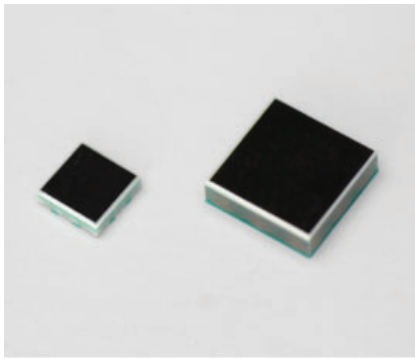


Si photodiodes



S10356-01

S10357-01

Back-illuminated type photodiodes employing CSP structure

The S10356-01 and S10357-01 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	S10356-01	S10357-01	Unit
Package size	3 × 3	5 × 5	mm
Chip size	2.8 × 2.8	4.8 × 4.8	mm
Photosensitive area	2.4 × 2.4	4.4 × 4.4	mm

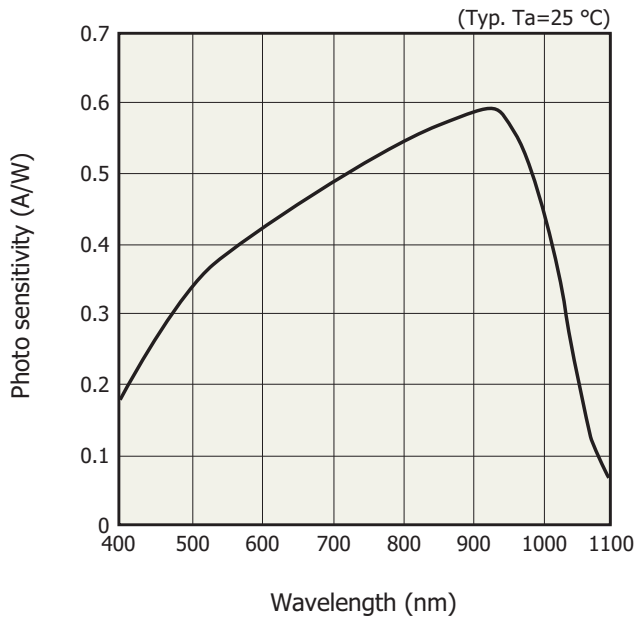
Absolute maximum ratings

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	$^\circ\text{C}$

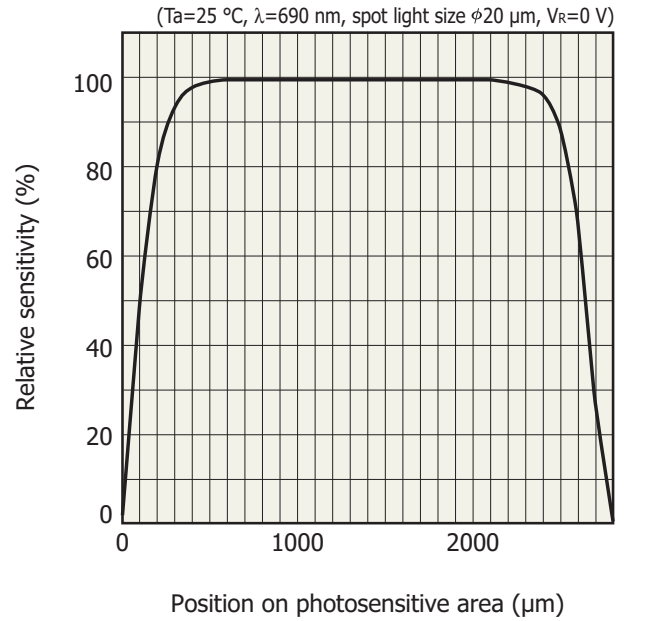
Electrical and optical characteristics ($T_a=25\text{ }^\circ\text{C}$)

Parameter	Symbol	Condition	S10356-01			S10357-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		400 to 1100			400 to 1100			nm
Peak sensitivity wavelength	λ_p		-	920	-	-	920	-	nm
Photo sensitivity	S	$\lambda=960\text{ nm}$	0.55	0.62	-	0.55	0.62	-	A/W
		$\lambda=540\text{ nm}$	0.35	0.4	-	0.35	0.4	-	A/W
Short circuit current	I_{sc}	100 lx, 2856 K	4	5	-	14	18	-	μA
Dark current	I_D	$V_R=10\text{ mV}$	-	0.015	0.5	-	0.04	2	nA
Rise time	t_r	$V_R=0\text{ V}$, $R_L=1\text{ k}\Omega$ $\lambda=650\text{ nm}$	-	15	-	-	20	-	μs
Shunt resistance	R_{sh}	$V_R=10\text{ mV}$	-	670	-	-	250	-	$\text{M}\Omega$
Terminal capacitance	C_t	$V_R=0\text{ V}$, $f=10\text{ kHz}$	-	0.06	0.09	-	0.2	0.35	nF

Spectral response

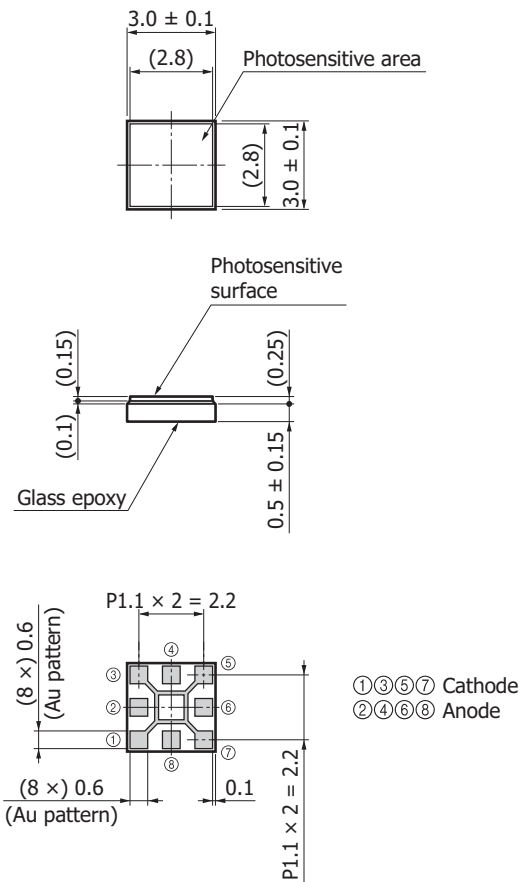


Sensitivity uniformity (S10356-01)

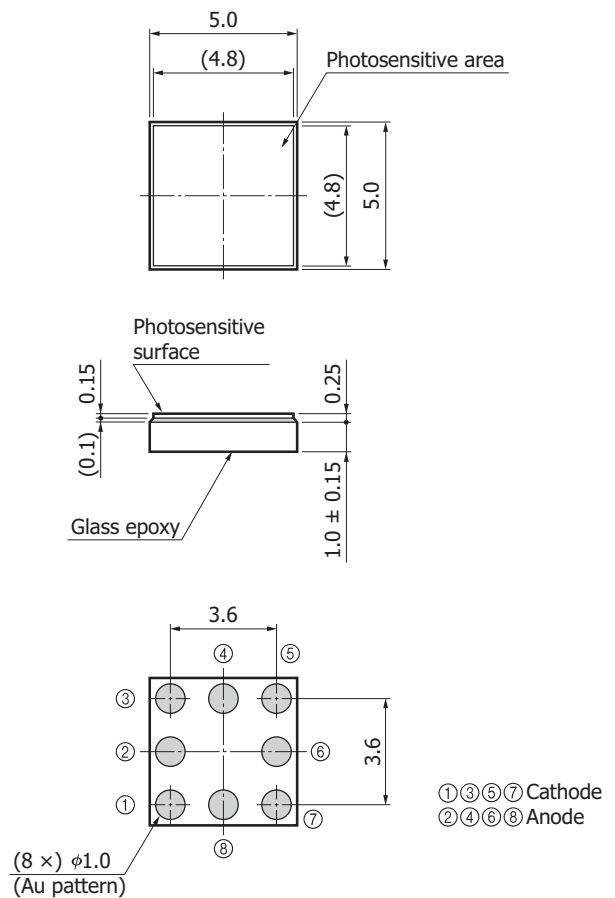


Dimensional outline (unit: mm)

S10356-01



S10357-01



Information described in this material is current as of October, 2011.

Product specifications are subject to change without prior notice due to improvements or other reasons. Before assembly into final products, please contact us for the delivery specification sheet to check the latest information.

Type numbers of products listed in the delivery specification sheets or supplied as samples may have a suffix "(X)" which means preliminary specifications or a suffix "(Z)" which means developmental 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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