

S1336 series

UV to near IR for precision photometry

These Si photodiodes have sensitivity in the UV to near IR range. They are suitable for low-light-level detection in analysis and the like.

Features

- High sensitivity in UV range
- Low capacitance
- High reliability

Applications

- Analytical instruments
- Optical measurement equipment

Structure / Absolute maximum ratings

| Type no. | Dimensional outline/ Window material*1 | Package | Photosensitive area size (mm) | Absolute maximum ratings | | | |
|--------------|---|---------|----------------------------------|----------------------------------|---------------------------------------|-------------------------------------|-------------|
| | | | | Reverse voltage VR max (V) | Operating temperature Topr (°C) | Storage temperature Tstg (°C) | |
| S1336-18BQ*2 | (1)/Q | TO-18 | 1.1 × 1.1 | 5 | -20 to +60 | -55 to +80 | |
| S1336-18BK | (2)/K | | | | -40 to +100 | -55 to +125 | |
| S1336-5BQ*2 | (3)/Q | TO-5 | 2.4 × 2.4 | | -20 to +60 | -55 to +80 | |
| S1336-5BK | (4)/K | | | | -40 to +100 | -55 to +125 | |
| S1336-44BQ*2 | (5)/Q | | | | 3.6 × 3.6 | -20 to +60 | -55 to +80 |
| S1336-44BK | (6)/K | | | | | -40 to +100 | -55 to +125 |
| S1336-8BQ*2 | (7)/Q | TO-8 | 5.8 × 5.8 | | -20 to +60 | -55 to +80 | |
| S1336-8BK | (8)/K | | | | -40 to +100 | -55 to +125 | |

*1: Window material K=borosilicate glass, Q=quartz glass

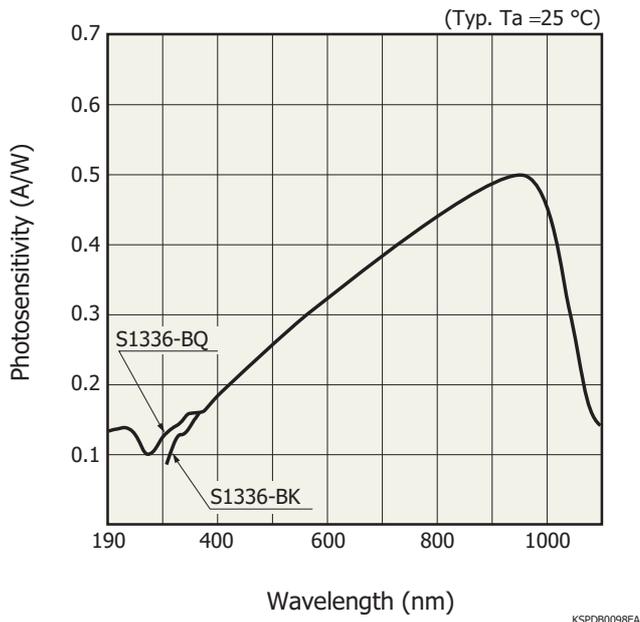
*2: Refer to "Precautions against UV light exposure."

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.

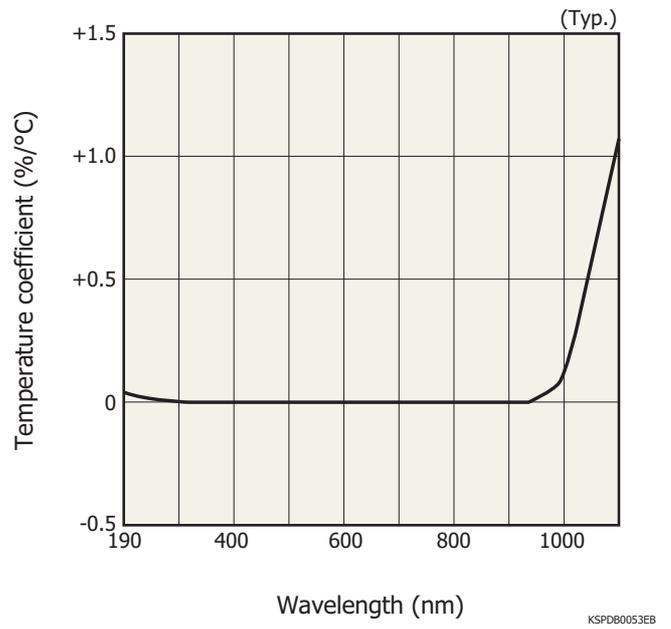
Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

| Type no. | Spectral response range λ (nm) | Peak sensitivity wavelength λ_p (nm) | Photosensitivity S (A/W) | | | Short circuit current Isc 100 lx | Dark current ID VR=10 mV max. (pA) | Temp. coefficient of ID TCID (times/°C) | Rise time tr VR=0 V RL=1 kΩ (μs) | Terminal capacitance Ct VR=0 V f=10 kHz (pF) | Shunt resistance Rsh VR=10 mV | | Noise equivalent power NEP (W/Hz ^{1/2}) | | | | | | |
|------------|--|--|--------------------------|--------|------|--|--|---|--|--|-------------------------------------|-----------|---|-------------------------|-----------|------|-----|-----|-----|
| | | | λ_p | 200 nm | | | | | | | Min. (μA) | Typ. (μA) | | Min. (GΩ) | Typ. (GΩ) | | | | |
| | | | | Min. | Typ. | | | | | | | | | | | | | | |
| S1336-18BQ | 190 to 1100 | 960 | 0.5 | 0.10 | 0.12 | 0.33 | 1 | 1.2 | 20 | 0.1 | 20 | 0.5 | 2 | 5.7 × 10 ⁻¹⁵ | | | | | |
| S1336-18BK | 320 to 1100 | | | | | | | | | | | | | | - | - | 0.9 | 1.0 | |
| S1336-5BQ | 190 to 1100 | | | | | | | | | | | | | | 0.10 | 0.12 | 4 | 5 | 30 |
| S1336-5BK | 320 to 1100 | | | | | | | | | | | | | | - | - | 8 | 10 | 50 |
| S1336-44BQ | 190 to 1100 | | | | | | | | | | | | | | 0.10 | 0.12 | 22 | 28 | 100 |
| S1336-44BK | 320 to 1100 | | | | | | | | | | | | | | - | - | | | |
| S1336-8BQ | 190 to 1100 | | | | | | | | | | | | | | 0.10 | 0.12 | | | |
| S1336-8BK | 320 to 1100 | | | | | | | | | | | | | | - | - | | | |

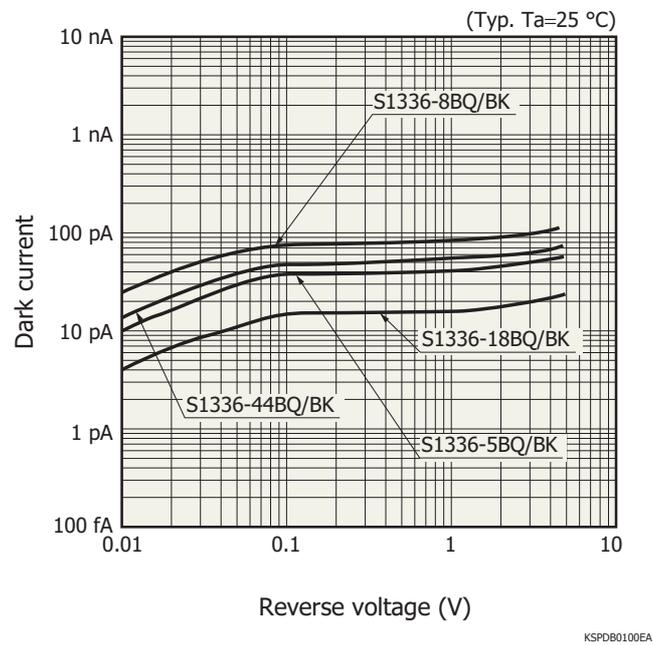
Spectral response



Photosensitivity temperature characteristics

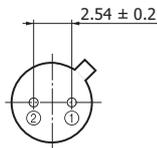
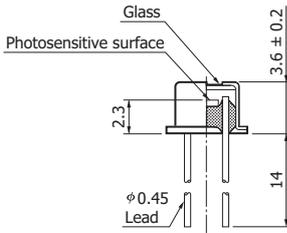
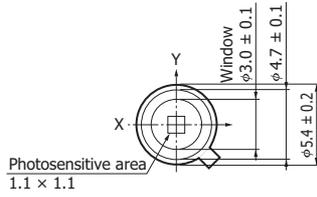


Dark current vs. reverse voltage



Dimensional outlines (unit: mm)

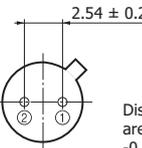
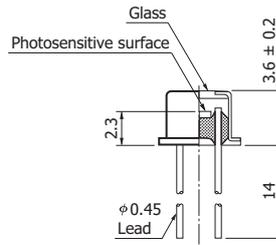
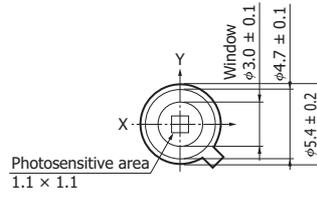
(1) S1336-18BQ



Connected to case
Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$

KSPDA0197EB

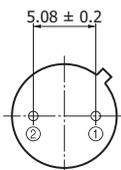
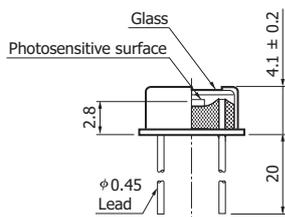
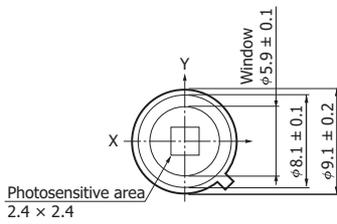
(2) S1336-18BK



Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$
The glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

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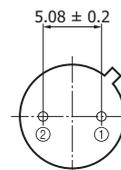
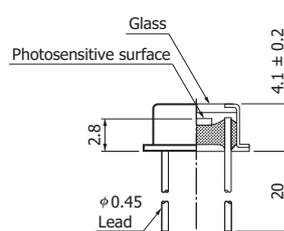
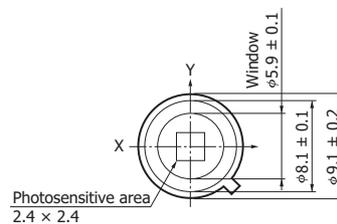
(3) S1336-5BQ



Connected to case
Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$

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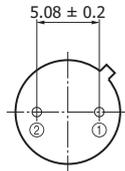
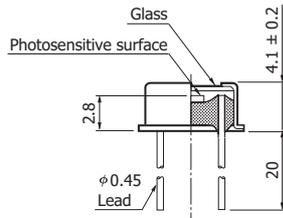
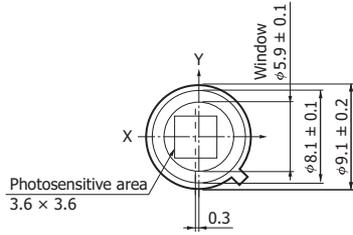
(4) S1336-5BK



Distance from photosensitive area center to cap center
 $-0.3 \leq X \leq +0.3$
 $-0.3 \leq Y \leq +0.3$
The glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

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(5) S1336-44BQ



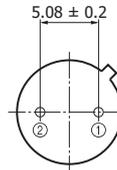
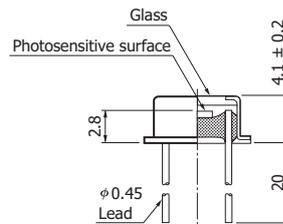
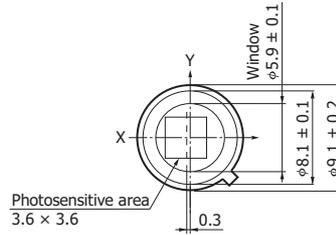
Connected to case



Distance from photosensitive area center to cap center
 $-0.6 \leq X \leq 0$
 $-0.3 \leq Y \leq +0.3$

KSPDA0199EB

(6) S1336-44BK



Connected to case

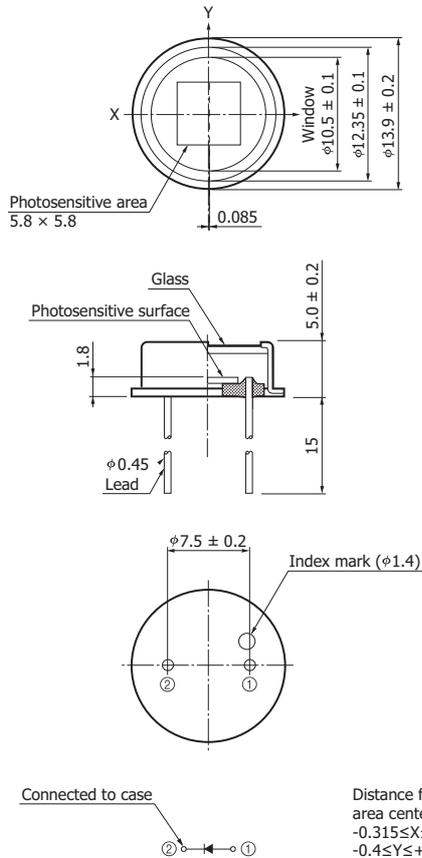


Distance from photosensitive area center to cap center
 $-0.6 \leq X \leq 0$
 $-0.3 \leq Y \leq +0.3$

The glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

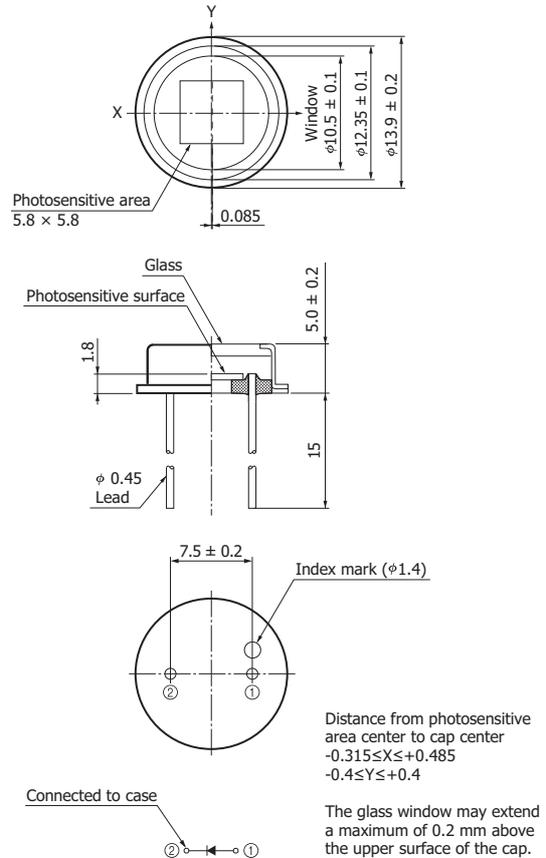
KSPDA0194EC

(7) S1336-8BQ



KSPDA0200EC

(8) S1336-8BK



KSPDA0193EC

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 information

- Si photodiode/Application circuit examples

Information described in this material is current as of October, 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. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

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