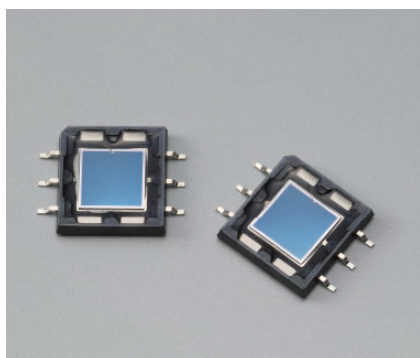


Si PIN photodiode

S7478



Large photosensitive area (5 × 5 mm) photo-sensor with high reliability

The S7478 is a PIN photodiode having a large photosensitive area (5 × 5 mm) and surface mount flat package with leads.

Features

- Surface mount plastic package: 9 × 9.6 × 1.5^t mm
- Large photosensitive area: 5 × 5 mm
- Operating temperature range: -40 to +85 °C
Storage temperature range: -40 to +100 °C
- High sensitivity: 0.72 A/W ($\lambda=960$ nm)

Applications

- Automobile sensor
(Vehicle and traffic information system, laser radar, front window frost sensor, rain sensor)
- FSO (free space optics)

Structure

Parameter	Specification	Unit
Photosensitive area	5 × 5	mm
Package	Plastic	-
Window material	Silicone resin	-

Absolute maximum ratings

Parameter	Symbol	Condition	Specification	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
Reflow soldering conditions	T _{sol} *1		Peak temperature 240 °C max., two times (see page 4)	-

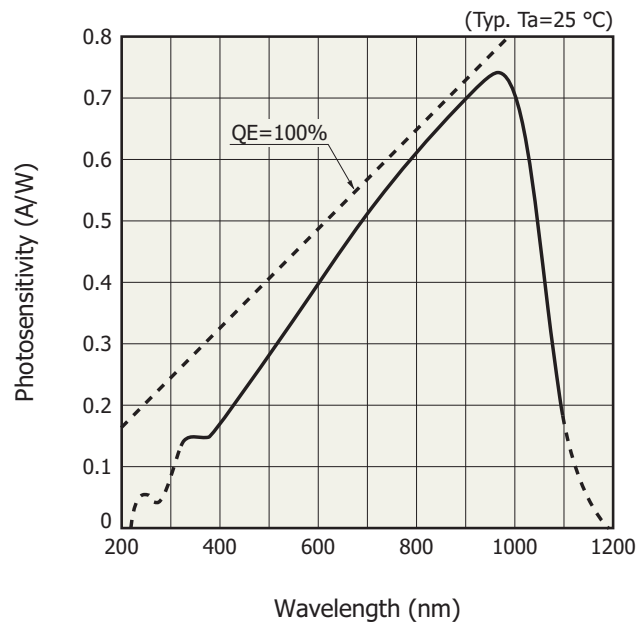
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

*1: JEDEC level 5a

Electrical and optical characteristics (T_a=25 °C)

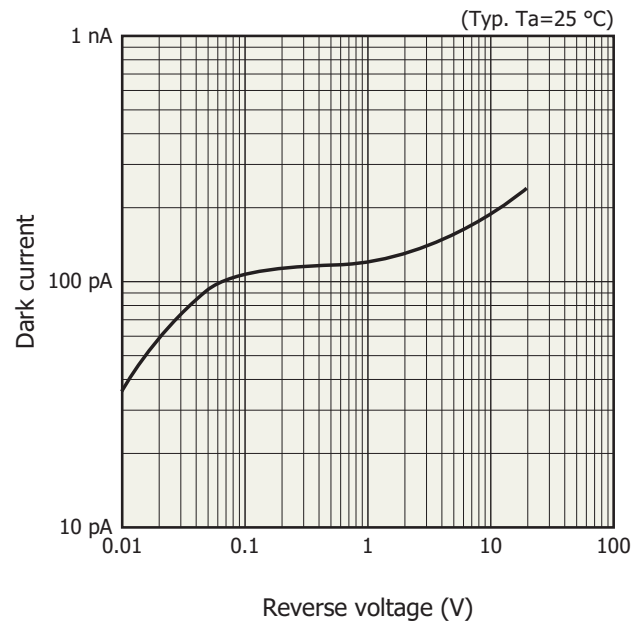
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		-	960	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	0.6	0.72	-	A/W
Short circuit current	I _{sc}	100 lx, 2856 K	-	26	-	μA
Dark current	I _D	V _R =10 V	-	0.4	5	nA
Temperature coefficient of I _D	T _{CI_D}		-	1.14	-	times/°C
Cutoff frequency	f _c	V _R =10 V, R _L =50 Ω -3 dB, $\lambda=780$ nm	10	20	-	MHz
Terminal capacitance	C _t	V _R =10 V, f=1 MHz	-	40	60	pF

Spectral response



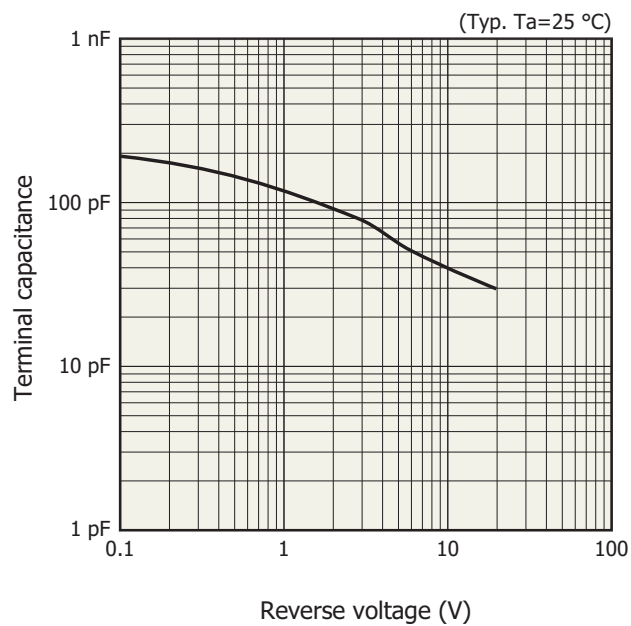
KPINB0190EB

Dark current vs. reverse voltage



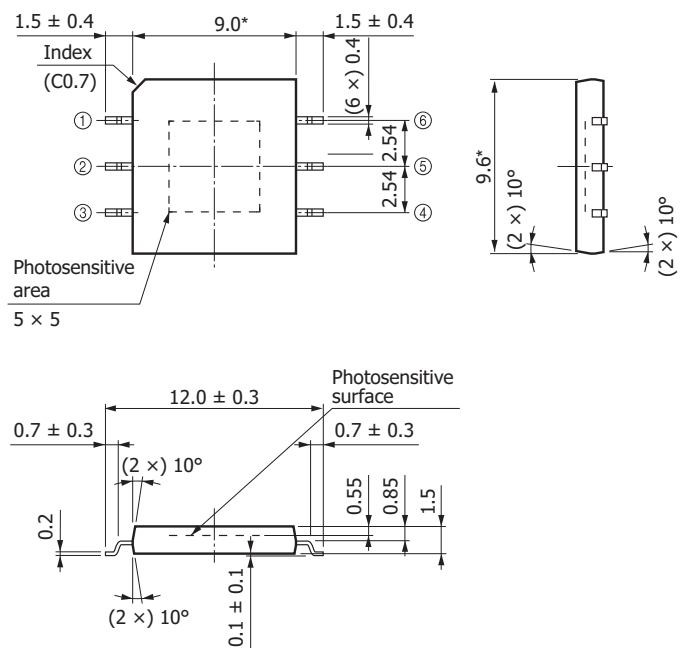
KPINB0191EA

Terminal capacitance vs. reverse voltage



KPINB0192EA

Dimensional outline (unit: mm)

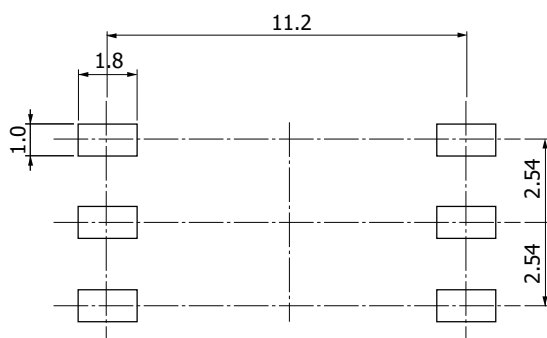


- ① Anode
- ② Cathode
- ③ NC
- ④ NC
- ⑤ Cathode
- ⑥ NC

Tolerance unless otherwise noted: ± 0.1
 Chip position accuracy with respect to
 the package dimensions marked *:
 $X, Y \leq \pm 0.2, \theta \leq \pm 2^\circ$

KPINA0062EA

 Recommended land pattern (unit: mm)



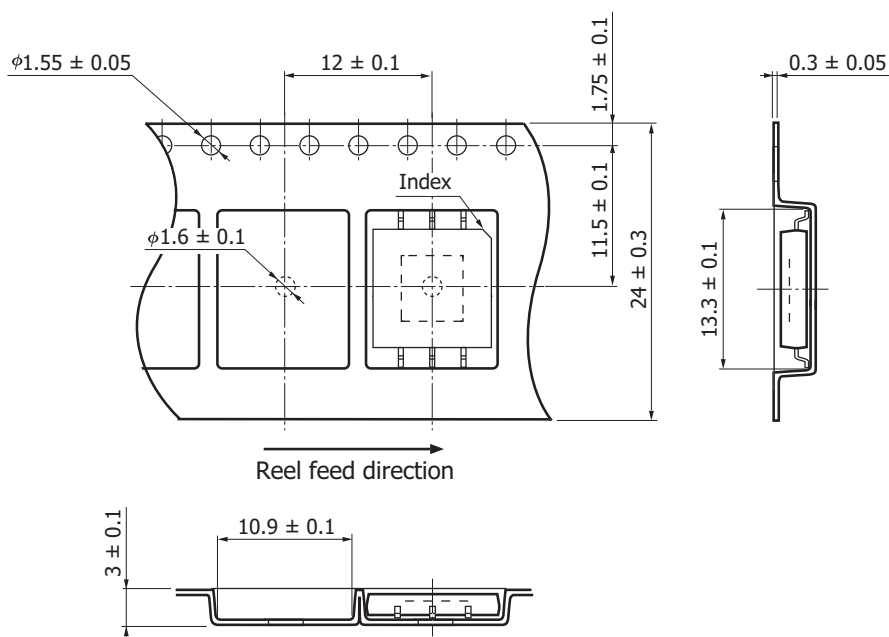
KPINC0018EA

Standard packing specifications

- Reel (conforms to JEITA ET-7200)

Dimensions	Tape width	Material	Electrostatic characteristics
254 mm	24 mm	PS	Conductive

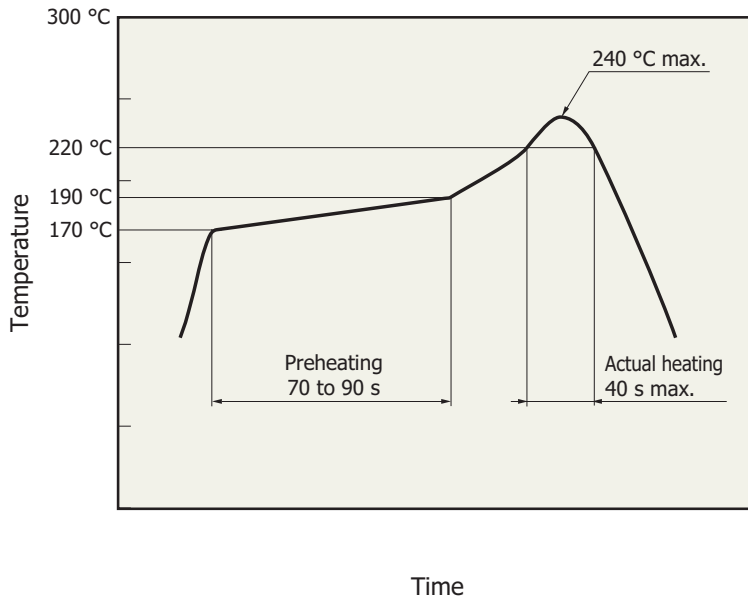
- Embossed tape (unit: mm, material: PS, conductive)



KPINC0025EA

- Packing quantity
1000 pcs/reel
- Packing type
Reel and desiccant in moisture-proof packaging (vacuum-sealed)

Measured example of temperature profile with hot-air reflow oven for product testing



KPICB0164EC

- This product supports lead-free soldering. After unpacking, store it in an environment at a temperature of 30 °C or less and a humidity of 60% or less, and perform soldering within 24 hours.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. Before actual reflow soldering, check for any problems by testing out the reflow soldering methods in advance.

Related information

■ Precautions

- Disclaimer
- Metal, ceramic, Plastic Package products
- Surface mount type products

Information described in this material is current as of February, 2015.

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.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.

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HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, N.J. 08807, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 8152-375-0, Fax: (49) 8152-265-8

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trappu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39) 02-93581733, Fax: (39) 02-93581741

China: Hamamatsu Photonics (China) Co., Ltd.: B1201, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866