

PHOTODIODE

# Si photodiode S1787 series

Plastic package photodiode with low dark current



S1787 series is a family of plastic package photodiodes that offer low dark current. Plastic 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**

- S1787-04: For visible range
- S1787-08: For visible to IR range
- S1787-12: For visible to near IR range

**Applications**

- Exposure meter
- Illuminometer
- Camera auto exposure
- Stroboscope light control
- Copier
- Display light control
- Optical switch, etc.

■ General ratings / Absolute maximum ratings

Type No.	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)
S1787-04	V	2.4 × 2.8	6.6	10	-10 to +60	-20 to +70
S1787-08	R					
S1787-12	I					

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

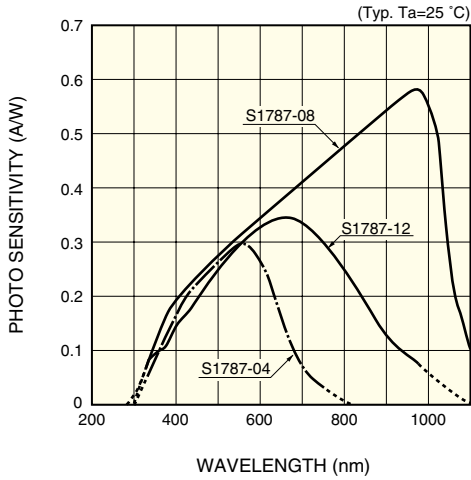
■ Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

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	He-Ne laser								Min. (GΩ)	Typ. (GΩ)
				560 nm	633 nm									
S1787-04	320 to 730	560	0.3	0.3	0.19	10	0.65	-0.01	10	1.12	2.5	700	10	100
S1787-08	320 to 1100	960	0.58	0.33	0.38	-	5.6	0.1					20	0.5
S1787-12	320 to 1000	650	0.35	0.3	0.34	-	2.3							



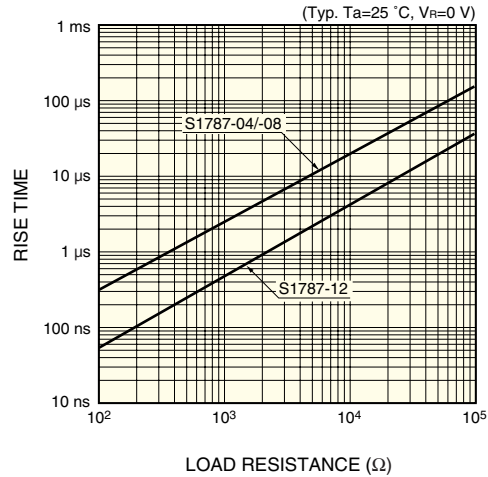
# Si photodiode S1787 series

## ■ Spectral response



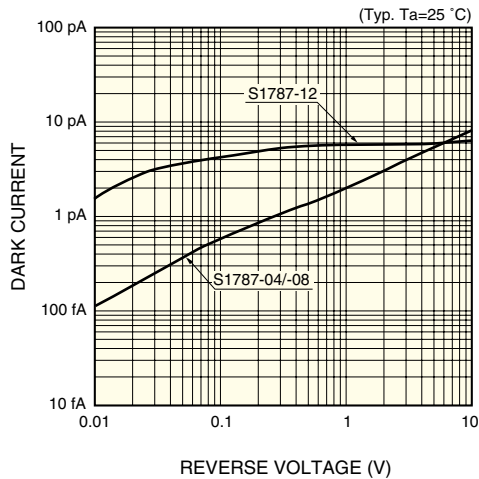
KSPDB0124EA

## ■ Rise time vs. load resistance



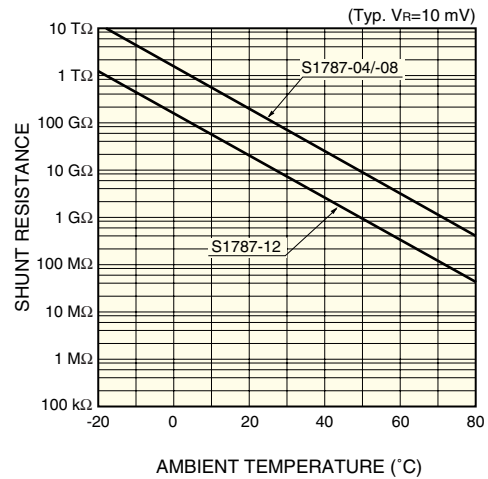
KSPDB0125EA

## ■ Dark current vs. reverse voltage



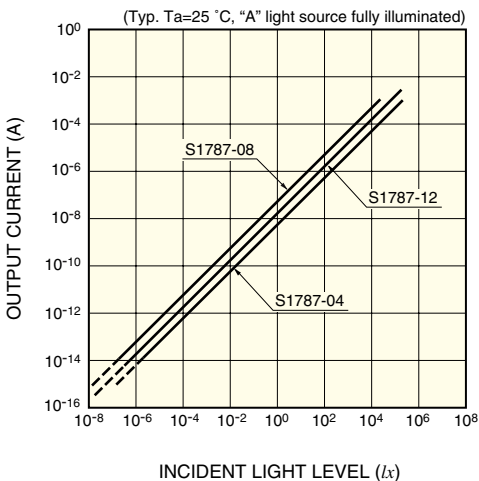
KSPDB0126EA

## ■ Shunt resistance temperature characteristics



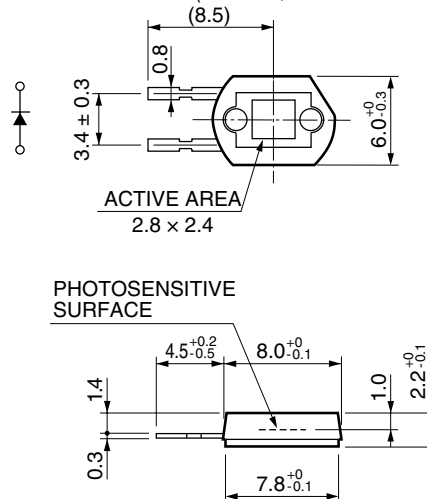
KSPDB0127EA

## ■ Short circuit current linearity



KSPDB0128EA

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



KSPDA0056EA