

Si PIN photodiode for UV to near infrared region

The S13337-01 is a surface mount type Si PIN photodiode in a ceramic package with glass. This achieves high-speed response in the UV to near infrared region.

Features

Applications

- High-speed response
- Surface mount type, compact, chip carrier package
- Compatible with lead-free reflow soldering
- LD monitor

Optical measurement equipment

Structure

Parameter	Specification	Unit
Photosensitive area	φ0.8	mm
Package	Ceramic	-
Window material	Borosilicate glass	-

- Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	Vr		20	V
Operating temperature	Topr	No dew condensation*1	-25 to +85	°C
Storage temperature	Tstg	No dew condensation*1	-40 to +100	°C
Soldering temperature	Tsol		240 (3 times)*2	°C

*1: When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product surface may cause deterioration in characteristics and reliability. *2: Reflow soldering, JEDEC J-STD-020 MSL 2, see P.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.

Electrical and optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit
Spectral response range	λ		-	320 to 1000	-	nm
Peak sensitivity wavelength	λр		-	800	-	nm
Photosensitivity	S	λ=λp	500	570	-	mA/W
Dark current	Id	VR=10 V	-	3	500	pА
Temperature coefficient of ID	Icid		-	1.15	-	times/°C
Cutoff frequency	fc	VR=10 V, RL=50 Ω λ=830 nm, -3 dB	-	500	-	MHz
Terminal capacitance	Ct	VR=10 V, f=1 MHz	-	3	-	pF
Noise equivalent power	NEP	VR=10 V, λ=λp	-	3.1 × 10 ⁻¹⁵	-	W/Hz ^{1/2}

Spectral response





KPINB0454EA





Terminal capacitance vs. reverse voltage



Photosensitivity temperature characteristics



KPINB0455EA





Dimensional outline (unit: mm)





Tolerance unless otherwise noted: ± 0.1 Chip position accuracy with respect to package center $-0.2 \le X \le +0.2$ $-0.2 \le Y \le +0.2$

KPINA0127EA

MAMATS5U

PHOTON IS OUR BUSINESS

Recommended land pattern (unit: mm)



3



Recommended reflow soldering conditions



 \cdot The effect that the product receives during reflow soldering varies depending on the circuit board and the reflow oven that are used. When you set reflow soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

KSPDB0400FB

Related information

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

- Precautions
- Disclaimer
- Surface mount type products
- Technical note
- · Si photodiodes

Information described in this material is current as of March 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.

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. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.



www.hamamatsu.com

Optical Semiconductor Sales, HAMAMATSU PHOTONICS K.K.

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

1126-1 Ichino-cho, Chuo-ku, Hamamatsu City, Shizuoka Pret, 435-8558 Japan, Telephone: (81)53-434-3311, Fax: (81)53-434-5184 U.S.A: HAMAMATSU CRPORATION: 360 Foothill Road, Bridgewater, NI 08807, U.S.A, Telephone: (1908-231-966, Fax: (1908-231-1218) Gemany: HAMAMATSU DENORATION: 360 Foothill Road, Bridgewater, NI 08807, U.S.A, Telephone: (1908-231-966, Fax: (1908-231-1218) France: HAMAMATSU PHOTONICS DEUTSCHLAND GMBH: Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de France: HAMAMATSU PHOTONICS MELL: 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 71 100, Fax: (31) 69 53 71 00, Fax: (31) 69 53 71 00, Fax: (32) 69 53 71 60, Fax: (32) 69 53 71 61, Fax: (36) 10, 65 58 6606, Fax: (36) 10, 65 59 6080, Fax: (36) 10, 65 59