

S16839-01MS



## Photodiode with sensitivity close to spectral luminous efficiency

The S16839-01MS is a Si photodiode having a spectral response characteristic that is more similar to the human eye sensitivity (spectral luminous efficiency) than our visible-compensated sensors (S16838-01MS, etc.).

### Features

- Spectral response analogous to CIE spectral luminous efficiency  
Spectral response range: 480 to 660 nm  
Peak sensitivity wavelength: 550 nm
- Premolded package for reliability
- Photosensitive area: 2.4 × 2.8 mm
- High-speed response: 0.5 μs (V<sub>R</sub>=0 V, R<sub>L</sub>=1 kΩ)

### Applications

- Illuminometer
- Luminance meter

### Absolute maximum ratings (T<sub>a</sub>=25 °C)

Parameter	Symbol	Condition	Value	Unit
Reverse voltage	V <sub>R</sub> max		10	V
Operating temperature	T <sub>opr</sub>	No dew condensation*1	-10 to +60	°C
Storage temperature	T <sub>stg</sub>	No dew condensation*1	-20 to +70	°C

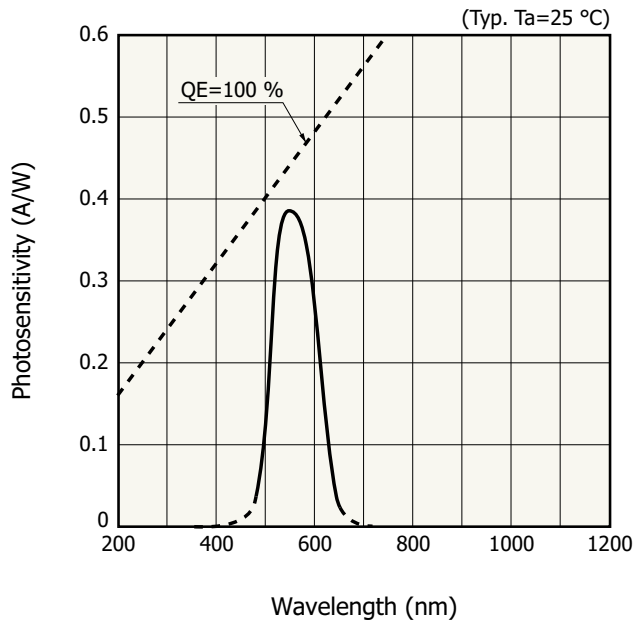
\*1: When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

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<sub>a</sub>=25 °C)

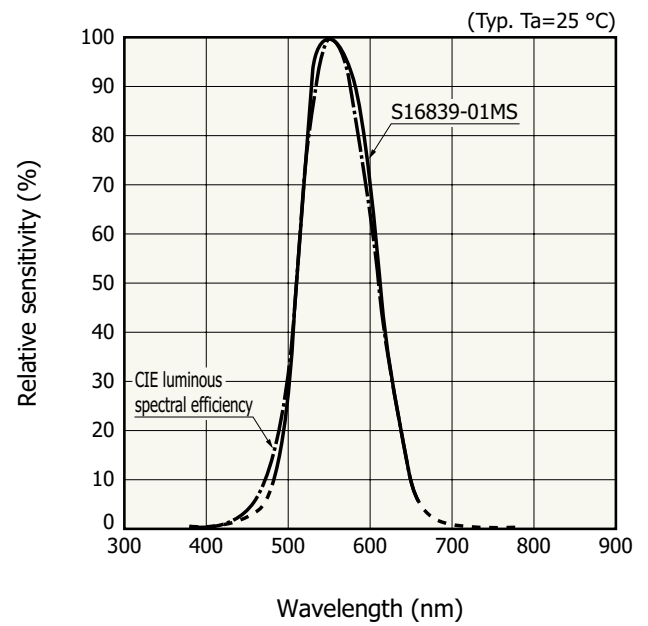
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	480 to 660	-	nm
Peak sensitivity wavelength	λ <sub>p</sub>		-	550	-	nm
Photo sensitivity	S	λ=λ <sub>p</sub>	-	0.38	-	A/W
Short circuit current	I <sub>sc</sub>	100 lx, 2856 K	0.37	0.43	-	μA
Dark current	I <sub>D</sub>	V <sub>R</sub> =1 V	-	2	20	pA
Rise time	t <sub>r</sub>	V <sub>R</sub> =0 V, R <sub>L</sub> =1 kΩ	-	0.5	-	μs
Terminal capacitance	C <sub>t</sub>	V <sub>R</sub> =0 V, f=10 kHz	-	200	-	pF

**Spectral response**



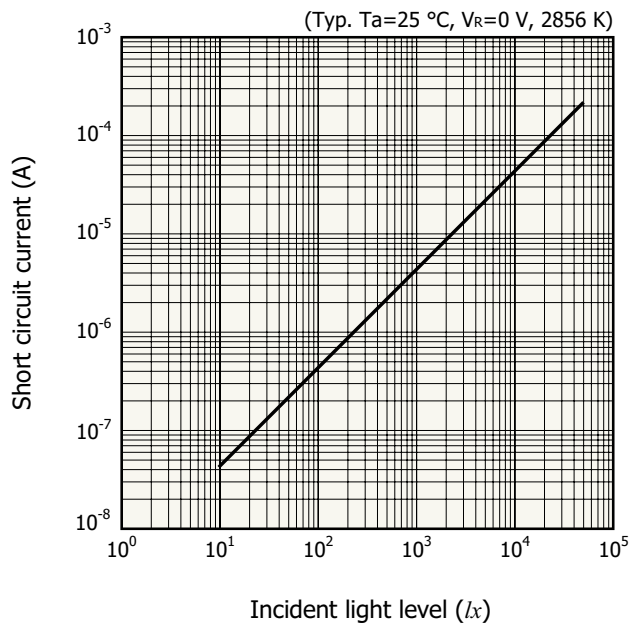
KSPDB0133EC

**Spectral response (relative value)**



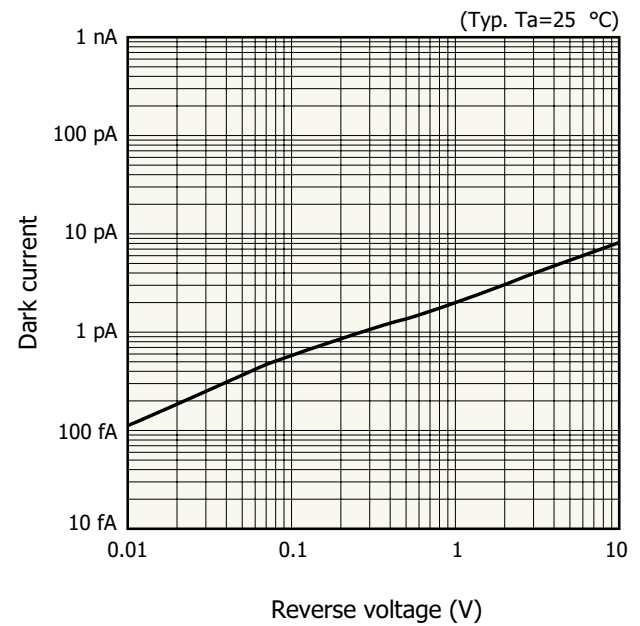
KSPDB0438EA

**Linearity**



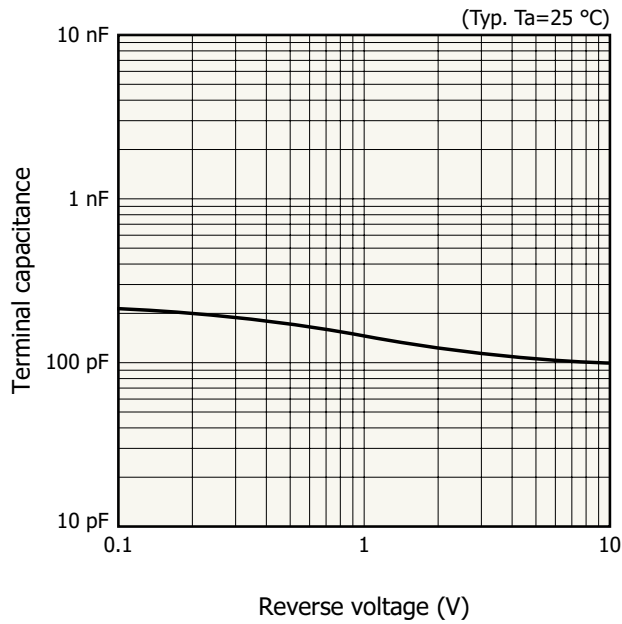
KSPDB0341EA

**Dark current vs. reverse voltage**



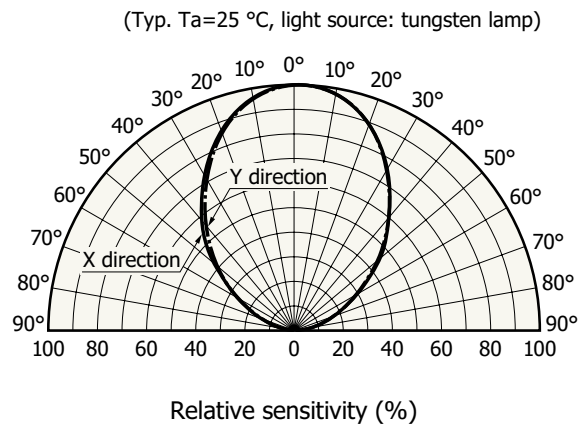
KSPDB0144EA

Terminal capacitance vs. reverse voltage



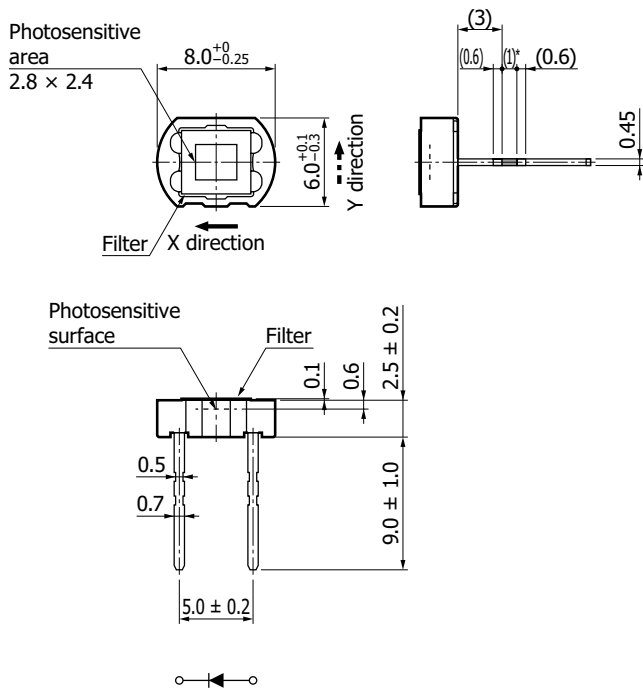
KSPDB0145EA

Directivity



KSPDB0437EA

Dimensional outline (unit: mm)



Tolerance unless otherwise noted:  $\pm 0.15$   
 Values in parentheses indicate reference value.  
 \* Tie-bar cut area (no plating)

KSPDA0229EA

### 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](http://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 2024.

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.

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