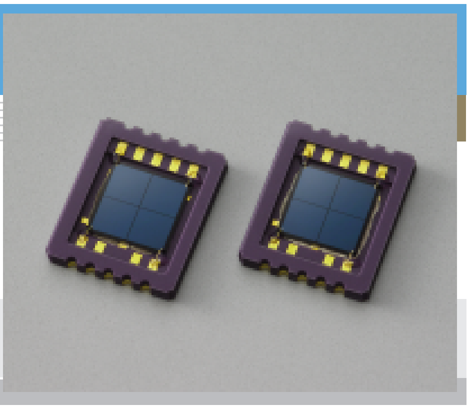
Si PIN photodiode
S8594

Quadrant photodiode with slit mask for encoder



S8594 is a quadrant photodiode array with a slit mask (code strip) formed on the Si chip surface.

Features

- Quadrant photodiode with slit mask of L/S (Line/Space)=10/10 μm
- Uses a light-shielded, non-reflective black slit
- Active area: □5 mm/4 elements (element gap: 50 μm)
- Bare chip type (window-less)

Applications

- Encoder

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Reverse voltage	V_R Max.	30	V
Operating temperature	Topr	0 to +60 *	°C
Storage temperature	Tstg	0 to +80 *	°C

* No condensation

■ Electrical and optical characteristics (Ta=25 °C, per 1 element)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	nm
Photo sensitivity	S	$\lambda=\lambda_p$	0.60	0.72	-	A/W
Dark current	I_D	V_R=10 V	-	0.3	2.0	nA
Terminal capacitance	Ct	V_R=10 V, f=1 MHz	-	10	-	pF
Cut-off frequency	fc	V_R=10 V, R_L=50 Ω λ=780 nm, -3 dB	-	25	-	MHz

S8594 uses a window-less package with no protection for the photodiode chip. Always take the following precautions when handling.

■ Handling precautions

- Handle the photodiode in a clean room.
- Never touch the photodiode chip surface and wire bonding.
- Wear dust-proof gloves and dust-proof mask.
- Use an air dust cleaner to blow dust and foreign matter away from the photodiode chip surface.
- Do not clean the photodiode by any method other than air blow.

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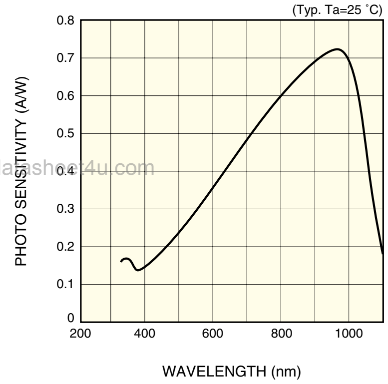
■ Spectral response



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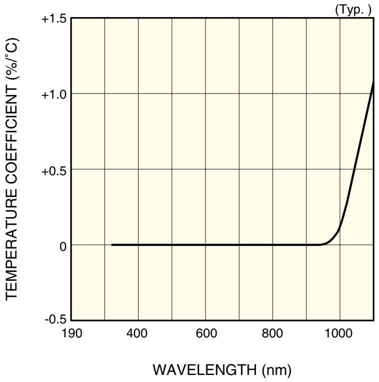
■ Photo sensitivity temperature characteristic



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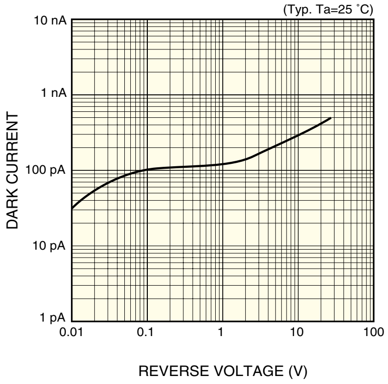
■ Dark current vs. reverse voltage



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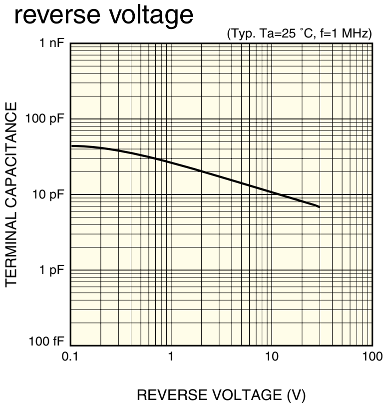
■ Terminal capacitance vs. reverse voltage



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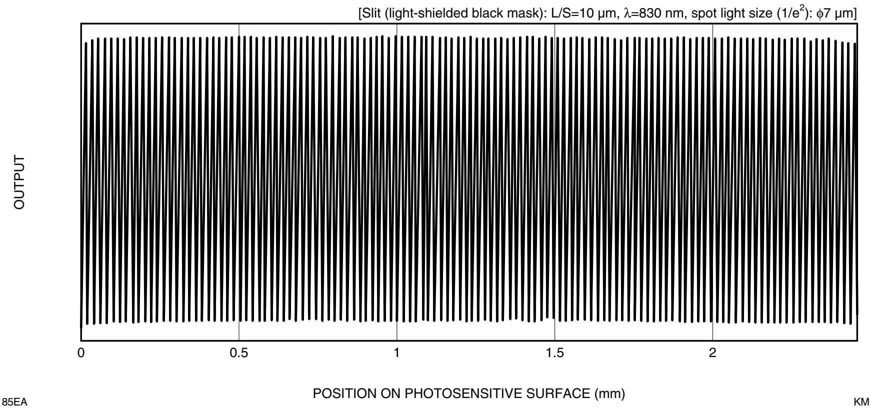
■ Photo sensitivity uniformity



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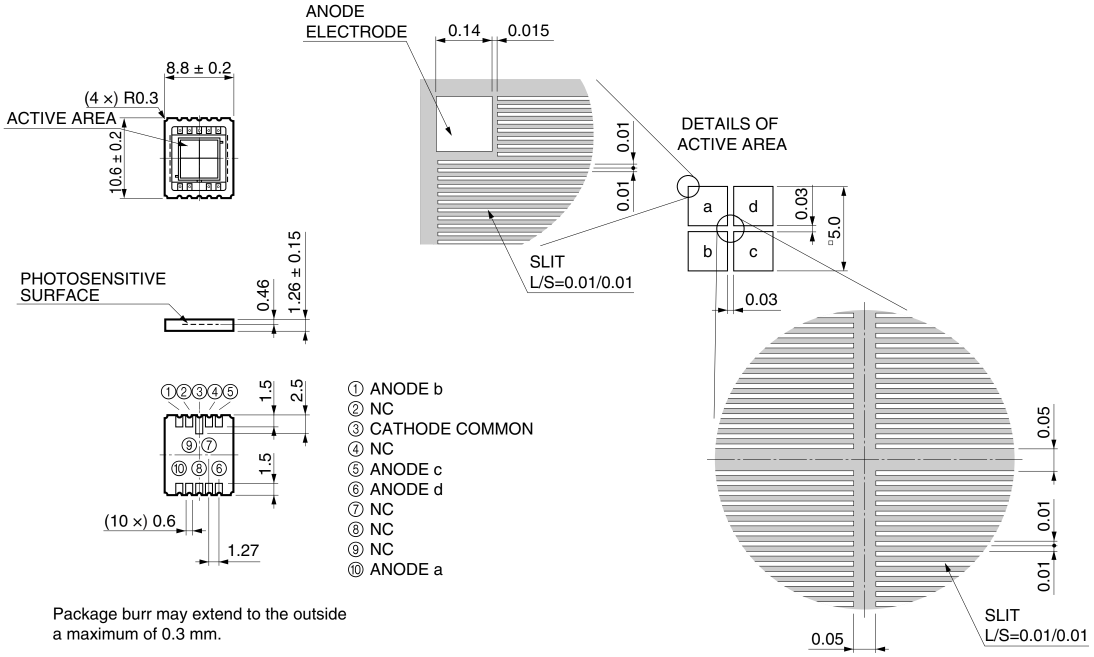
■ Dimensional outline (unit: mm)



Package burr may extend to the outside
a maximum of 0.3 mm.

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