

S7686

Photodiode with sensitivity close to spectral luminous efficiency

S7686 is a Si photodiode having a spectral response characteristic that is more similar to the human eye sensitivity (spectral luminous efficiency) than our conventional visible-compensated sensors (S1133, etc.).

Features

- Spectral response analogous to CIE spectral luminous efficiency
Spectral response range: 480 to 660 nm
Peak sensitivity wavelength: 550 nm
- Ceramic package for reliability
- Active area: 2.4 × 2.8 mm
- High-speed response: 0.5 μs (V_R=0 V, R_L=1 kΩ)

Applications

- Illuminometer
- Luminance meter

Absolute maximum ratings (T_a=25 °C)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V _R Max.		10	V
Operating temperature	T _{opr}	No dew condensation*1	-10 to +60	°C
Storage temperature	T _{stg}	No dew condensation*1	-20 to +70	°C

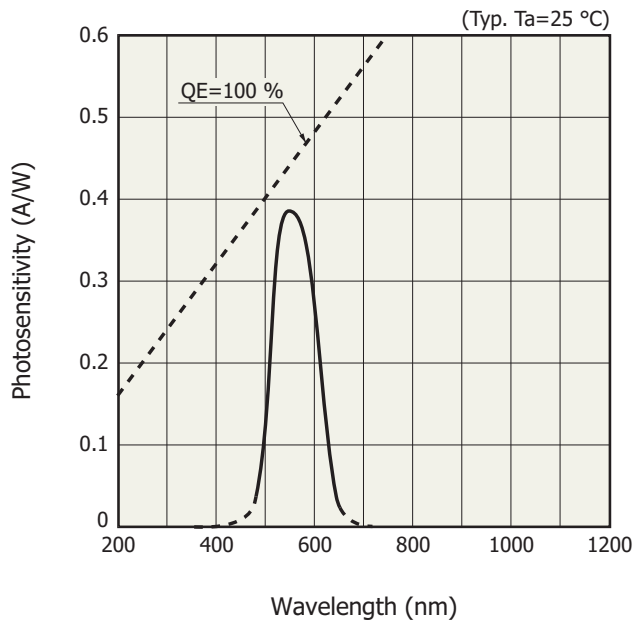
*1: When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

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)

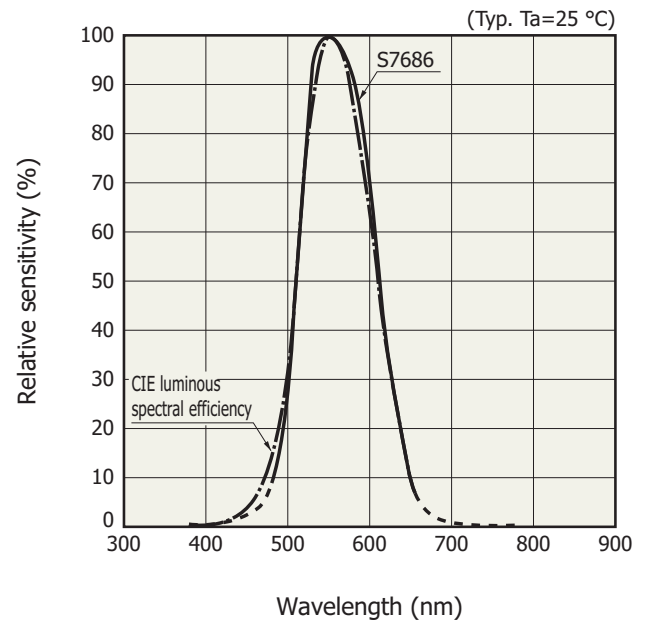
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	480 to 660	-	nm
Peak sensitivity wavelength	λ _p		-	550	-	nm
Photo sensitivity	S	λ=λ _p	-	0.38	-	A/W
Short circuit current	I _{sc}	100 lx, 2856 K	-	0.45	-	μA
Dark current	I _D	V _R =1 V	-	2	20	pA
Rise time	t _r	V _R =0 V, R _L =1 kΩ	-	0.5	-	μs
Terminal capacitance	C _t	V _R =0 V, f=10 kHz	-	200	-	pF

Spectral response



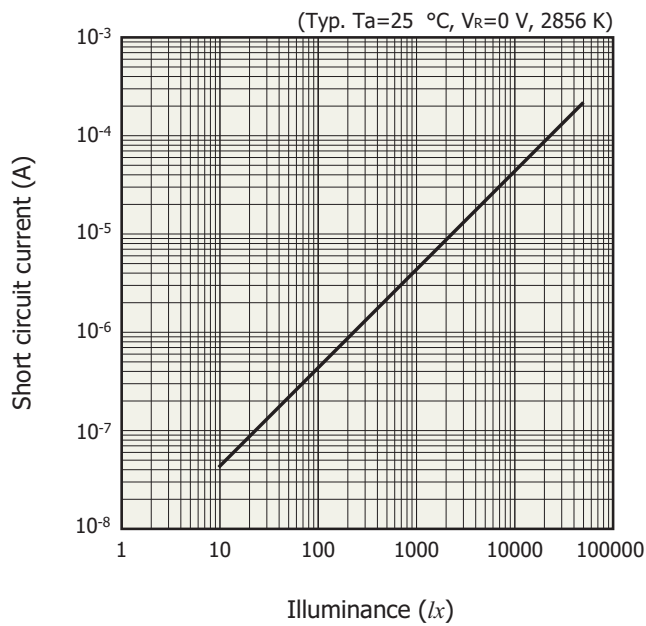
KSPDB0133EC

Spectral response (relative value)



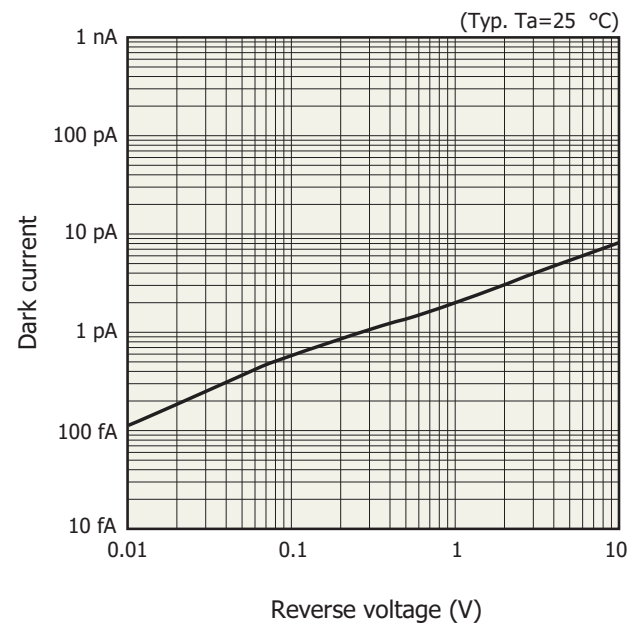
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Linearity



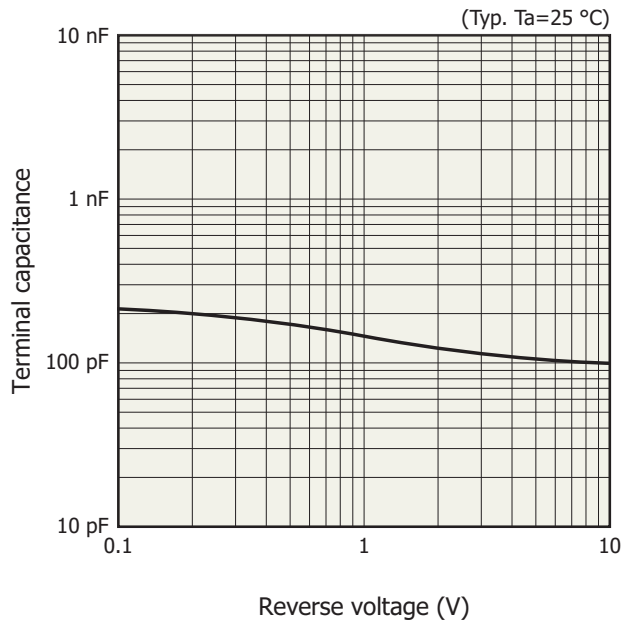
KSPDB0341EA

Dark current vs. reverse voltage



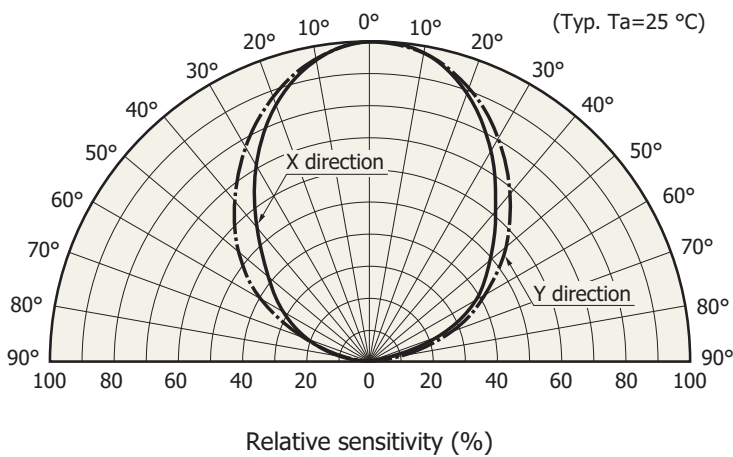
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Terminal capacitance vs. reverse voltage



KSPDB0145EA

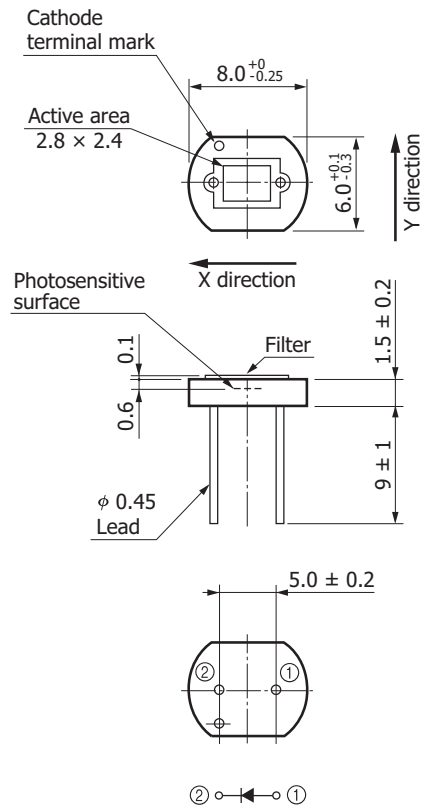
Directivity



KSPDB0339EA

Dimensional outline

(unit: mm, tolerance unless otherwise noted: ±0.15)



KSPDA0089EB

Recommended soldering conditions

Parameter	Specification	Remarks
Solder temperature	260 °C max. (once, less than 5 s)	at least 1.5 mm away from lead roots

Note: When setting the soldering conditions, check for any problems by testing out the soldering methods in advance.

Related information

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

■ Precautions

- Disclaimer
- Metal, ceramic, plastic products / Precautions

■ Technical information

- Si photodiode / Application circuit examples

Information described in this material is current as of November 2020.

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, 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, 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, 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.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, 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.: 8F-3, No. 158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081, E-mail: info@hamamatsu.com.tw