

S2281 series

Si photodiodes with BNC connector



The S2281 series is a Si photodiode sealed in a metal package with a BNC connector. This configuration allows easy connection to Hamamatsu C9329-01 photosensor amplifier (The S2281-01 has a large terminal capacitance which may cause a gain peaking to occur when the C9329-01 is used with the gain set to the "M" range.). Two different spectral response characteristics are provided and the large photosensitive area makes the S2281 series well suited for optical power meters. Hamamatsu also provides the E2573 BNC-BNC coaxial cable (length: 1 m) as an option.

Features

- Metal package with BNC connector
- High sensitivity
- High reliability

Applications

- Analytical instruments
- Optical measurement equipment

Structure

Parameter	S2281	S2281-01	S2281-04	Unit
Photosensitive area size	φ11.3	φ11.3	φ7.98	mm
Photosensitive area	100	100	50	mm ²
Package	Metal package with BNC connector			-
Window material	Quartz glass			-

Absolute maximum ratings

Parameter	Symbol	S2281	S2281-01	S2281-04	Unit
Reverse voltage	V _R max	5			V
Operating temperature*	T _{opr}	-10 to +60			°C
Storage temperature*	T _{stg}	-20 to +70			°C

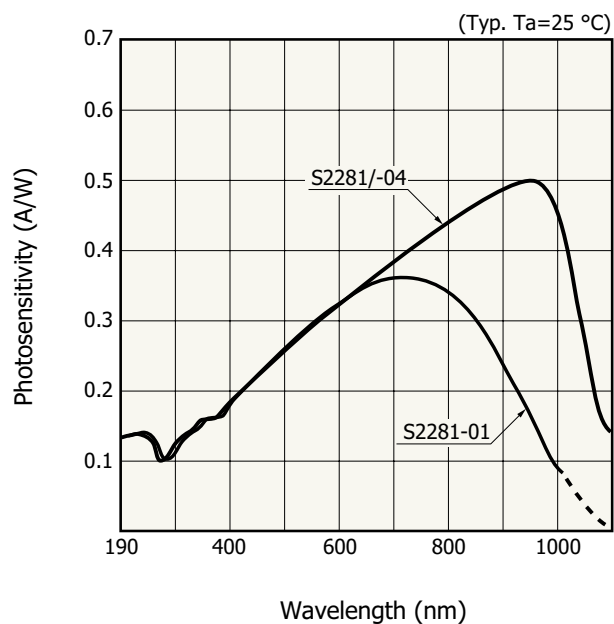
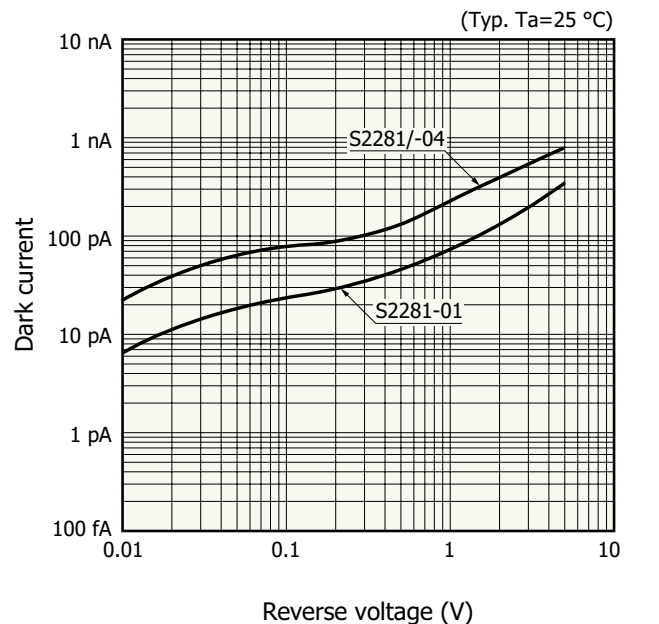
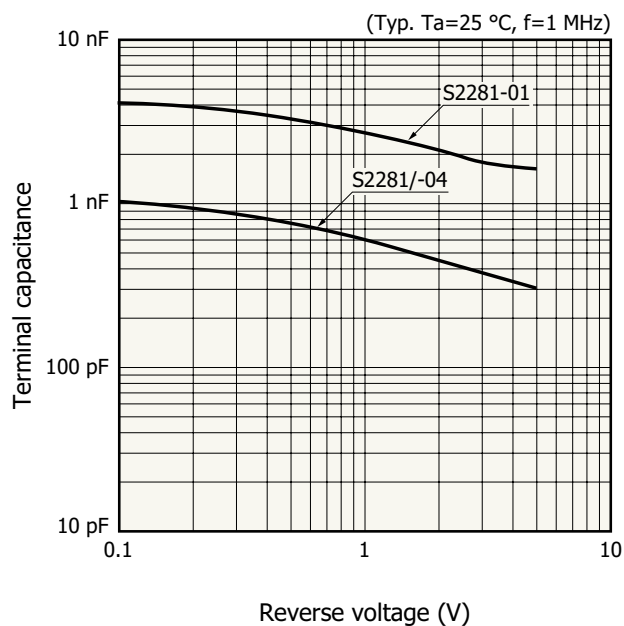
* No dew condensation.

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 may cause deterioration in characteristics and reliability.

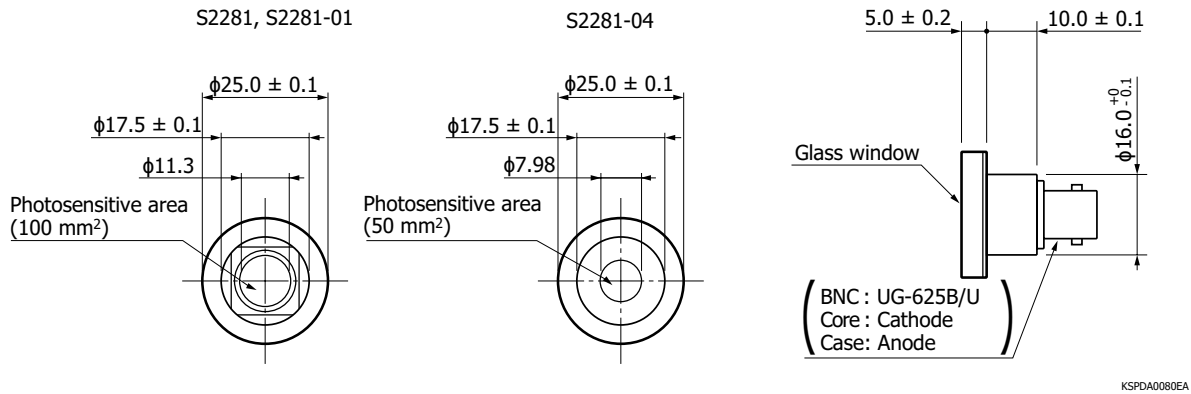
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (T_a=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	S2281			S2281-01			S2281-04			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	190 to 1100	-	-	190 to 1000	-	-	190 to 1100	-	nm
Peak sensitivity wavelength	λ _p		-	960	-	-	720	-	-	960	-	nm
Photosensitivity	S	λ=200 nm	0.10	0.12	-	0.10	0.12	-	0.10	0.12	-	A/W
		λ=λ _p	-	0.5	-	-	0.36	-	-	0.5	-	
Short circuit current	I _{sc}	100 lx	64	80	-	32	40	-	32	40	-	μA
Dark current	I _D	V _R =10 mV	-	50	500	-	6	300	-	50	500	pA
Shunt resistance	R _{sh}	V _R =10 mV	20	200	-	30	1700	-	20	200	-	MΩ
Rise time	t _r	V _R =0 V R _L =1 kΩ	-	3	-	-	7	-	-	3	-	μs
Terminal capacitance	C _t	V _R =0 V f=10 kHz	-	1300	-	-	3200	-	-	1300	-	pF
Noise equivalent power	NEP	V _R =0 V, λ=λ _p	-	1.8 × 10 ⁻¹⁴	-	-	8.6 × 10 ⁻¹⁵	-	-	1.8 × 10 ⁻¹⁴	-	W/Hz ^{1/2}

Spectral response**Dark current vs. reverse voltage****Terminal capacitance vs. reverse voltage**

Dimensional outlines (unit: mm)



Precautions against UV light exposure

- When UV light irradiation is applied, the product characteristics may degrade. Such examples include degradation of the product's UV sensitivity and increase in dark current. This phenomenon varies depending on the irradiation level, irradiation intensity, usage time, and ambient environment and also varies depending on the product model. Before employing the product, we recommend that you check the tolerance under the ultraviolet light environment that the product will be used in.
- Exposure to UV light may cause the characteristics to degrade due to gas released from the resin bonding the product's component materials. As such, we recommend that you avoid applying UV light directly on the resin and apply it on only the inside of the photosensitive area by using an aperture or the like.

Related information

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

■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

■ Technical note

- Si photodiodes

Information described in this material is current as of March, 2025.

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.

HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Chuo-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, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218

Germany: 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 FRANCE S.A.R.L.: 19 Rue du Saule Trappu, Parc du Moulin de Massy, 91862 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, UK, 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 20044 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.: 1201, Tower B, Jiaming Center, 27 Dongsanhuan Bellu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 13F-1, No.101, Section 2, Gongdao 5th Road, East Dist., Hsinchu City, 300046, Taiwan(R.O.C) Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw