

S10355-01

S10356-01

Back-illuminated type photodiodes employing CSP structure

The S10355-01 and S10356-01 are back-illuminated type photodiodes designed to minimize the dead areas at the device edges by using a CSP (chip size package) structure. The CSP also allows using multiple devices in a tiled format.

Features

- **Allows multiple devices to be arranged in a tiled format**
Tiled format minimizes the dead area between photodiodes and covers a large detection area.
- **Patterned electrodes for signal readout terminals**
Lead pins and solder balls are available as signal readout terminals on the underside of the package. Please contact us for details.
- **Easy coupling to scintillator**
Maximizes the optical coupling efficiency to a scintillator since no wire leads exist on the photosensitive surface, making these photodiodes ideal as detectors for X-ray non-destructive inspection systems.

Applications

- **General industrial measurement**
- **X-ray inspection system**

Structure

Parameter	S10355-01	S10356-01	Unit
Package size	7.52 × 7.52	3 × 3	mm
Chip size	7.37 × 7.37	2.8 × 2.8	mm
Photosensitive area	6.97 × 6.97	2.5 × 2.5	mm

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R max	$T_a=25\text{ }^\circ\text{C}$	10	V
Operating temperature	T_{opr}		-20 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}		-20 to +80	$^\circ\text{C}$
Reflow soldering condition*	T_{sol}		Peak temperature 240 $^\circ\text{C}$ (see page 3)	-

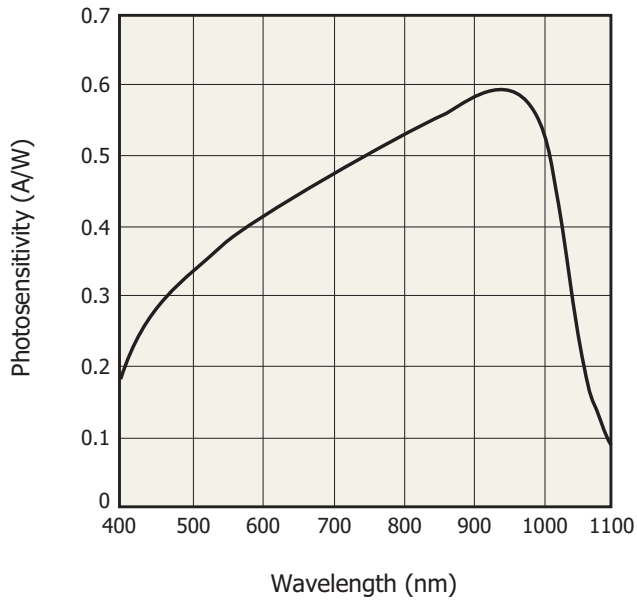
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

* JEDEC level 5a

Electrical and optical characteristics ($T_a=25\text{ }^\circ\text{C}$)

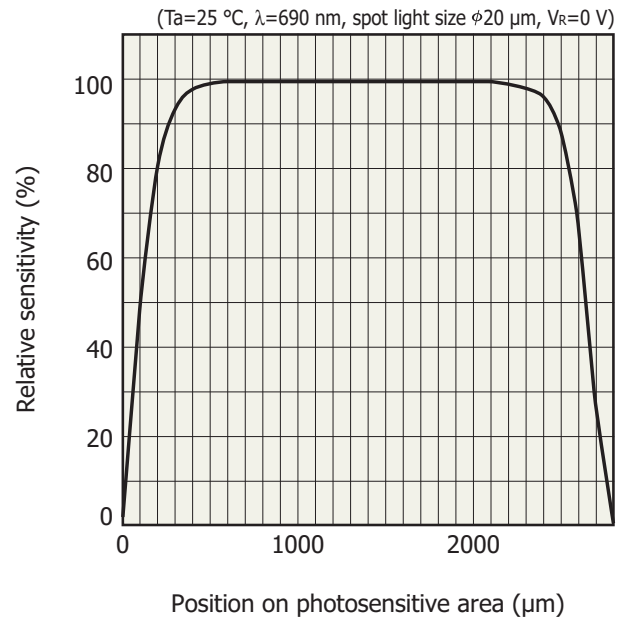
Parameter	Symbol	Condition	S10355-01			S10356-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		400 to 1100			400 to 1100			nm
Peak sensitivity wavelength	λ_p		-	960	-	-	960	-	nm
Photo sensitivity	S	$\lambda=960\text{ nm}$	0.55	0.59	-	0.55	0.59	-	A/W
		$\lambda=540\text{ nm}$	0.35	0.37	-	0.35	0.37	-	A/W
Short circuit current	I_{sc}	100 lx, 2856 K	30	40	-	4	5	-	μA
Dark current	I_D	$V_R=10\text{ mV}$	-	0.1	1	-	0.01	0.3	nA
Rise time	t_r	$V_R=0\text{ V}$, $R_L=1\text{ k}\Omega$ $\lambda=650\text{ nm}$	-	20	-	-	15	-	μs
Terminal capacitance	C_t	$V_R=0\text{ V}$, $f=10\text{ kHz}$	-	500	700	-	60	90	pF

Spectral response



KSPDB0288ED

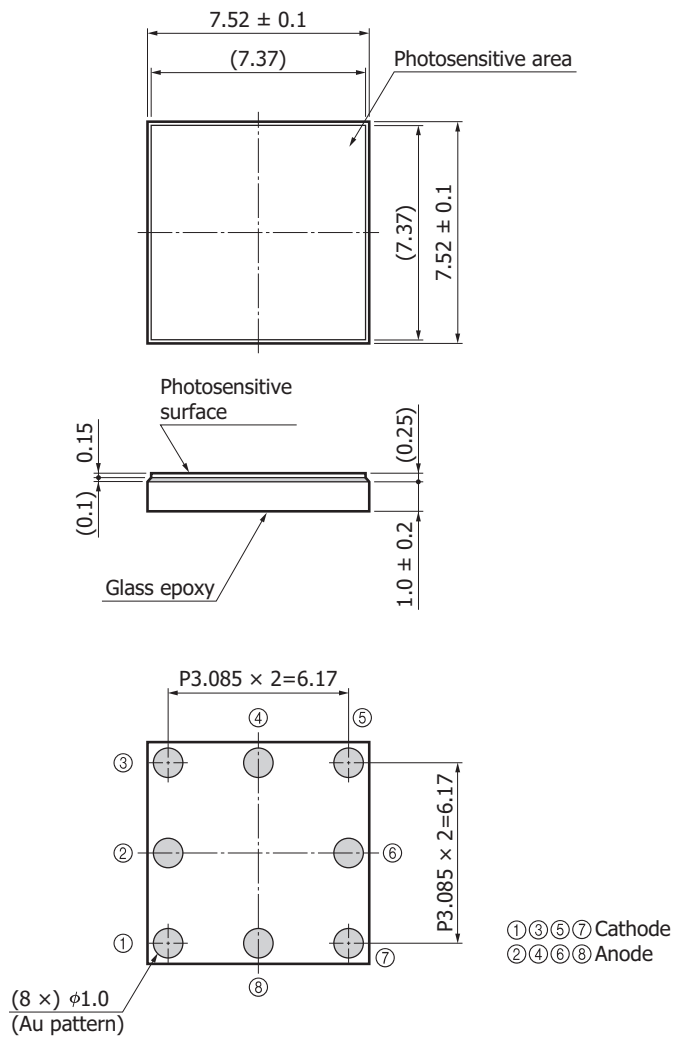
Sensitivity uniformity (S10356-01)



KSPDB0294EA

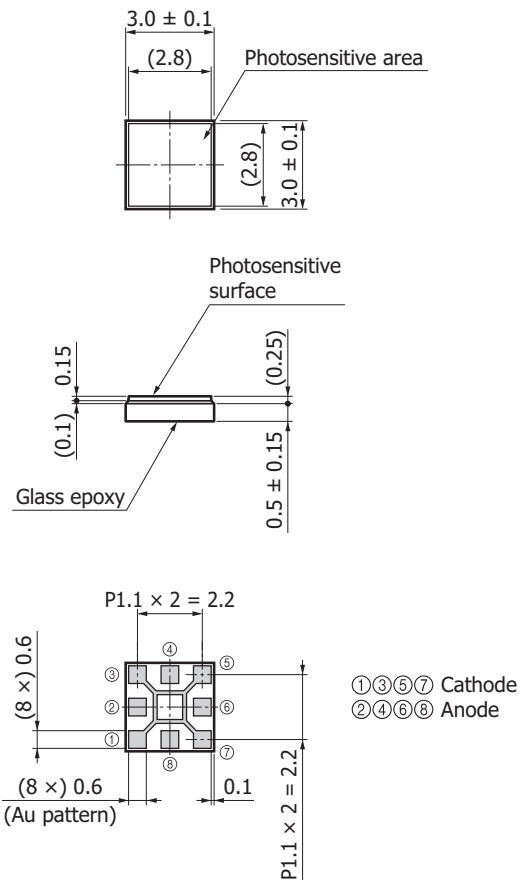
Dimensional outlines (unit: mm)

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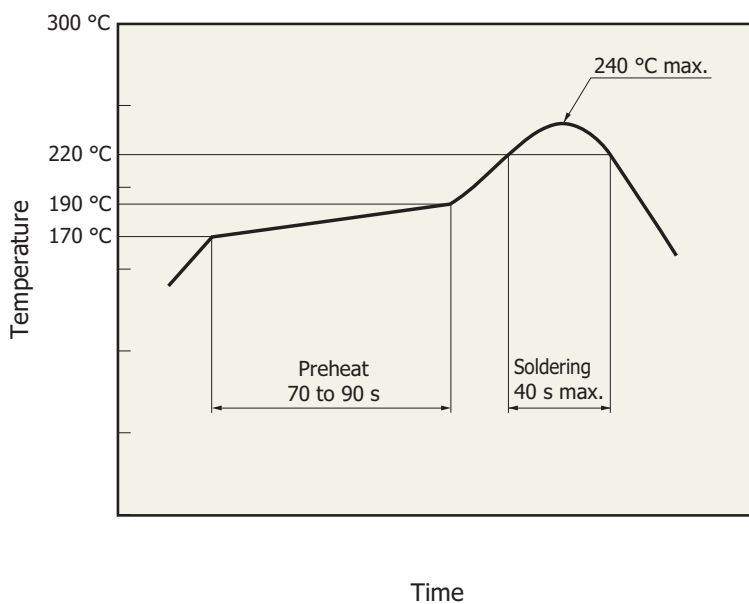
KSPDA0206EA

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Example of measured temperature profile with our hot-air reflow oven for product testing

These products support lead-free soldering. After unpacking, store them 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_en.html

■ Precautions

- Notice
- Surface mount type products / Precautions

■ Technical information

- Si photodiode / Application circuit examples

Information described in this material is current as of December, 2013.

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.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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