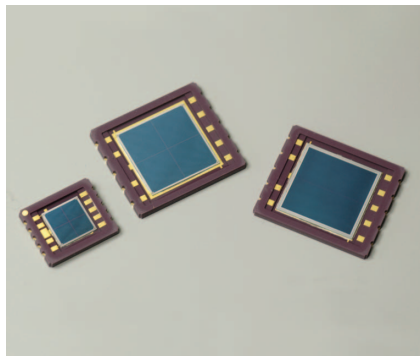


Si PIN photodiodes

S5980, S5981, S5870



Multi-element photodiodes for surface mounting

Features

- Large photosensitive area
S5980: 5 × 5 mm
S5981: 10 × 10 mm
S5870: 10 × 10 mm
- Chip carrier package suitable for surface mounting
Facilitates automated surface mounting by solder reflow
- Thin package: 1.26 mm
- Photosensitivity: 0.72 A/W ($\lambda=960$ nm)

Applications

- Laser beam axis alignment
- Level meters
- Pointing devices, etc.

Structure

Parameter	Symbol	S5980	S5981	S5870	Unit
Window material	-	Resin coating			-
Gap between elements	-	30			μm
Photosensitive area	A	$\square 5.0/4$ elements	$\square 10.0/4$ elements	$\square 10.0/2$ elements	mm

Absolute maximum ratings

Parameter	Symbol	S5980	S5981	S5870	Unit
Reverse voltage	V_R max	30			V
Operating temperature	T_{opr}	-40 to +100			$^{\circ}\text{C}$
Storage temperature	T_{stg}	-40 to +125			$^{\circ}\text{C}$

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 ($T_a=25^{\circ}\text{C}$, per one element)

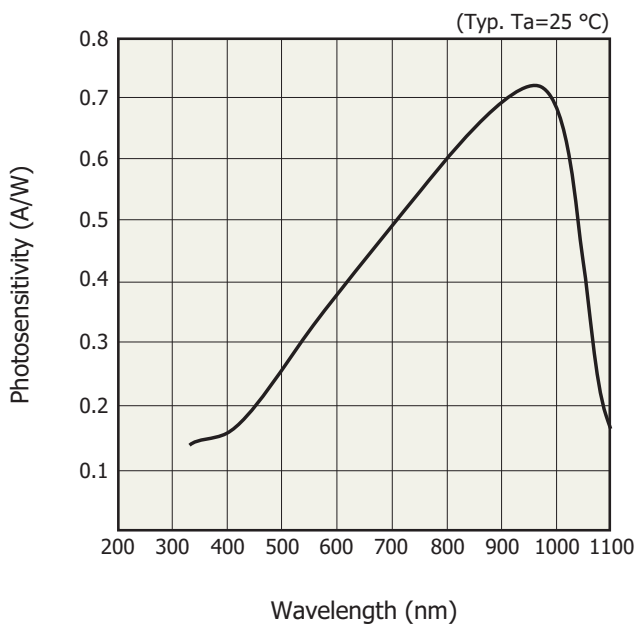
Parameter	Symbol	Condition	S5980		S5981		S5870		Unit
			Typ.	Max.	Typ.	Max.	Typ.	Max.	
Spectral response range	λ		320 to 1100	-	320 to 1100	-	320 to 1100	-	nm
Peak sensitivity wavelength	λ_p		960	-	960	-	960	-	nm
Photosensitivity	S	$\lambda=\lambda_p$	0.72	-	0.72	-	0.72	-	A/W
Dark current	I_D	$V_R=10$ V	0.3	2	0.6	4	2	10	nA
Temperature coefficient of I_D	T_{CID}		1.15	-	1.15	-	1.15	-	times/ $^{\circ}\text{C}$
Cutoff frequency	f_c	$V_R=10$ V, $R_L=50$ Ω , -3 dB	25	-	20	-	10	-	MHz
Terminal capacitance	C_t	$V_R=10$ V, $f=1$ MHz	10	-	35	-	50	-	pF
Noise equivalent power	NEP	$V_R=10$ V, $\lambda=\lambda_p$	1.4×10^{-14}	-	1.9×10^{-14}	-	3.5×10^{-14}	-	W/Hz ^{1/2}

Note: S5980: For mass production, order unit is 100 pieces.
S5981, S5870: For mass production, order unit is 50 pieces.

Precautions

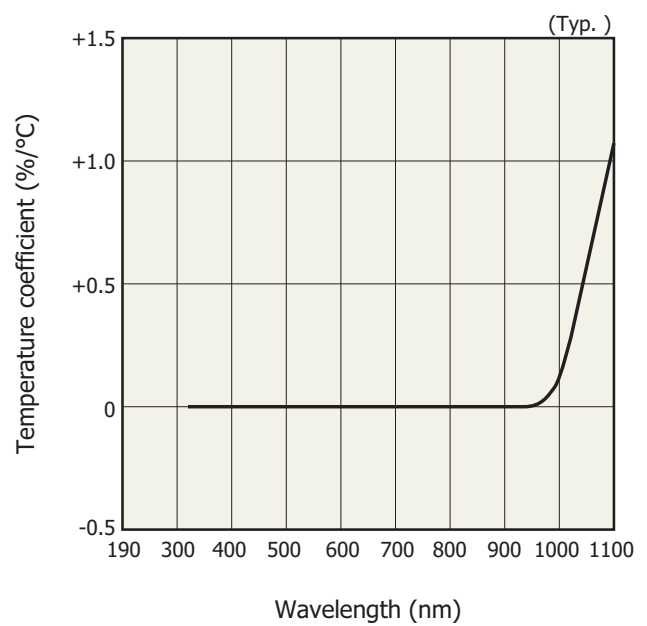
- The light input window of this product uses soft silicone resin. Avoid touching the window to keep it from grime and damage that can decrease sensitivity. External force applied to the resin surface may deform or cut off the wires, so do not touch the window to prevent such troubles.
- Use rosin flux when soldering, to prevent the terminal lead corrosion. Reflow oven temperature should be at 260 °C maximum for 5 seconds maximum time under the conditions that no moisture absorption occurs. Reflow soldering conditions differ depending on the type of PC board and reflow oven. Carefully check these conditions before use.
- Silicone resin swells when it absorbs organic solvent, so do not use any solvent other than alcohol.
- Avoid unpacking until you actually use this product to prevent the terminals from oxidation and dust deposits or the coated resin from absorbing moisture.
When the product is stored for 3 months while not unpacked or 24 hours have elapsed after unpacking, perform baking in nitrogen atmosphere at 150 °C for 3 to 5 hours or at 120 °C for 12 to 15 hours before use.

Spectral response



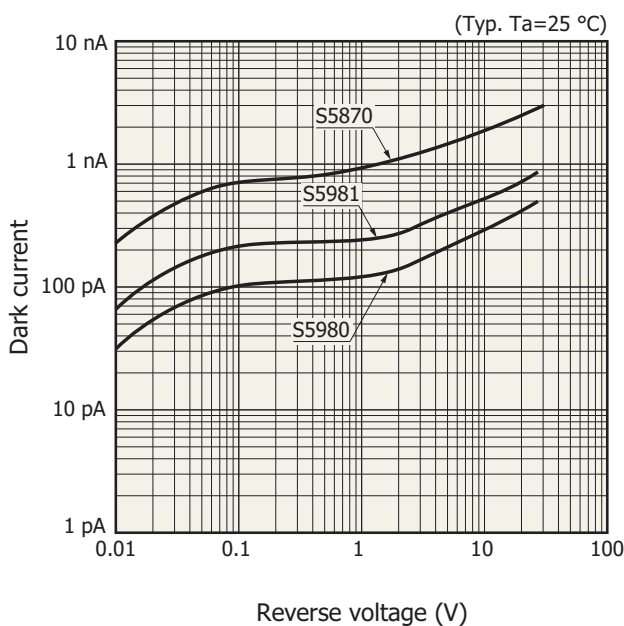
KMPDB0122EB

Photosensitivity temperature characteristics



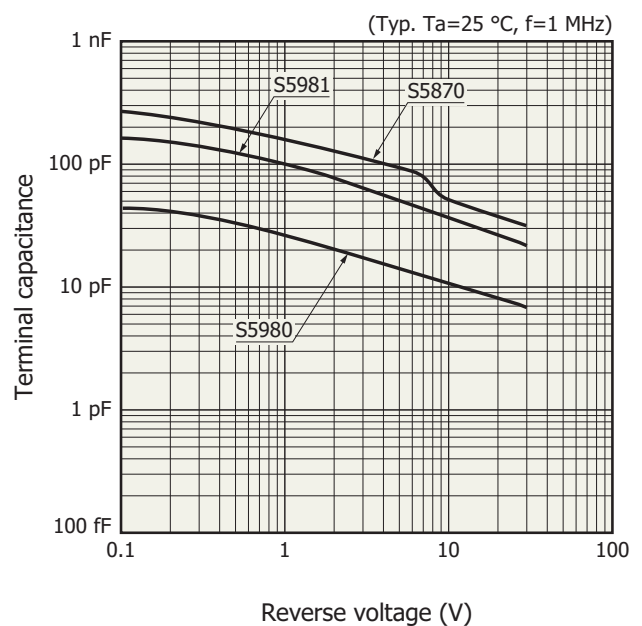
KMPDB0123EB

Dark current vs. reverse voltage



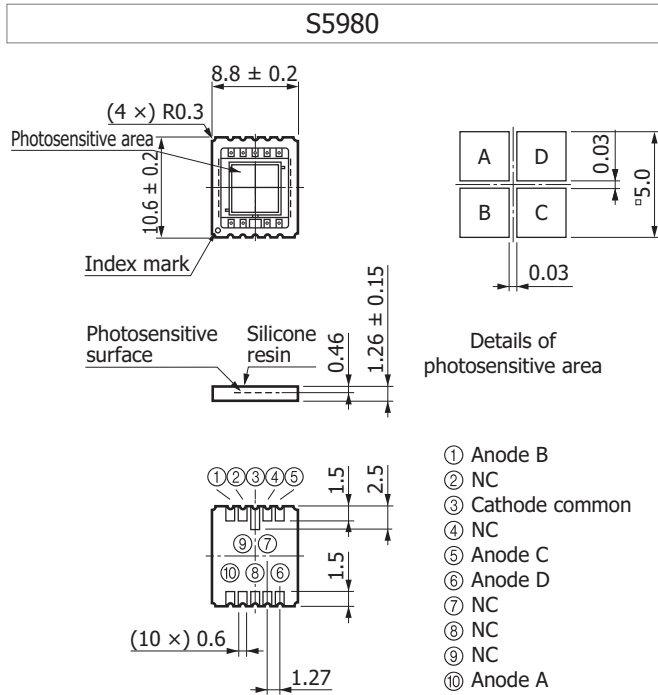
KMPDB0124EB

Terminal capacitance vs. reverse voltage



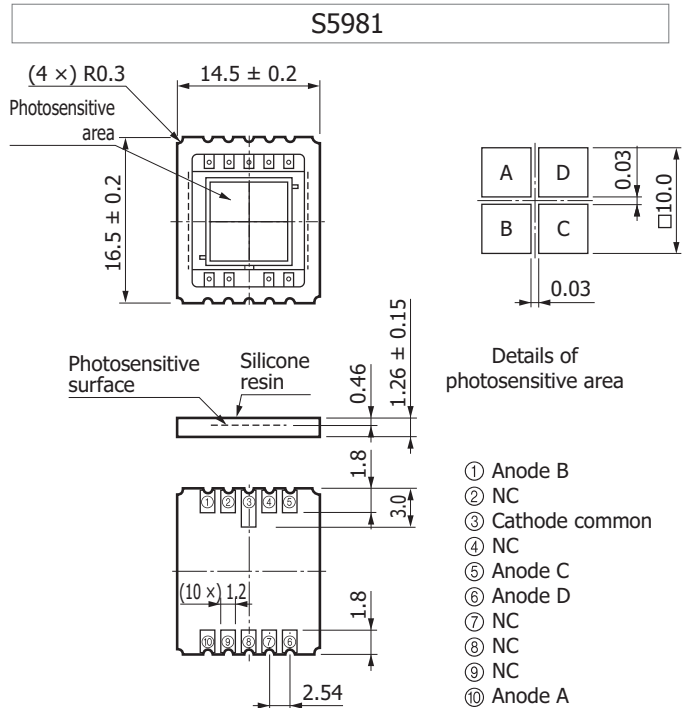
KMPDB0125EB

Dimensional outlines (unit: mm)



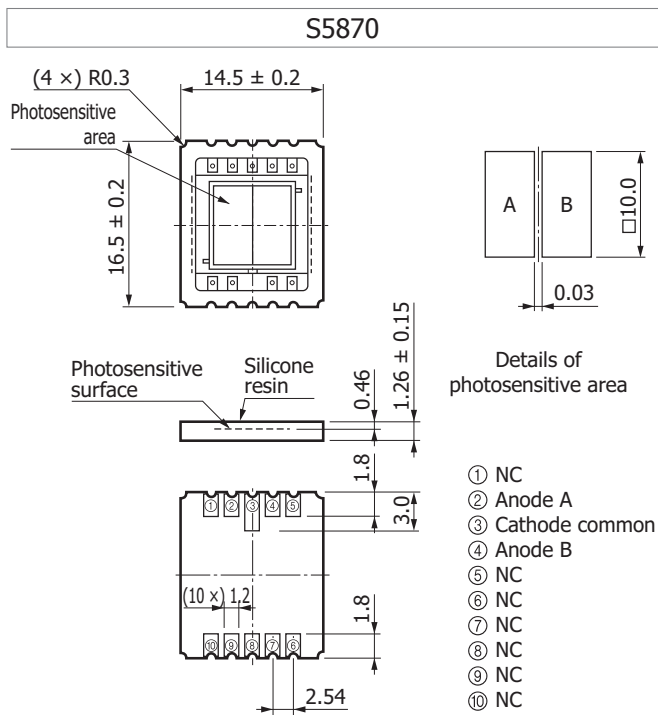
Burrs shall protrude no more than 0.3 mm on any side of package.

KMPDA0036EC



Burrs shall protrude no more than 0.3 mm on any side of package.

KMPDA0037EB



Burrs shall protrude no more than 0.3 mm on any side of package.

KMPDA0113EB

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Surface mount type products

■ Technical information

- Si photodiodes / Application circuit examples

Information described in this material is current as of October 2017.

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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, E-mail: usa@hamamatsu.com

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

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

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, E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01, E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41, E-mail: info@hamamatsu.it

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, E-mail: hpc@hamamatsu.com.cn

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No. 158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)03-659-0080, Fax: (886)03-659-0081, E-mail: info@tw.hpj.co.jp