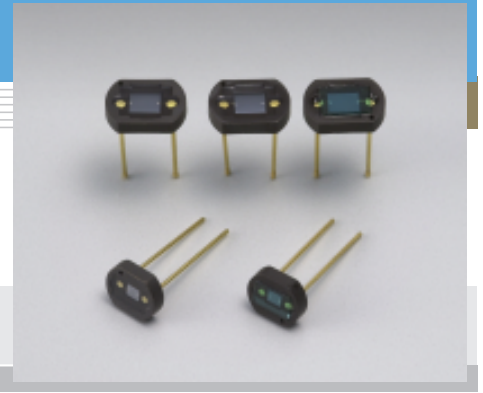


# Si photodiode S1087/S1133 series

## Ceramic package photodiode with low dark current



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 active 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 meter
- Illuminometer
- Camera auto exposure
- Stroboscope light control
- Copier
- Display light control
- Optical switch

### General ratings / Absolute maximum ratings

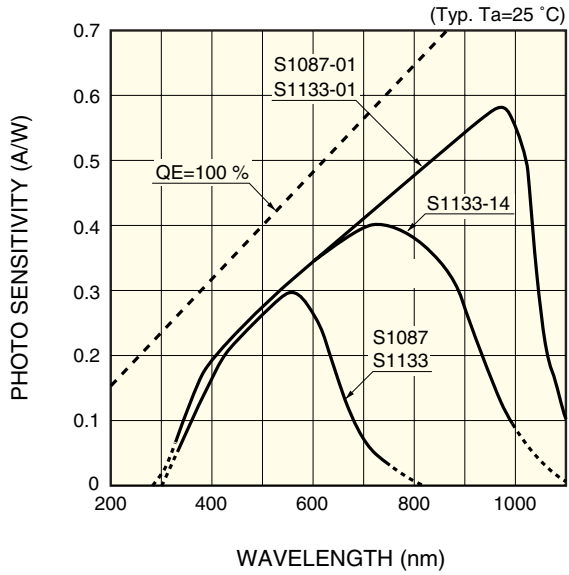
Type No.	Dimensional outline/ Window material *	Active area size (mm)	Effective active area (mm <sup>2</sup> )	Absolute maximum ratings		
				Reverse voltage V <sub>R</sub> Max. (V)	Operating temperature T <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°C)
S1087	①/V	1.3 × 1.3	1.6	10	-10 to +60	-20 to +70
S1087-01	②/R					
S1133	③/V	2.4 × 2.8	6.6			
S1133-01	④/R					
S1133-14						

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

### Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

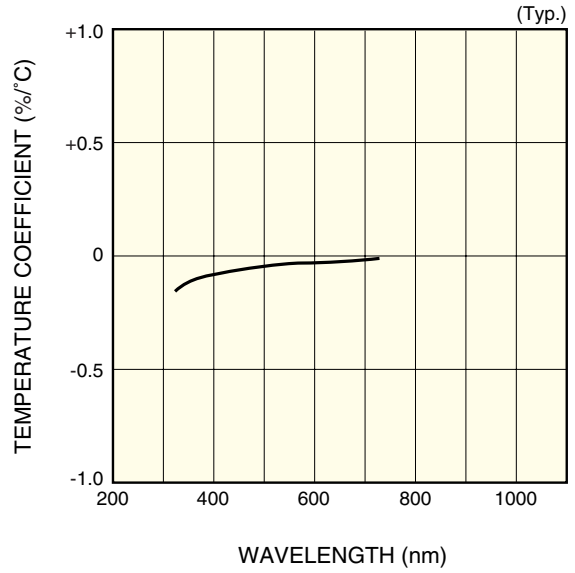
Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ <sub>p</sub> (nm)	Photo sensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current I <sub>sc</sub> 100 lx (μA)	Temp. coefficient of I <sub>sc</sub> (%/°C)	Dark current I <sub>D</sub> V <sub>R</sub> =1 V Max. (pA)	Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C)	Rise time t <sub>r</sub> V <sub>R</sub> =0 V R <sub>L</sub> =1 kΩ (μs)	Terminal capacitance C <sub>t</sub> V <sub>R</sub> =0 V f=10 kHz (pF)	Shunt resistance R <sub>sh</sub> V <sub>R</sub> =10 mV	
			λ <sub>p</sub>	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	200	10	250	
S1087-01	320 to 1100	960	0.58	0.33	0.38	-	1.3	0.1						
S1133	320 to 730	560	0.3	0.3	0.19	10	0.65	-0.01						
S1133-01	320 to 1100	960	0.58	0.33	0.38	-	5.6	0.1						
S1133-14	320 to 1000	720	0.4		0.37	-	3.4							

■ Spectral response



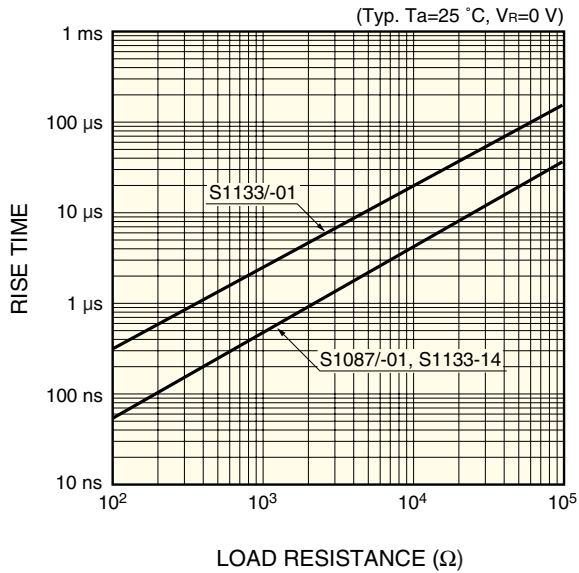
KSPDB0119EA

■ Photo sensitivity temperature characteristic (typical example: S1087)



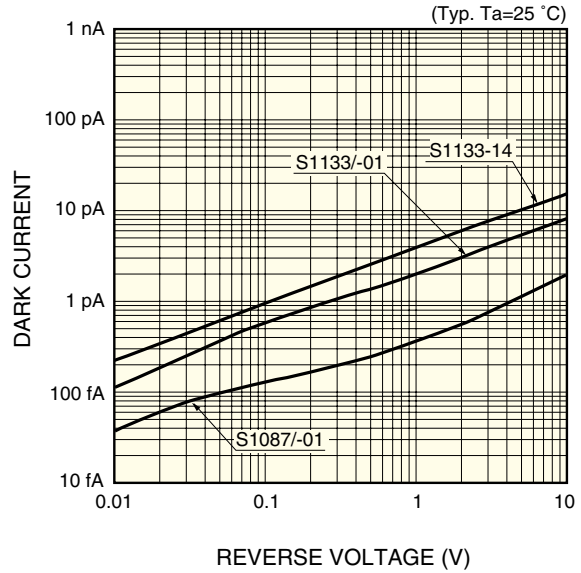
KSPDB0063EB

■ Rise time vs. load resistance



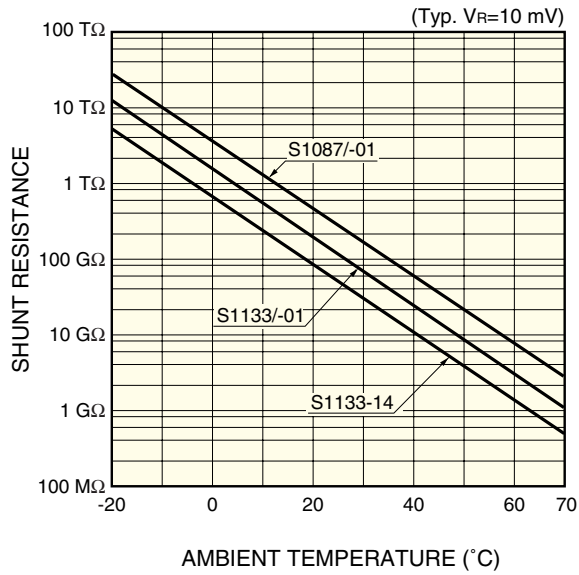
KSPDB0120EA

■ Dark current vs. reverse voltage



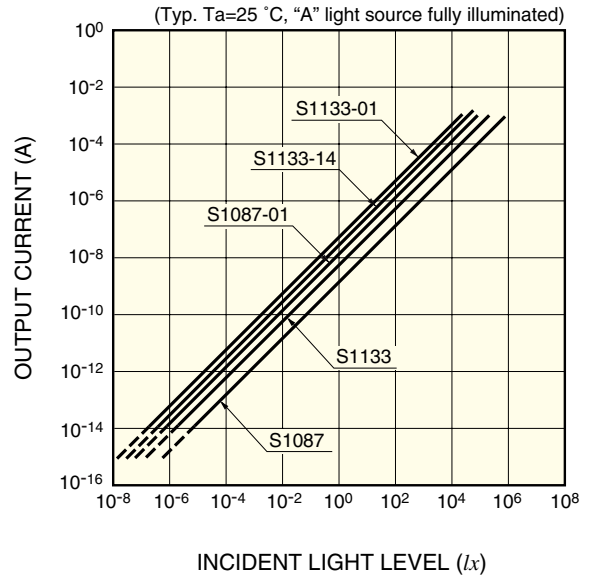
KSPDB0121EA

■ Shunt resistance temperature characteristics



KSPDB0122EA

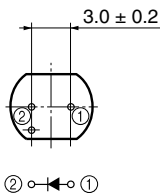
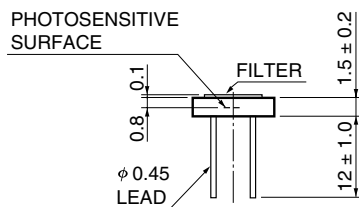
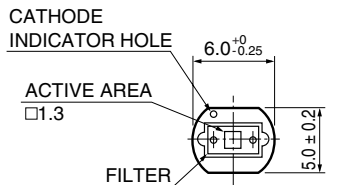
■ Short circuit current linearity



KSPDB0123EA

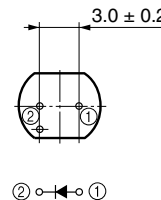
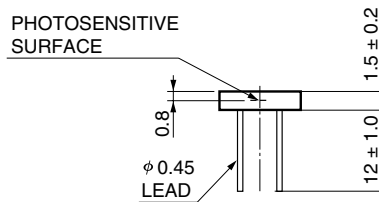
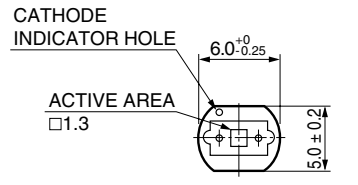
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted:  $\pm 0.15$ )

## ① S1087



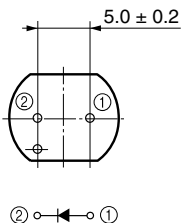
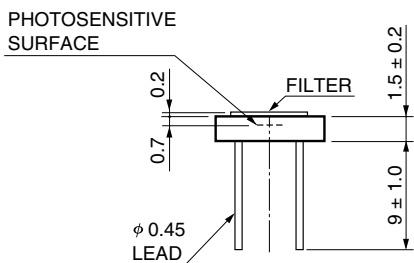
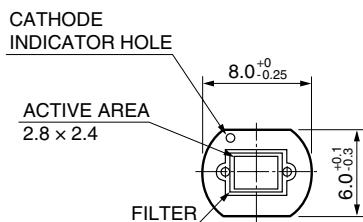
KSPDA0053EA

## ② S1087-01



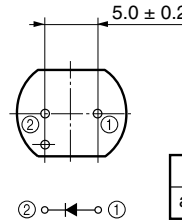
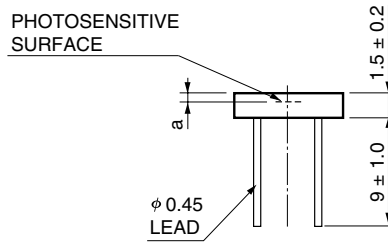
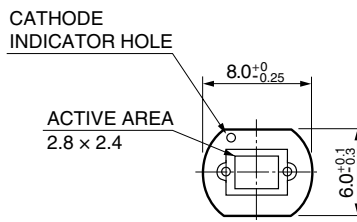
KSPDA0052EA

## ③ S1133



KSPDA0055EA

## ④ S1133-01/-14



	S1133-01	S1133-14
a	0.7	0.6

KSPDA0054EA

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