

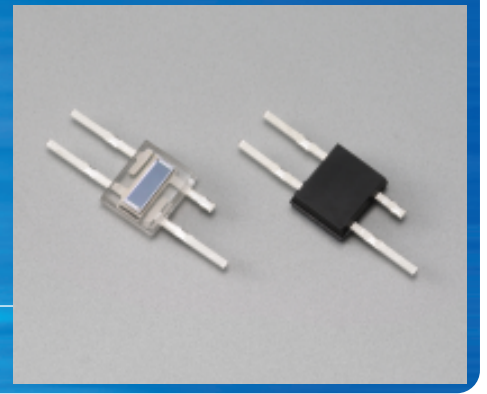
NEW

PSD

One-dimensional PSD

S8301 series

Nonlinear output PSD



S8301 is a nonlinear output PSD (Position Sensitive Detector) specifically developed to improve accuracy of triangular measurement over long distances.

Features

- Nonlinear output one-dimensional PSD
- Large signal output change level for long distances
- Active area: 1.0 × 3.2 mm (resistance length 3.0 mm)

Applications

- Displacement meter
- Optical switch

■ Absolute maximum ratings (Ta=25 °C)

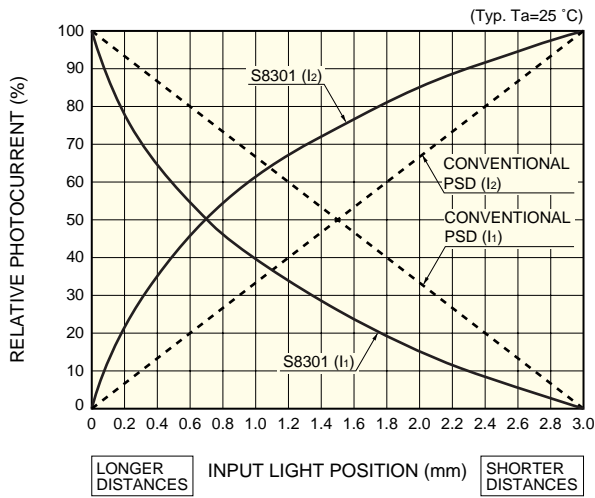
Parameter	Symbol	Value	Unit
Reverse voltage	V _R Max.	20	V
Operating temperature	T _{opr}	-25 to +85	°C
Storage temperature	T _{stg}	-40 to +100	°C

■ Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	S8301			S8301-01			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	760 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	-	960	-	nm
Photo sensitivity	S	$\lambda = \lambda_p$	-	0.55	-	-	0.55	-	A/W
Interelectrode resistance	R _{ie}	V _b =0.1 V	180	250	320	180	250	320	k Ω
Position detection error	-	V _R =1 V Spot light size= ϕ 0.1 mm 50 to 2950 μ m range	-	\pm 30	\pm 60	-	\pm 30	\pm 60	μ m
Saturation current	I _{st}	V _R =1 V, R _L =1 k Ω	20	-	-	20	-	-	μ A
Dark current	I _D	V _R =1 V	-	0.1	2	-	0.1	2	nA
Temperature coefficient of I _D	-		-	1.15	-	-	1.15	-	times/°C
Rise time	t _r	V _R =1 V, R _L =1 k Ω *	-	5	15	-	10	30	μ s
Terminal capacitance	C _t	V _R =1 V, f=10 kHz	-	35	70	-	35	70	pF

* S8301: λ =650 nm, S8301-01: λ =890 nm

Photocurrent vs. input light position



KPSDB0075EA

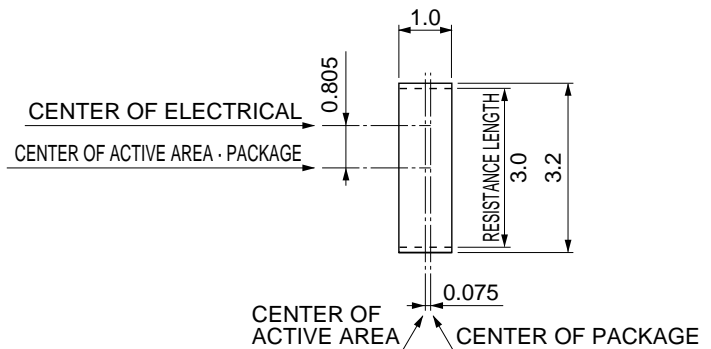
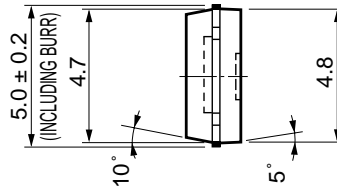
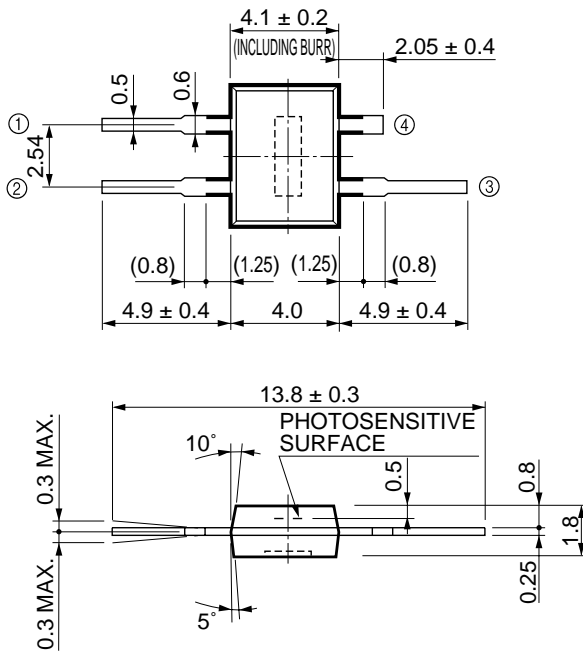
Operation expression

$$\text{Input light position } (\mu\text{m}) = 10^n - a$$

$$n = \frac{\log |a| \cdot I_1 + \log |L + a| \cdot I_2}{I_1 + I_2}$$

L = 3000
a = 300

Dimensional outline (unit: mm)



- ① ANODE 1
- ② CATHODE (COMMON)
- ③ ANODE 2
- ④ CATHODE (COMMON); DISPLAY FOR LONGER DISTANCES

DETAILS OF PHOTODIODE

KPSDA0065EA

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