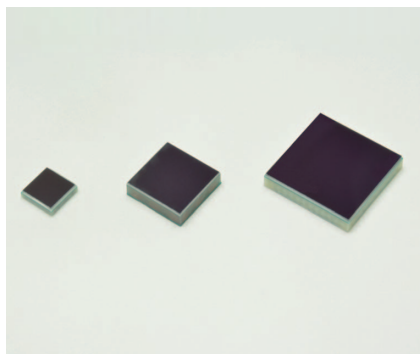


Si photodiodes

S13955-01

S13956-01

S13957-01



Back-illuminated photodiodes with CSP structure

A scintillator can be coupled directly on the chip by using a back-illuminated photodiode. It is designed with minimal dead space around the product. This makes it possible to arrange multiple products side by side.

Features

- ➔ Spectral response range: 400 to 1100 nm
- ➔ Package size: 7.52 × 7.52 mm (S13955-01)
3 × 3 mm (S13956-01)
5 × 5 mm (S13957-01)
- ➔ Easy coupling with a scintillator
Because there are no wires in the photosensitive area and the optical coupling efficiency with a scintillator can be maximized, it is suitable for non-destructive X-ray inspection equipment.

Applications

- ➔ General industrial measurement
- ➔ X-ray test equipment

Structure

Parameter	S13955-01	S13956-01	S13957-01	Unit
Package size	7.52 × 7.52	3 × 3	5 × 5	mm
Element size	7.37 × 7.37	2.8 × 2.8	4.86 × 4.86	mm
Photosensitive area	7.05 × 7.05	2.5 × 2.5	4.5 × 4.5	mm
Package	Glass epoxy			-

Absolute maximum ratings

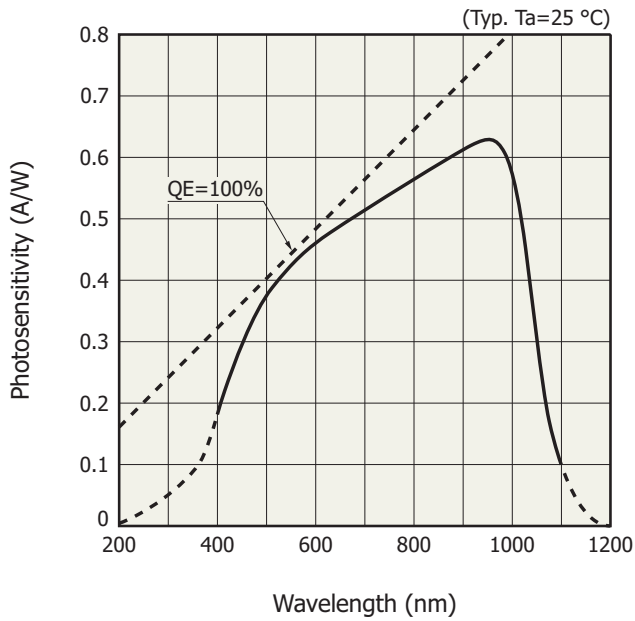
Parameter	Symbol	Condition	Value	Unit
Maximum reverse voltage	V _{R max}	T _a =25 °C	10	V
Operating temperature	T _{opr}		-20 to +60	°C
Storage temperature	T _{stg}		-20 to +80	°C
Reflow soldering conditions	T _{sol}	JEDEC level 5a	Peak temperature: 240 °C (see P.4)	-

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 (T_a=25 °C)

Parameter	Symbol	Condition	S13955-01			S13956-01			S13957-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		400 to 1100			400 to 1100			400 to 1100			nm
Peak sensitivity wavelength	λ _p		-	960	-	-	960	-	-	960	-	nm
Photosensitivity	S	λ=540 nm	0.38	0.42	-	0.38	0.42	-	0.38	0.42	-	A/W
		λ=920 nm	0.55	0.61	-	0.55	0.61	-	0.55	0.61	-	
Short circuit current	I _{sc}	100 lx, 2856 K	36	46	-	4.5	5.5	-	18	22	-	μA
Dark current	I _D	V _R =10 mV	-	50	1000	-	10	300	-	40	1000	pA
Rise time	t _r	V _R =0 V, R _L =1 kΩ λ=650 nm	-	15	-	-	15	-	-	15	-	μs
Terminal capacitance	C _t	V _R =0 V, f=10 kHz	300	500	700	40	60	90	-	230	350	pF

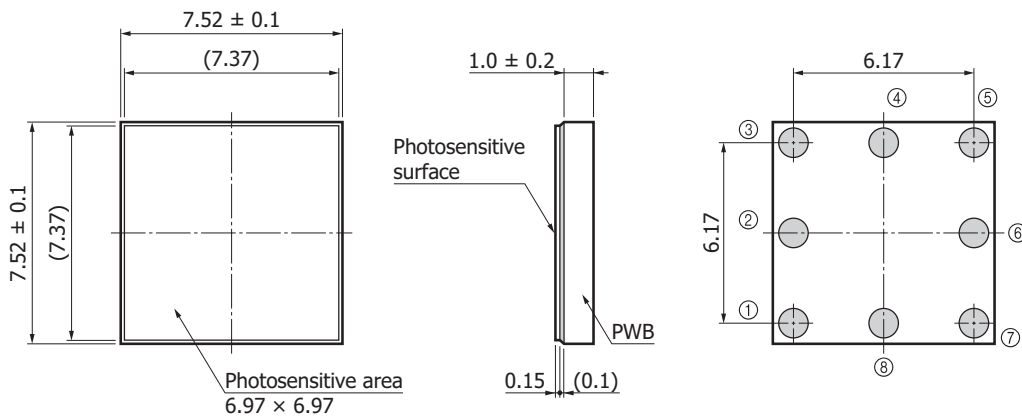
Spectral response



KSPDB0367EA

Dimensional outlines (unit: mm)

S13955-01



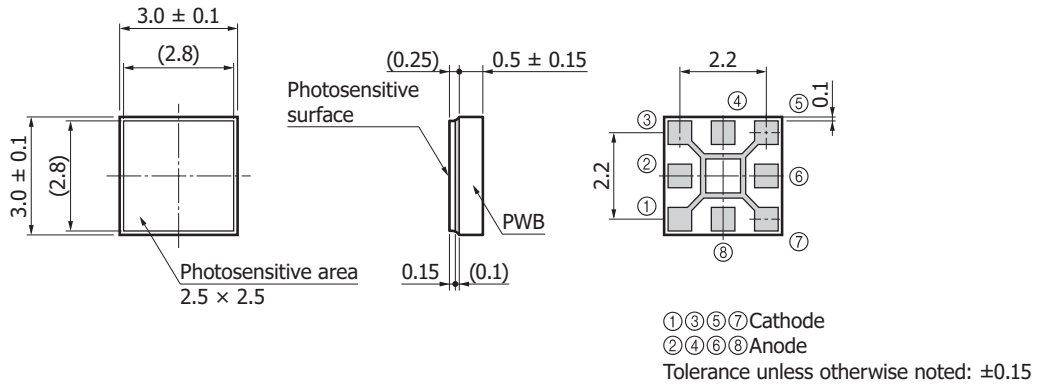
①③⑤⑦ Cathode

②④⑥⑧ Anode

Tolerance unless otherwise noted: ±0.1

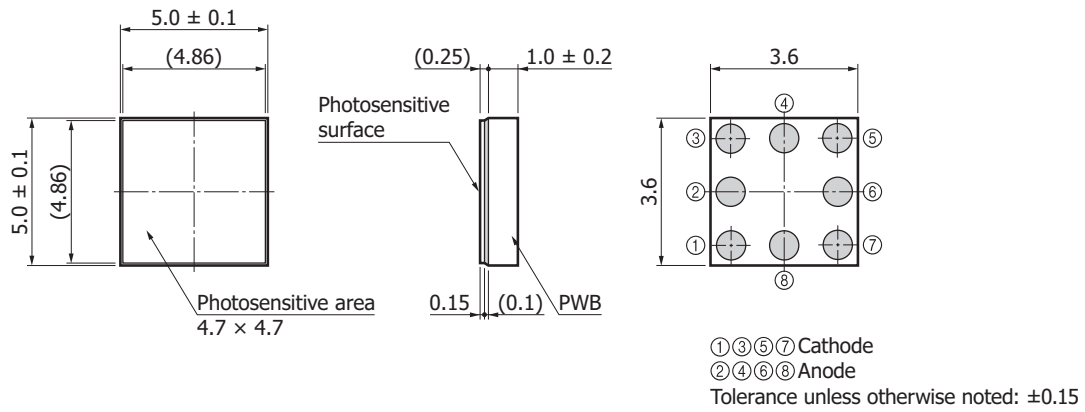
KSPDA0214EA

S13956-01



KSPDA0215EA

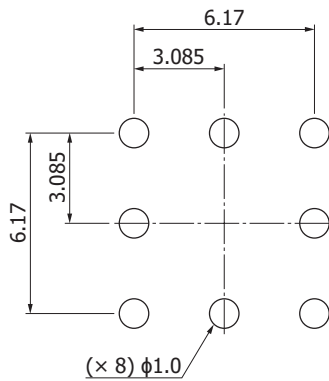
S13957-01



KSPDA0216EA

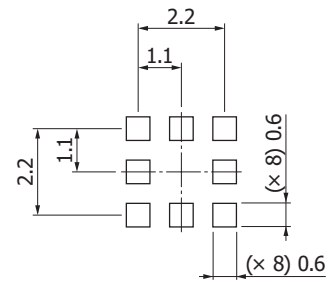
Recommended land patterns (unit: mm)

S13955-01



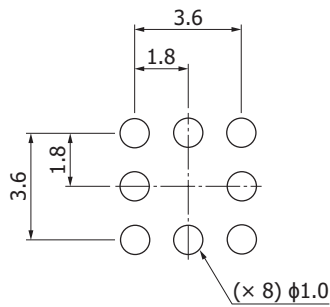
KSPDC0090EA

S13956-01



KSPDC0091EA

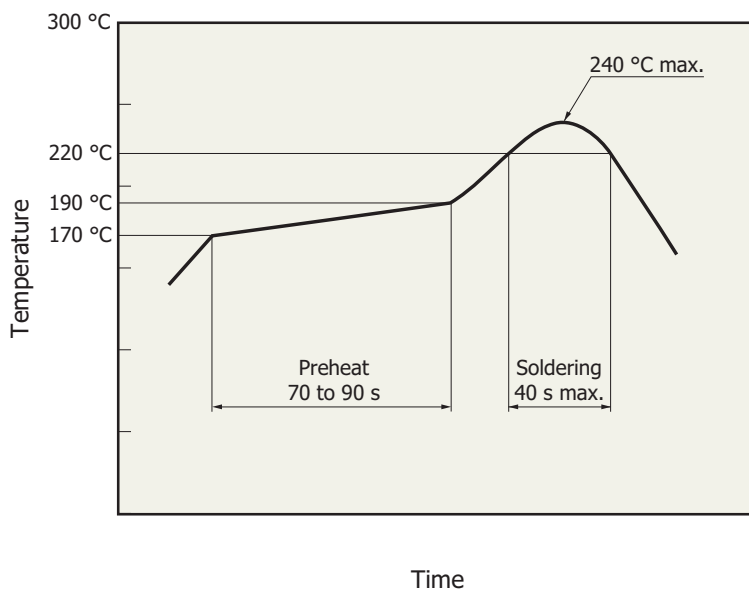
S13957-01



KSPDC0092EA

Measured example of temperature profile with our hot-air reflow oven for product testing

This product supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 24 hours.



KPICB0171EA

Related information

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

■ Precautions

- Disclaimer
- Unsealed product / Precautions

■ Technical information

- Si photodiode / Application circuit examples

Information described in this material is current as of July 2018.

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