficient of TCID (times/°C)	Rise time tr VR=0 V RL=1 kΩ (μs)	Terminal capacitance Ct VR=0 V f=10 kHz (pF)	Shunt resistance Rsh VR=10 mV	
			λp	GaP LED 560 nm	He-Ne laser 633 nm								Min. (GΩ)	Typ. (GΩ)
S1087	320 to 730	560	0.3	0.3	0.19	10	0.16	-0.01	10	1.12	0.5	200	10	250
S1087-01	320 to 1100	960	0.58	0.33	0.38	-	1.3	0.1						100
S1133	320 to 730	560	0.3	0.3	0.19	10	0.61	-0.01	20	0.5	200	10	50	
S1133-01	320 to 1100	960	0.58	0.33	0.38	-	5.4	0.1						
S1133-14	320 to 1000	720	0.4		0.37	-	3.1							

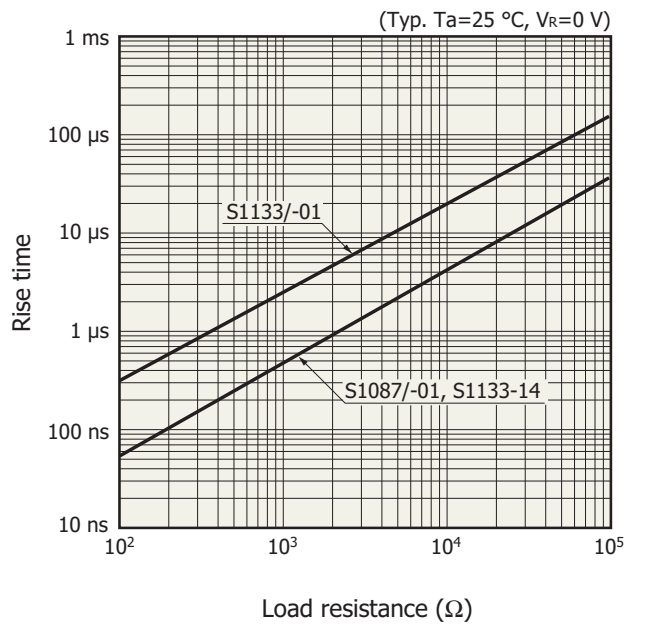
Spectral response



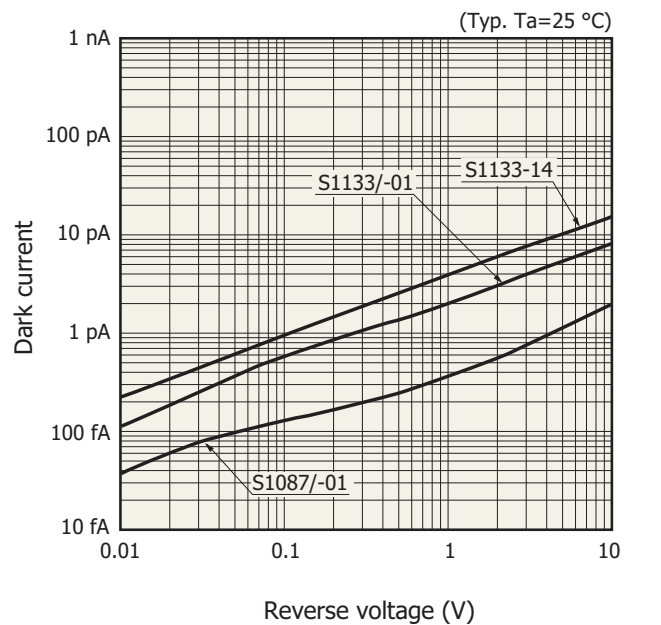
Photosensitivity temperature characteristics (S1087)



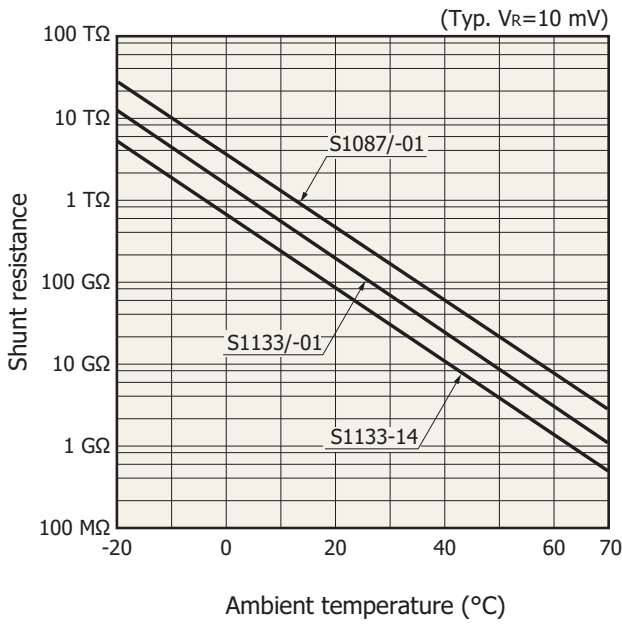
Rise time vs. load resistance



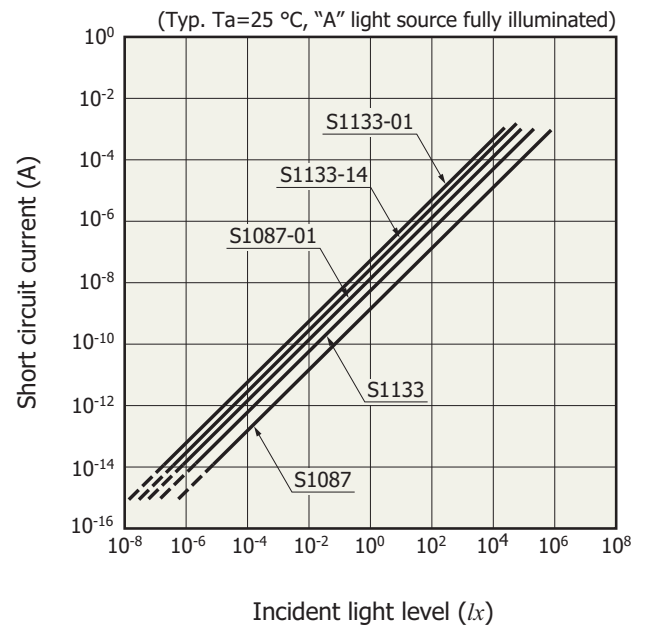
Dark current vs. reverse voltage



Shunt resistance temperature characteristics

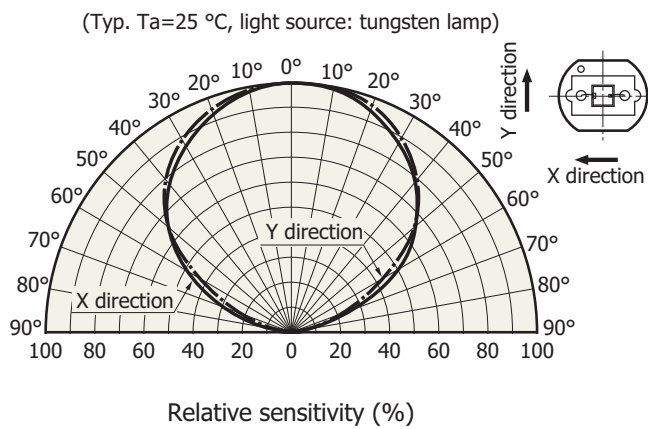


Short circuit current linearity

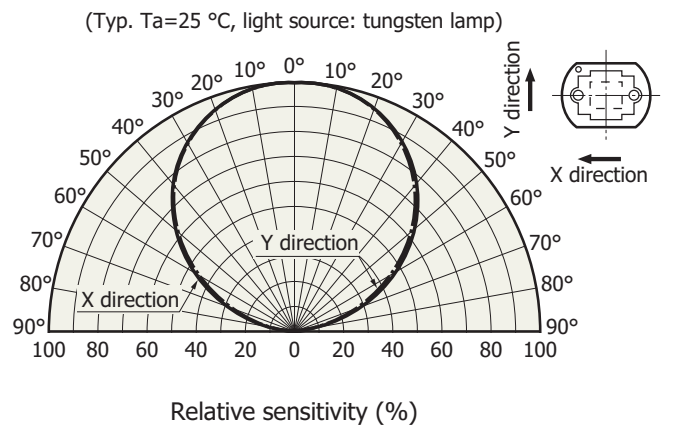


Directivity

S1087, S1133

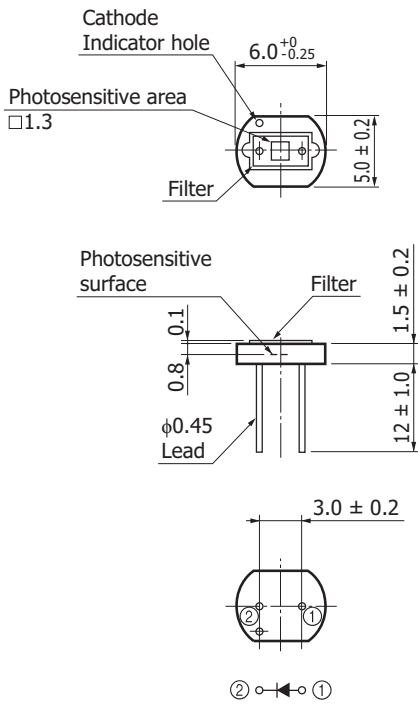


S1087-01, S1133-01/-14



Dimensional outlines (unit: mm)

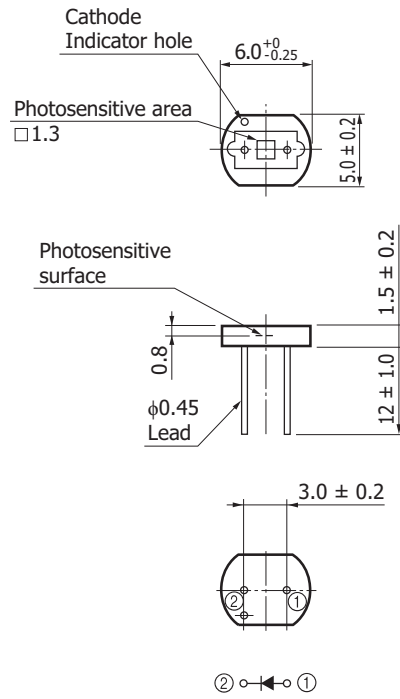
(1) S1087



Tolerance unless otherwise noted: ± 0.15

KSPDA0053EA

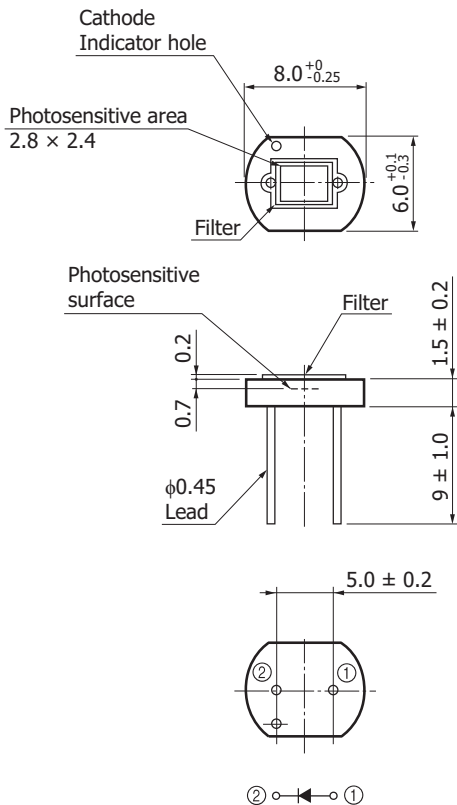
(2) S1087-01



Tolerance unless otherwise noted: ± 0.15

KSPDA0052EA

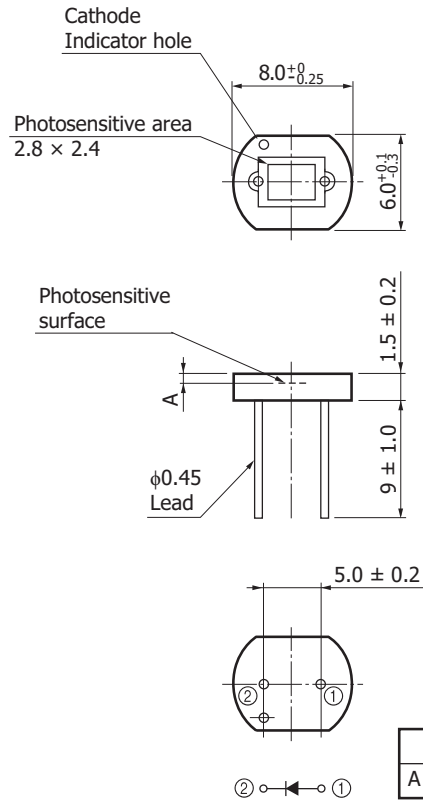
(3) S1133



Tolerance unless otherwise noted: ± 0.15

KSPDA0055EA

(4) S1133-01/-14



Tolerance unless otherwise noted: ± 0.15

KSPDA0054EA

	S1133-01	S1133-14
A	0.7	0.6

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Notice
- Metal, Ceramic, Plastic products / Precautions

■ Technical information

- Si photodiode / Application circuit examples

Information described in this material is current as of March, 2014.

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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.

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