

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 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					

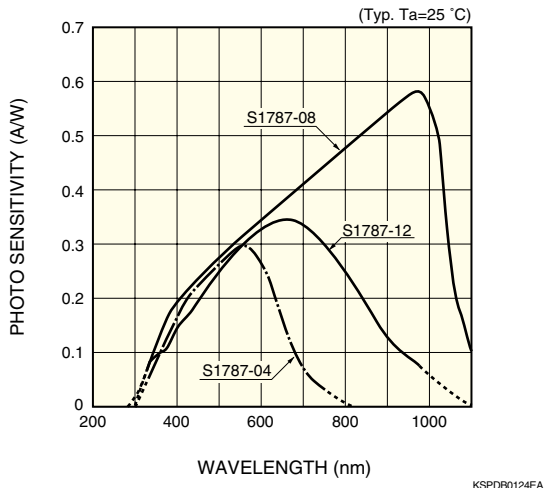
* Window material R: resin coating, V: visual-compensation filter, I: infrared-cutting filter

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

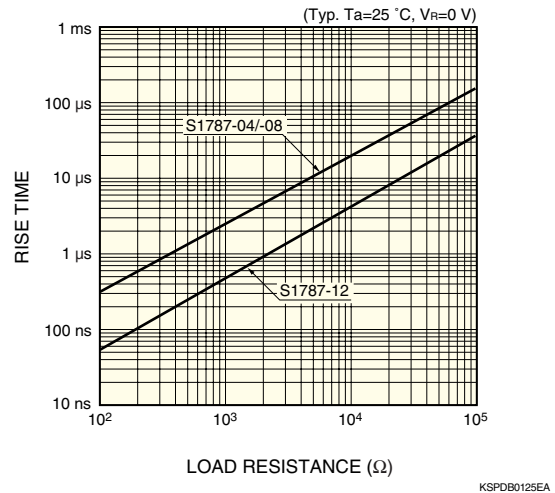
Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ _p (nm)	Photo sensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current I _{sc} 100 lx (μA)	Temp. coefficient of I _{sc} (%/°C)	Dark current I _D V _R =1 V Max. (pA)	Temp. coefficient of I _D T _{CID} (times/°C)	Rise time t _r V _R =0 V RL=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.	Typ.
			(nm)										(GΩ)	(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	10	1.12	2.5	700	10	100
S1787-12	320 to 1000	650	0.35	0.3	0.34	-	2.3	0.1	20	1.12	0.5	200	1	10

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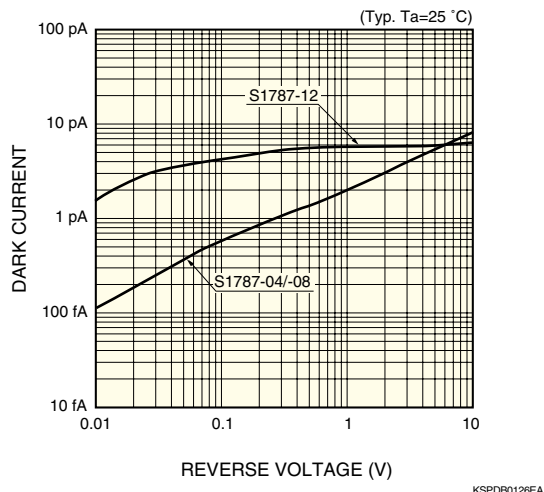
■ Spectral response



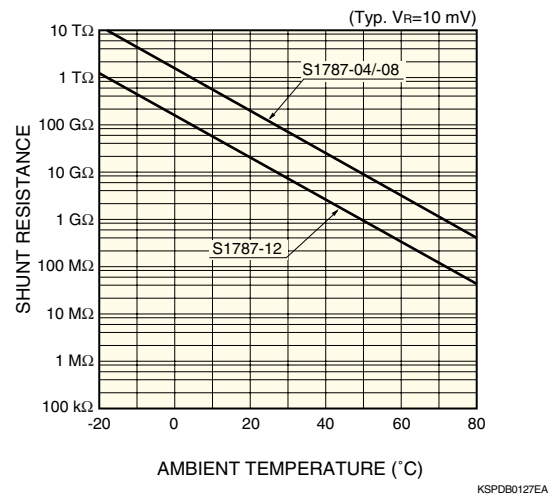
■ Rise time vs. load resistance



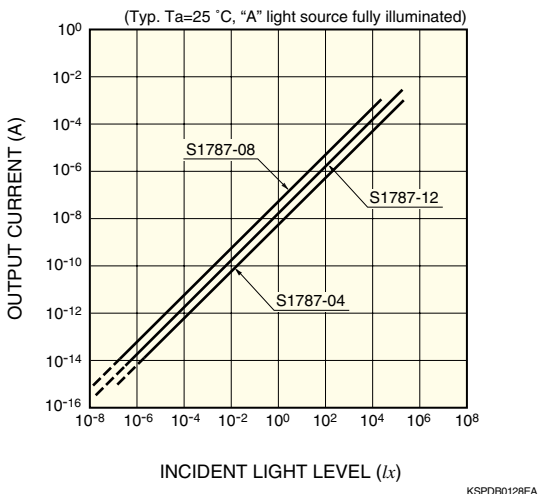
■ Dark current vs. reverse voltage



■ Shunt resistance temperature characteristics



■ Short circuit current linearity



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

