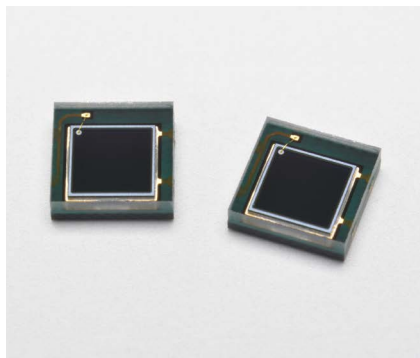


# Si PIN photodiode



S16392-01CT

## COB type, applicable to lead-free solder reflow

The S16392-01CT 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             | Surface mount type glass epoxy | -    |
| Seal material       | Silicone                       | -    |

### Absolute maximum ratings

| Parameter               | Symbol    | Condition             | Value         | Unit |
|-------------------------|-----------|-----------------------|---------------|------|
| Reverse voltage         | $V_R$ max | $T_a=25$ °C           | 20            | V    |
| Operating temperature   | $T_{opr}$ | No dew condensation*1 | -25 to +85    | °C   |
| Storage temperature     | $T_{stg}$ | No dew condensation*1 | -40 to +100   | °C   |
| Soldering temperature*2 | $T_{sol}$ |                       | 260 (2 times) | °C   |

\*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

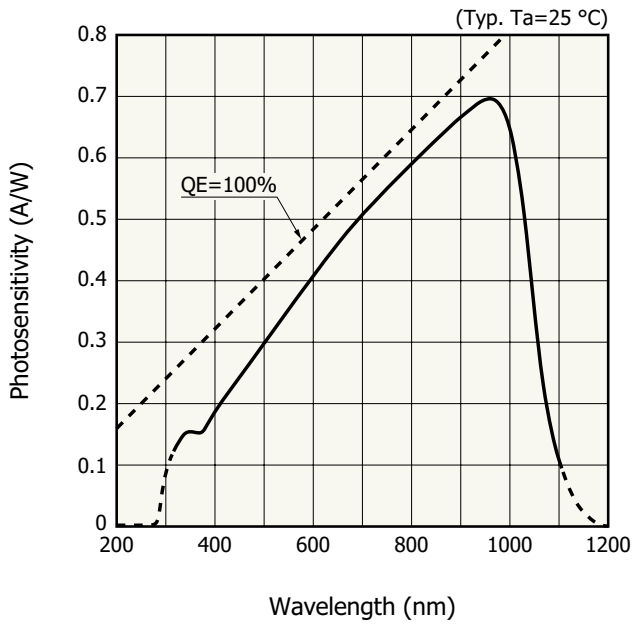
\*2: Reflow soldering, JEDEC J-STD-020 MSL 4, see P.6

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)

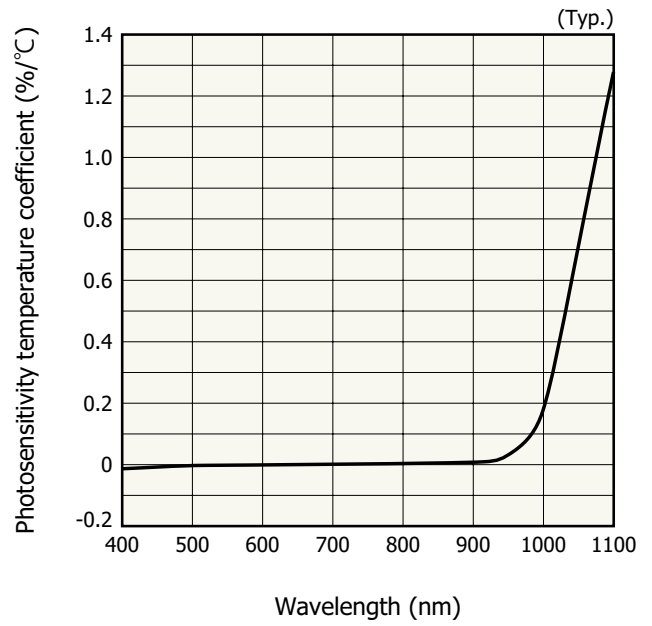
| Parameter                        | Symbol      | Condition  | Min. | Typ.        | Max. | Unit     |
|----------------------------------|-------------|--|------|-------------|------|----------|
| Spectral response range          | $\lambda$   |  | -    | 320 to 1100 | -    | nm       |
| Peak sensitivity wavelength      | $\lambda_p$ |  | -    | 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, $R_L=50$ $\Omega$<br>$\lambda=780$ nm, -3 dB | 10   | 25          | -    | MHz      |
| Terminal capacitance             | $C_t$       | $V_R=12$ V, $f=1$ MHz                                    | -    | 15          | 30   | pF       |

**Spectral response**



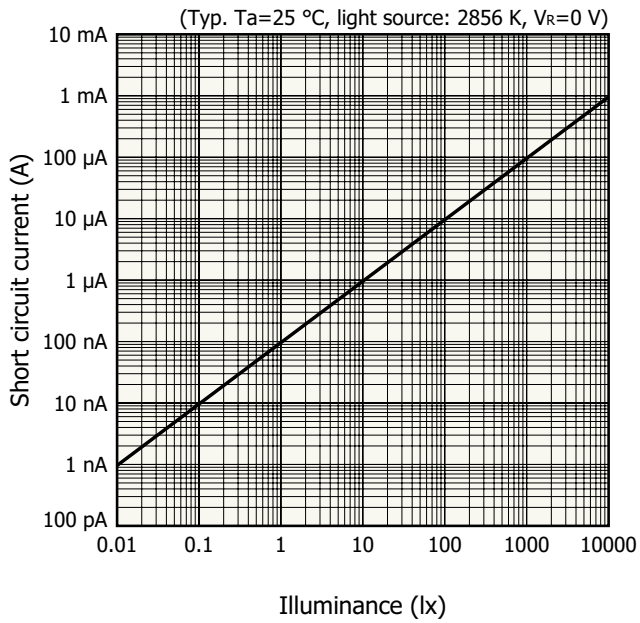
KPINB0461EA

**Photosensitivity temperature characteristics**



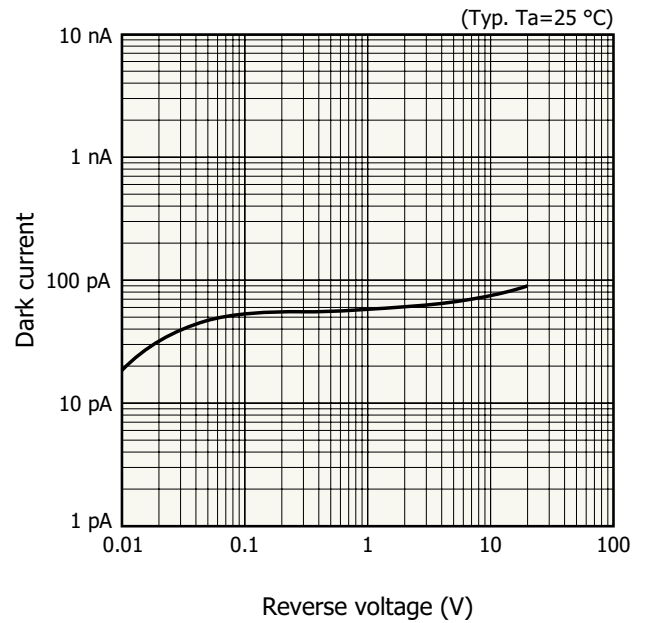
KPINB0466EA

**Linearity**



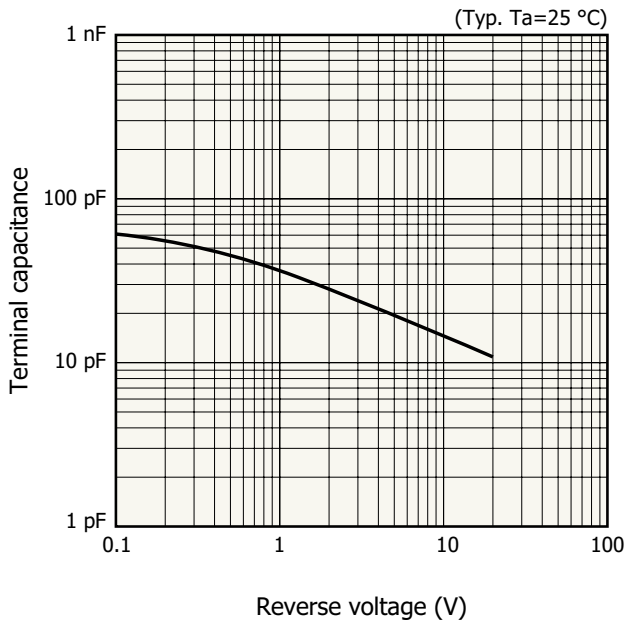
KPINB0467EA

**Dark current vs. reverse voltage**

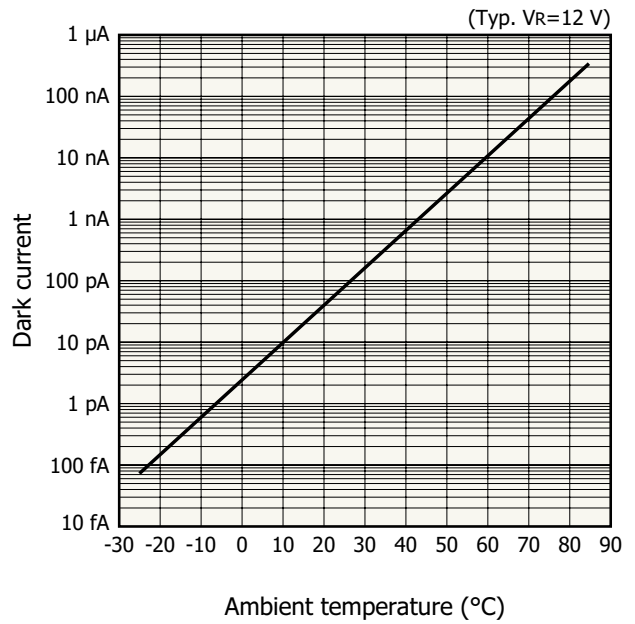


KPINB0462EA

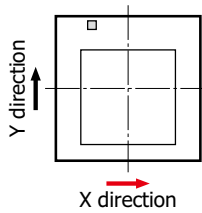
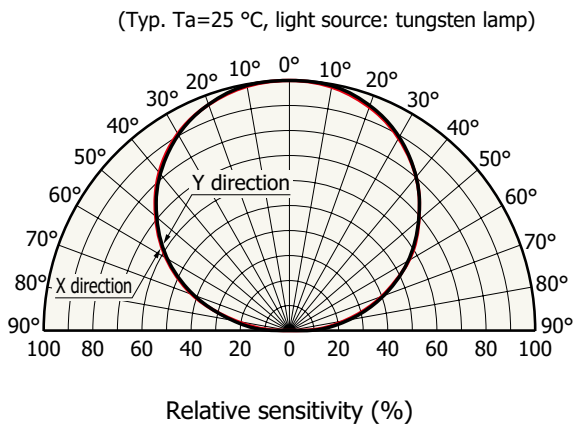
**Terminal capacitance vs. reverse voltage**



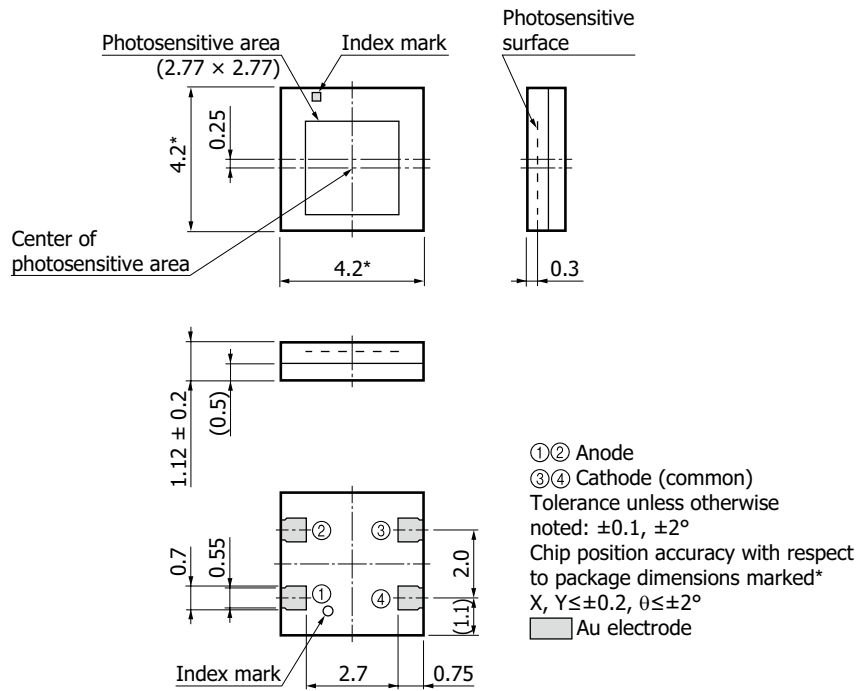
**Dark current vs. ambient temperature**



**Directivity**

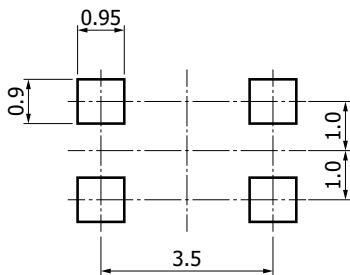


### Dimensional outline (unit: mm)



KPINA0128EA

### Recommended land pattern (unit: mm)



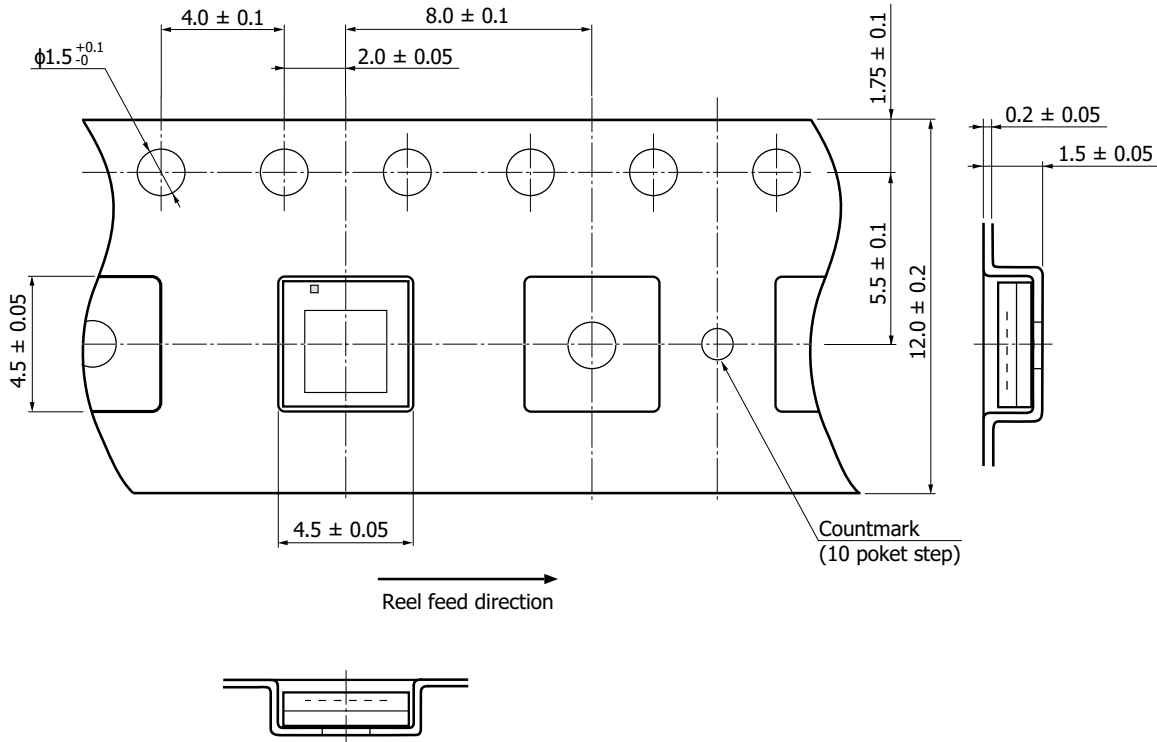
KPINC0042EA

### Standard packing specifications

- Reel (conforms to JEITA ET-7200)

| Reel outer diameter | Hub diameter | Tape width | Material | Electrostatic characteristics |
|---------------------|--------------|------------|----------|-------------------------------|
| 254 mm              | 80 mm        | 12 mm      | PS       | Conductive                    |

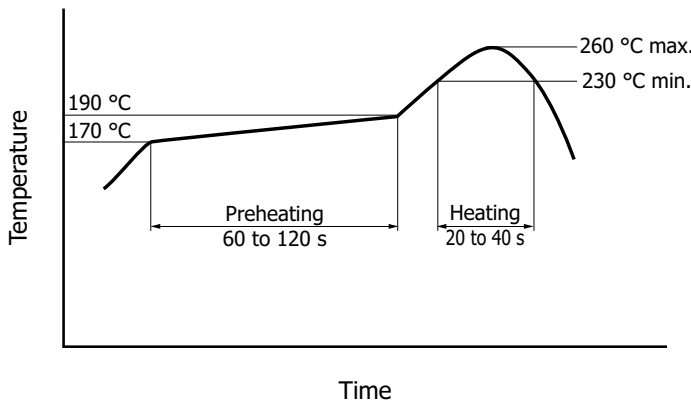
- Embossed tape (unit: mm, material: PC, electrically conductive)



KPINC0043EA

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

### Recommended reflow soldering conditions (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 February 2023.

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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