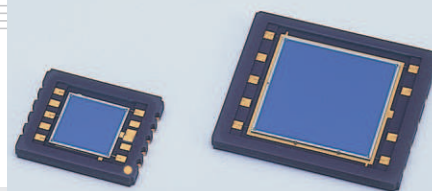


Two-dimensional PSD S5990-01, S5991-01

Improved tetra-lateral type for surface mounting



Features

- Large active area
S5990-01: 4×4 mm
S5991-01: 9×9 mm
- Chip carrier package for surface mounting
(automatic mounting with solder reflow)
thin package: 1.26 mm
- Improved tetra-lateral type (pin-cushion type) delivers superior position detection
- Evaluation circuit boards provided
C4674 (DC signal processing circuit)
C7563 (AC signal processing circuit)

Applications

- Spot light detection
- Pointing device (computer mouse, track-ball)
- Position measurement

■ Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Reverse voltage	V_R Max.	20	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 ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Condition	S5990-01			S5991-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	-	960	-	nm
Photo sensitivity	S	$\lambda=\lambda_p$	-	0.6	-	-	0.6	-	A/W
Interelectrode resistance	R_{ie}	$V_b=0.1$ V	5	7	15	5	7	15	$k\Omega$
Position detection error	E	$\lambda=900$ nm $V_R=5$ V, spot light size: $\phi 0.2$ mm *	-	± 70	± 150	-	± 150	± 250	μm
Saturation photocurrent	I_{st}	$\lambda=900$ nm, $V_R=5$ V $R_L=1$ $k\Omega$	-	500	-	-	500	-	μA
Dark current	I_D	$V_R=5$ V	-	0.5	10	-	1	50	nA
Rise time	t_r	$V_R=5$ V, $R_L=1$ $k\Omega$ $\lambda=900$ nm	-	1	-	-	2	-	μs
Terminal capacitance	C_t	$V_R=5$ V, $f=10$ kHz	-	150	300	-	500	1000	pF
Position resolution	ΔR	$I_o=1$ μA , $B=1$ kHz *	-	0.7	-	-	1.5	-	μm

* In the range that is 80 % from the center to the edge. Recommended spot light size is larger than $\phi 0.2$ mm.