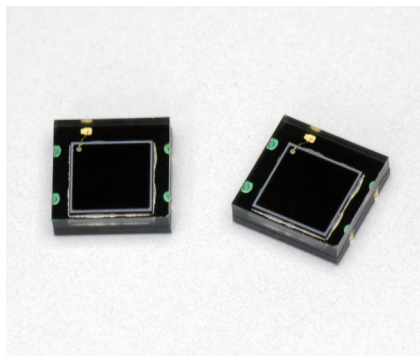


Si PIN photodiode



S12158-01CT

COB type, applicable to lead-free solder reflow

The S12158-01CT is a Si PIN photodiode for visible to near infrared range and is compatible with lead-free solder reflow processes. The small and thin leadless package allows reducing the mount area on a printed circuit board.

Features

- COB type, small and thin leadless package
- Photosensitive area: 2.77 × 2.77 mm
- High sensitivity: 0.7 A/W ($\lambda=960$ nm)

Applications

- FSO (free space optics)
- Optical switches
- Laser radar, etc.

Structure

Parameter	Specification	Unit
Photosensitive area	2.77 × 2.77	mm
Package	Glass epoxy	-
Seal material	Epoxy resin	-

Absolute maximum ratings

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V_R max	$T_a=25$ °C	20	V
Operating temperature	T_{opr}		-25 to +85	°C
Storage temperature	T_{stg}		-40 to +100	°C
Soldering temperature*1	T_{sol}		260 (twice)	°C

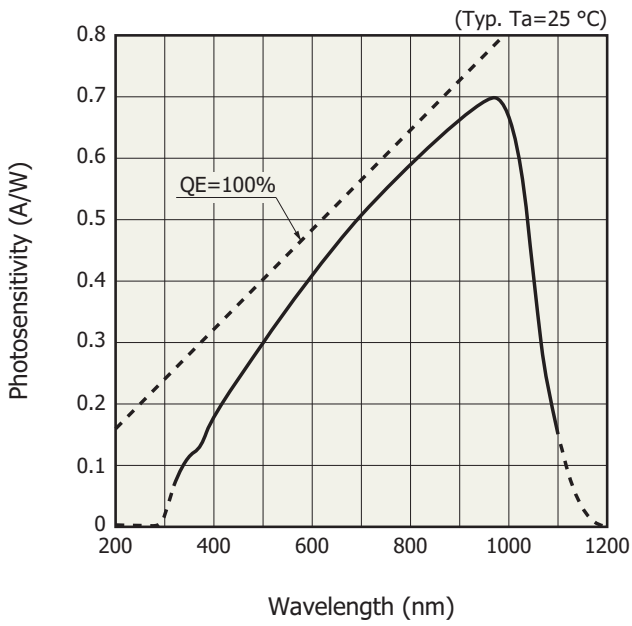
*1: Reflow soldering, JEDEC J-STD-020 MSL 4, see P.5

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.

Electrical and optical characteristics ($T_a=25$ °C)

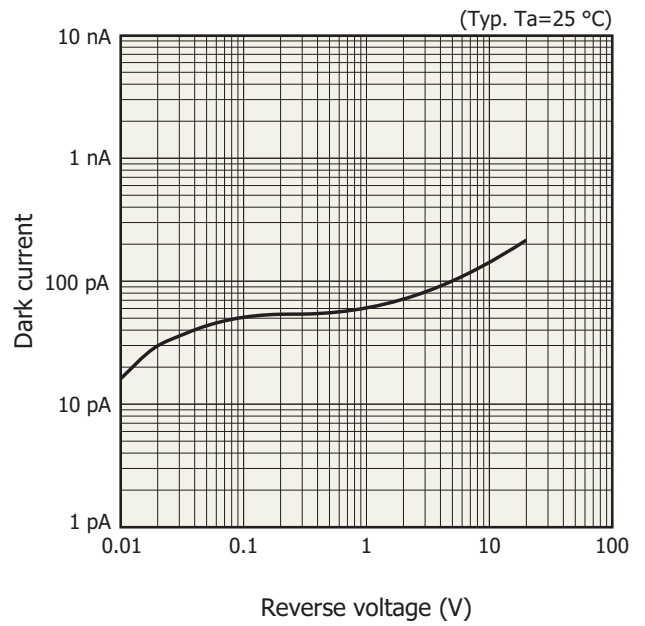
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	0.6	0.7	-	A/W
Dark current	I_D	$V_R=12$ V	-	0.1	10	nA
Temperature coefficient of I_D	T_{CID}	$V_R=12$ V	-	1.15	-	times/°C
Cutoff frequency	f_c	$V_R=12$ V, $R_L=50$ Ω -3 dB	10	25	-	MHz
Terminal capacitance	C_t	$V_R=12$ V, $f=1$ MHz	-	15	30	pF

Spectral response



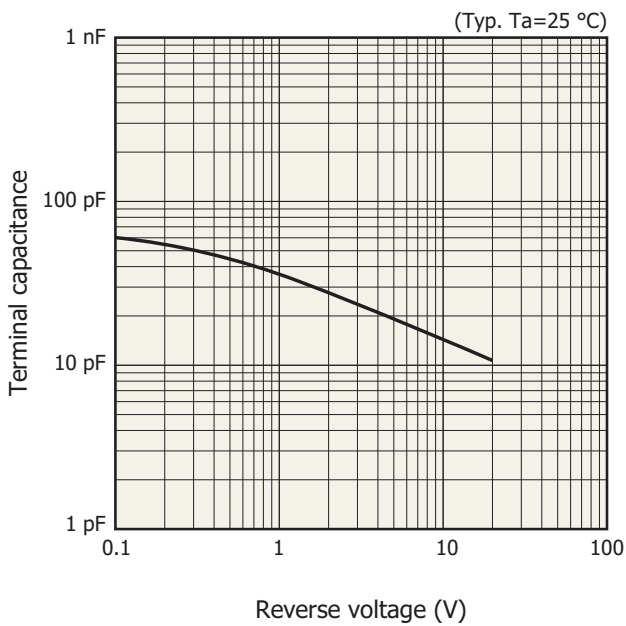
KPINB0380EA

Dark current vs. reverse voltage



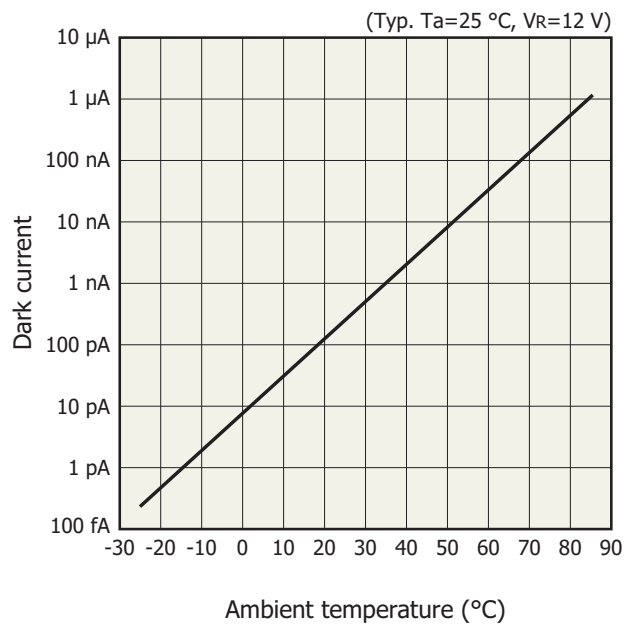
KPINB0381EA

Terminal capacitance vs. reverse voltage



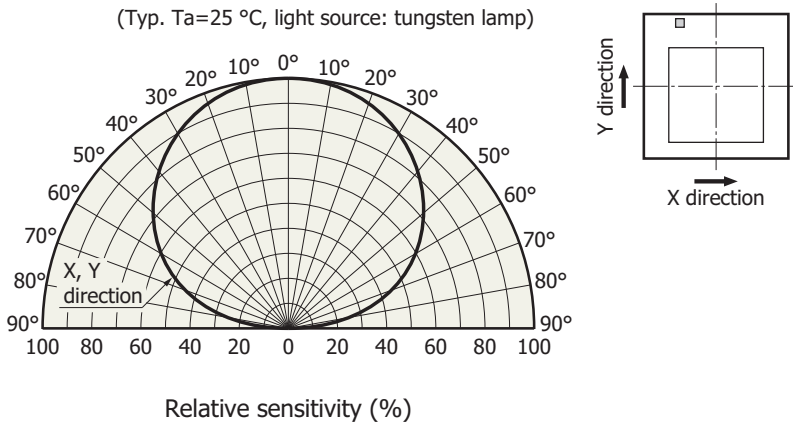
KPINB0382EA

Dark current vs. ambient temperature



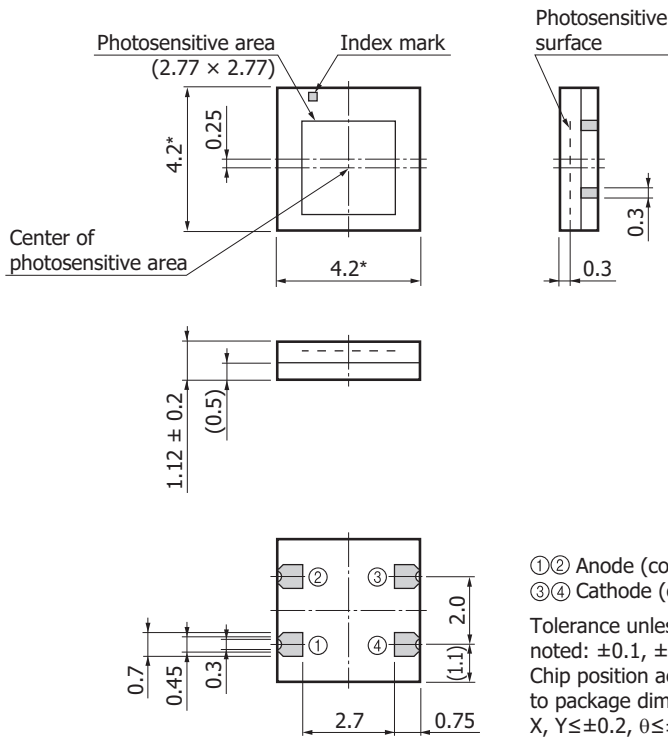
KPINB0384EA

Directivity



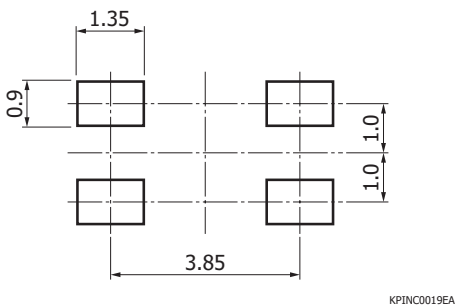
KPINB0383EA

Dimensional outline (unit: mm)



KPINA0113EB

Recommended land pattern (unit: mm)

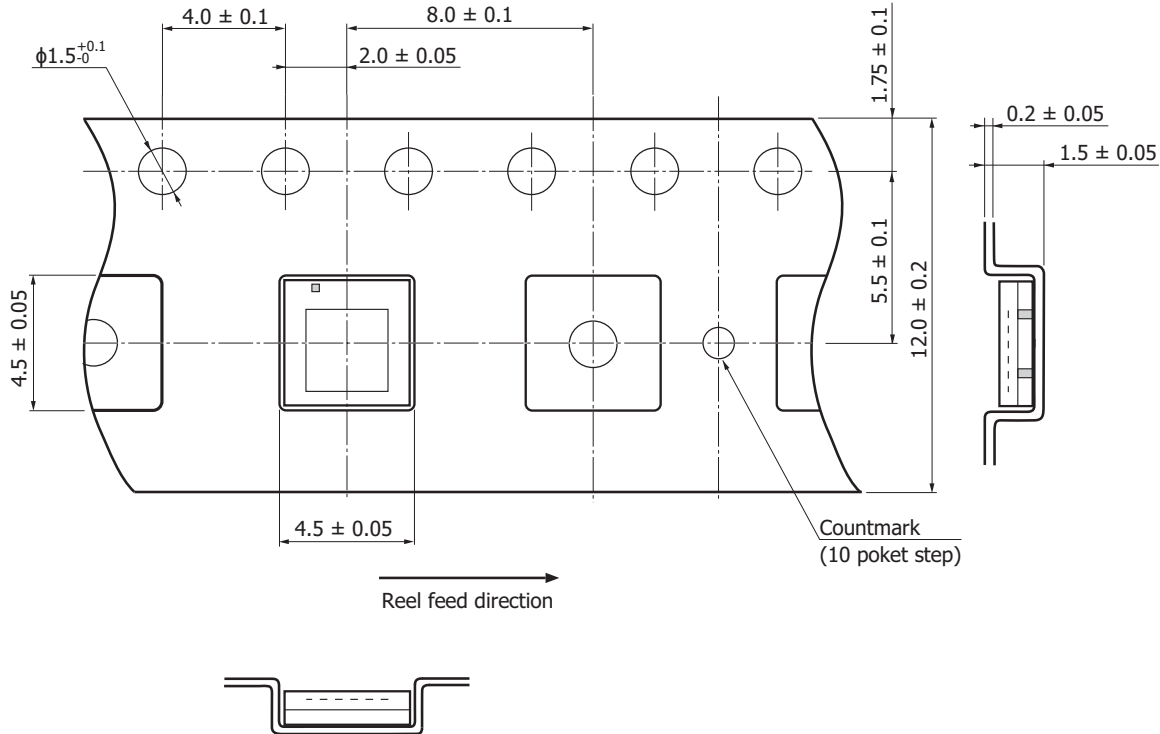


Standard packing specifications

- Reel (conforms to JEITA ET-7200)

Reel outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
254 mm	100 mm	12 mm	PS	Antistatic treatment

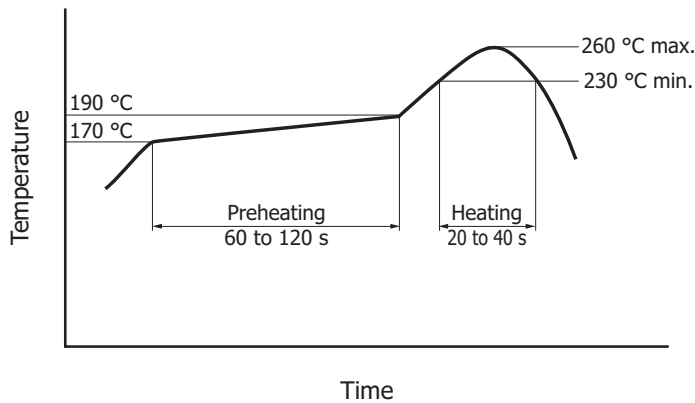
- Embossed tape (unit: mm, material: PC, electrically conductive)



KPINC0020EB

- Packing quantity
2000 pcs/reel
- Packing type
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

Recommended reflow soldering condition (typical example)



KPINB0385EA

- After unpacking, store this device in an environment at a temperature of 5 to 30 °C and a humidity below 60%, and perform reflow soldering on this device within 72 hours.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. Before actual cleaning, check for any problems by testing out the cleaning methods in advance. A sudden temperature rise and cooling may be the cause of trouble, so make sure that the temperature change is within 4 °C per second.

Information described in this material is current as of April 2020.

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.

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