

Si photodiode

S1787 series



Plastic package photodiode with low dark current

The S1787 series is a family of plastic package photodiodes that offer low dark current. Plastic package used is light-imperious, 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.**

Structure / Absolute maximum ratings

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

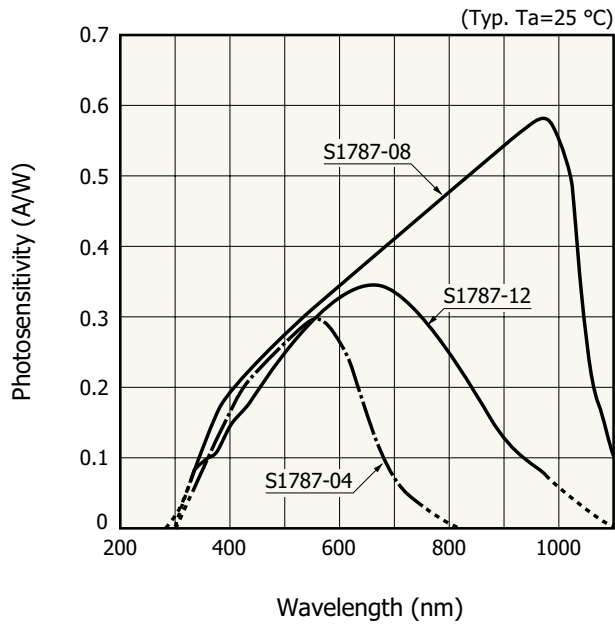
* Window material R: resin coating, V: visual-compensation filter, I: infrared-cutting filter

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. T_a=25 °C, unless otherwise noted)

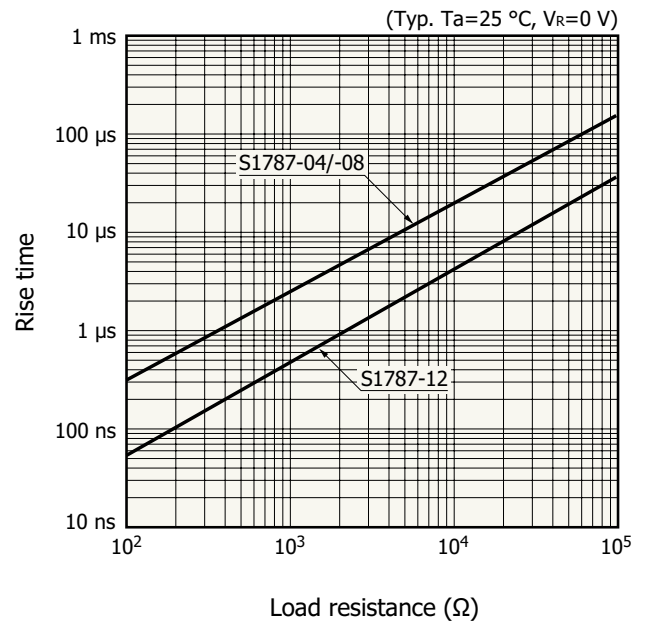
Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ _p (nm)	Photosensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current I _{sc} 100 lx (μA)	Temp. coefficient of I _{sc} (%/°C)	Dark current I _D V _R =1 V Max. (pA)	Temp. coefficient of I _D T _{CID} (times/°C)	Rise time t _r V _R =0 V R _L =1 kΩ (μs)	Terminal capacitance C _t V _R =0 V f=10 kHz (pF)	Shunt resistance R _{sh} V _R =10 mV	
			λ _p	GaP LED 560 nm	He-Ne laser 633 nm								Min. (GΩ)	Typ. (GΩ)
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						
S1787-12	320 to 1000	650	0.35	0.3	0.34		2.3		20					

Spectral response



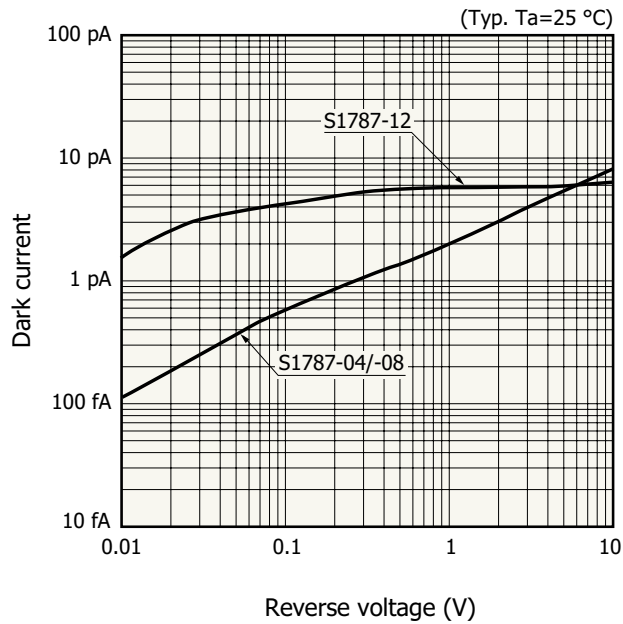
KSPDB0124EB

Rise time vs. load resistance



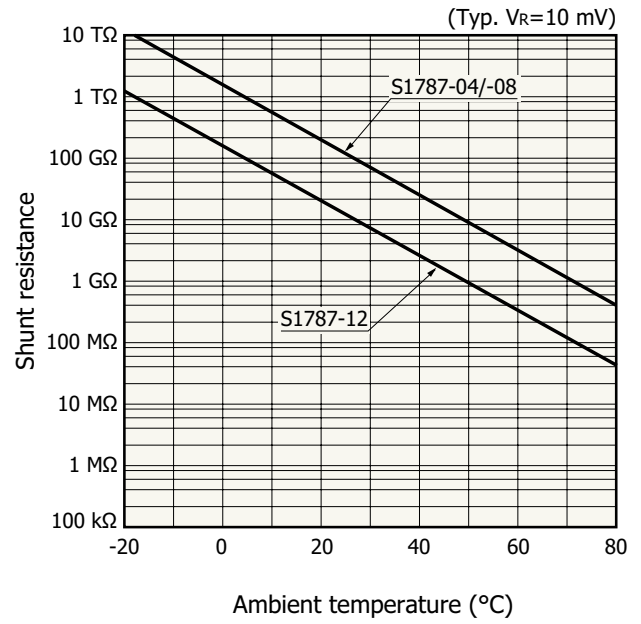
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Dark current vs. reverse voltage



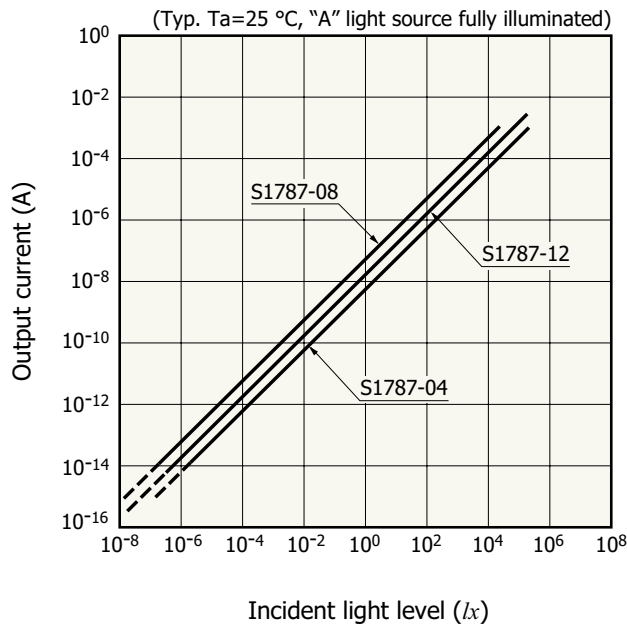
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Shunt resistance temperature characteristics

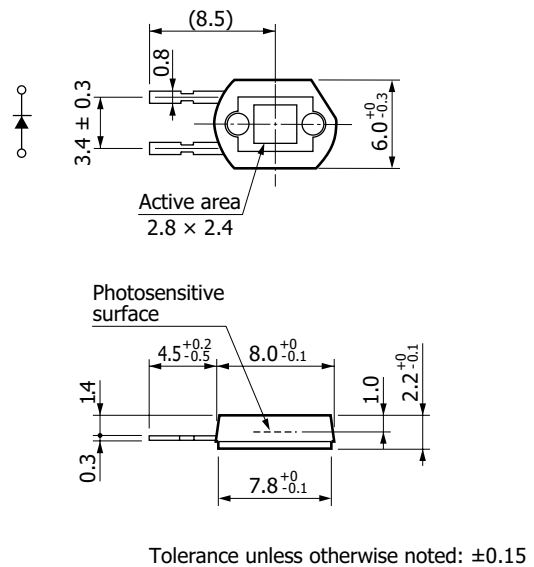


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Short circuit current linearity



Dimensional outline (unit: mm)



Recommended soldering conditions

Parameter	Specification	Remarks
Solder temperature	260 °C max. (once, less than 5 s)	at least 1 mm away from lead roots

Note: When setting the soldering conditions, check for any problems by testing out the soldering methods in advance.

Related information

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

Precautions

- Disclaimer
- Metal, ceramic, plastic package products

Technical note

- Si photodiode

Information described in this material is current as of May 2022.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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