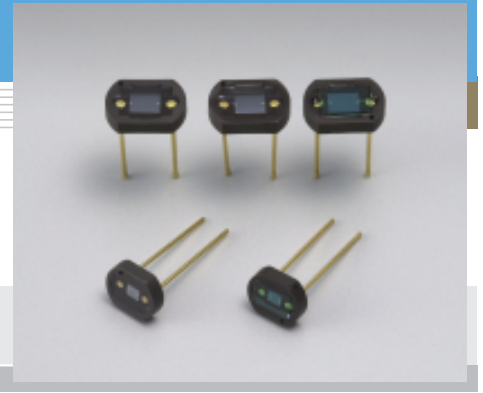


Si photodiode S1087/S1133 series

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

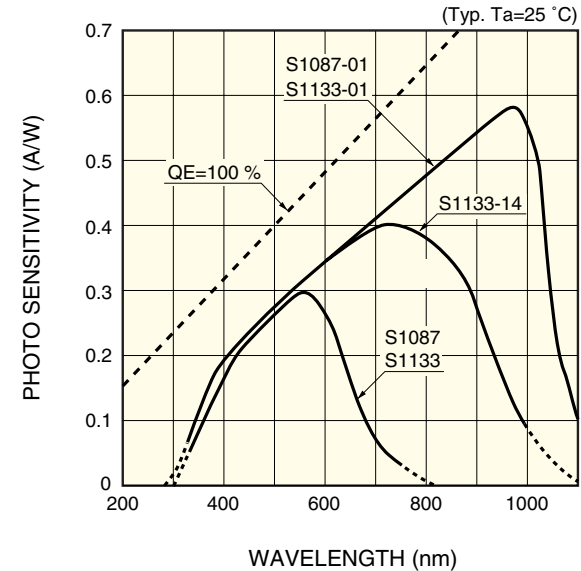
Type No.	Dimensional outline/ Window material *	Active area size (mm)	Effective active area (mm ²)	Absolute maximum ratings		
				Reverse voltage V _R Max. (V)	Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
S1087	①/V	1.3 × 1.3	1.6	10	-10 to +60	-20 to +70
S1087-01	②/R					
S1133	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_a=25 °C, unless otherwise noted)

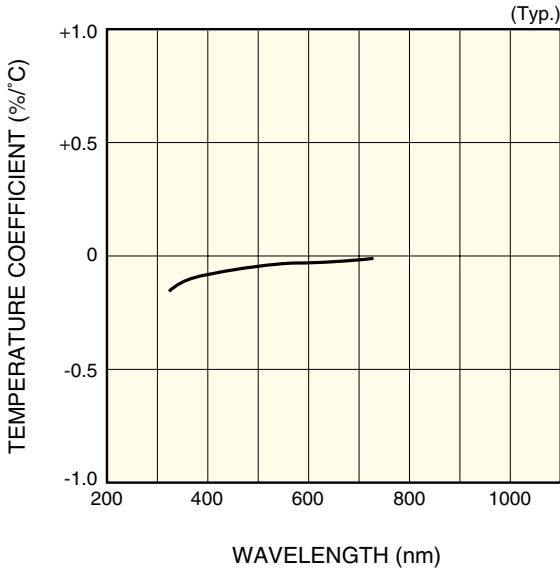
Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photo sensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current Isc 100 lx (μA)	Temp. coefficient of Isc (%/°C)	Dark current ID VR=1 V Max. (pA)	Temp. coefficient of ID TCID (times/°C)	Rise time tr VR=0 V RL=1 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			2.5	700		100
S1133	320 to 730	560	0.3	0.3	0.19	10	0.65	-0.01			0.5	200		50
S1133-01	320 to 1100	960	0.58	0.33	0.38	-	5.6	0.1	20					
S1133-14	320 to 1000	720	0.4		0.37	-	3.4							

■ Spectral response



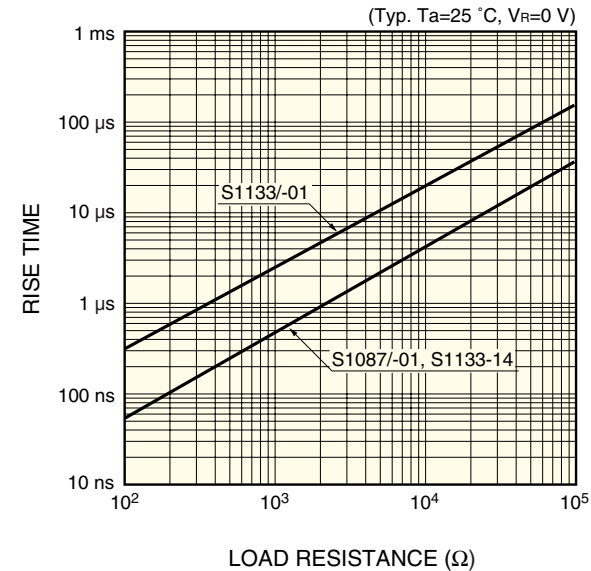
KSPDB0119EA

■ Photo sensitivity temperature characteristic
(typical example: S1087)



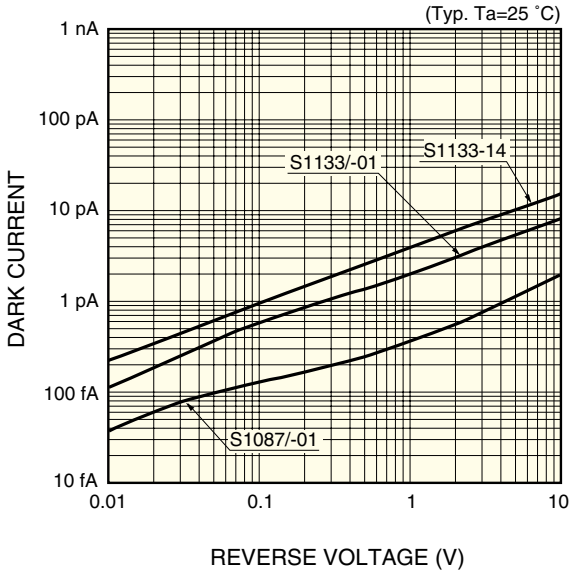
KSPDB0063EB

■ Rise time vs. load resistance



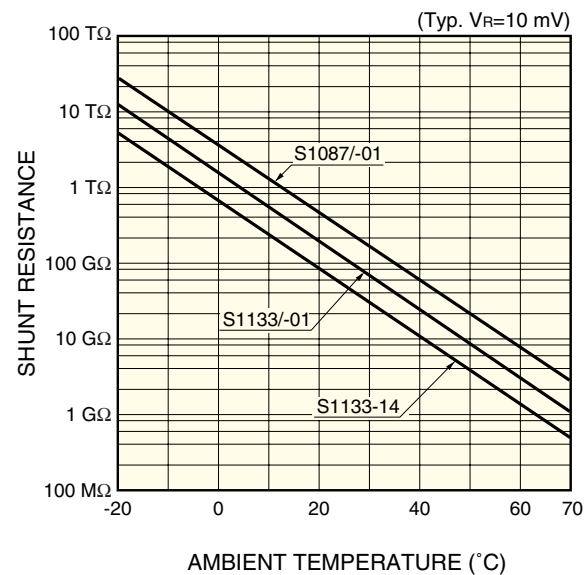
KSPDB0120EA

■ Dark current vs. reverse voltage



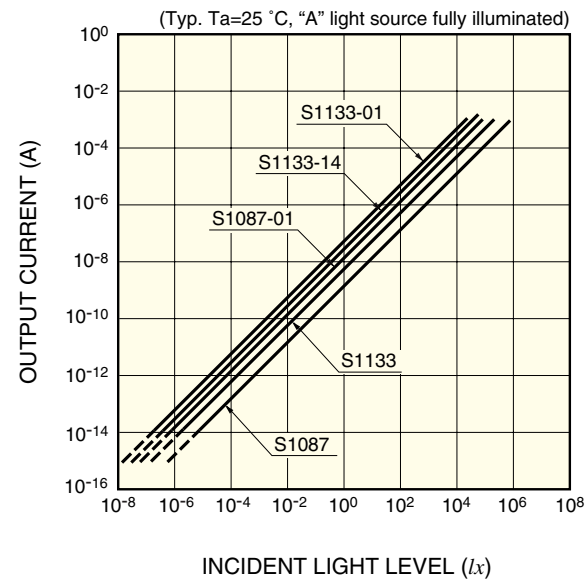
KSPDB0121EA

■ Shunt resistance temperature characteristics



KSPDB0122EA

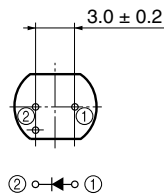
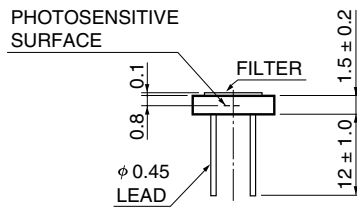
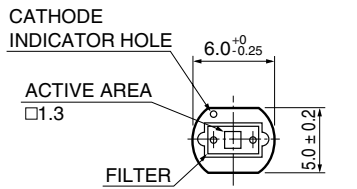
■ Short circuit current linearity



KSPDB0123EA

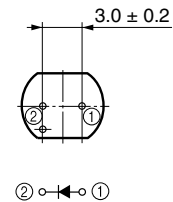
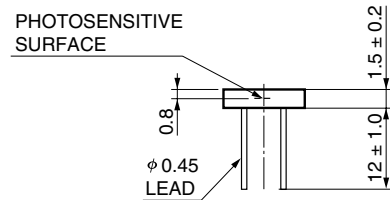
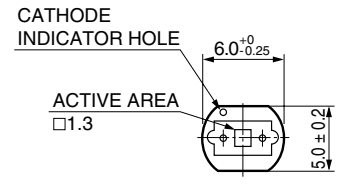
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ± 0.15)

① S1087



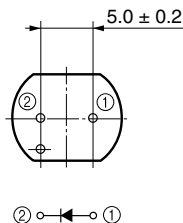
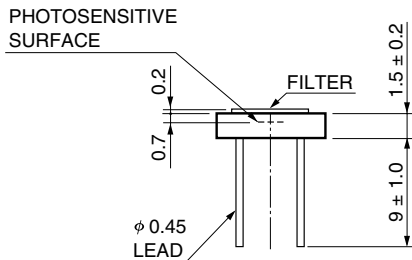
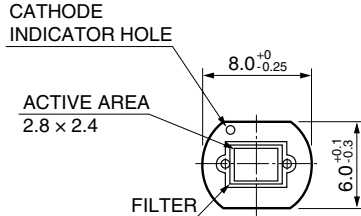
KSPDA0053EA

② S1087-01



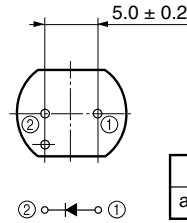
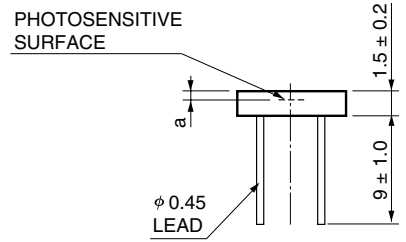
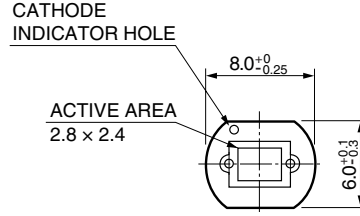
KSPDA0052EA

③ S1133



KSPDA0055EA

④ S1133-01/-14



	S1133-01	S1133-14
a	0.7	0.6

KSPDA0054EA

HAMAMATSU

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