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Si photodiodes



S16765/S16838/S16840 series

Low dark current, premolded packages

These are photodiodes that offer low dark current to measure low to high illumination with high accuracy. The premolded package is designed to block stray light from the side and back of the package to reaching the photosensitive area.

Features

- **S16838-01MS : For visible range**
- **S16838/S16840-02MS: For visible to IR range**
- **S16765-01MS : For visible to near IR range**

Applications

- **Exposure meters**
- **Illuminometers**
- **Copiers**
- **Display light control**
- **Optical switches**

Structure /Absolute maximum ratings

Type no.	Package	Window material	Photosensitive area size (mm)	Absolute maximum ratings		
				Reverse voltage V_R max (V)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S16765-01MS	Plastic	Silicone resin	2.8 × 2.4	10	-10 to +60*1	-20 to +70*1
S16838-01MS		Visual-compensation filter				
S16838-02MS		Silicone resin				
S16840-02MS			1.3 × 1.3			

*1: 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.

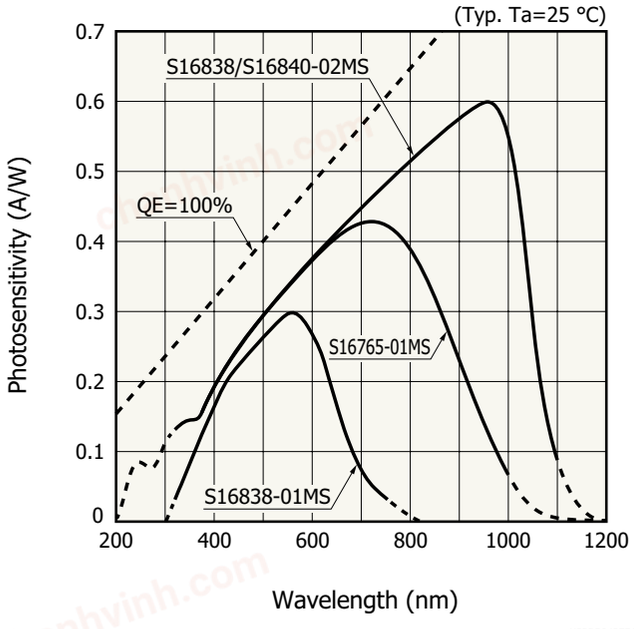
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λp (nm)	Photosensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current Isc 100 lx (μA)	Temp. coefficient of Isc (%/°C)	Dark current I_D V_R=1 V max. (pA)	Temp. coefficient of T_{CID} (times/°C)	Rise time tr V_R=0 V R_L=1 kΩ (μs)	Terminal capacitance Ct V_R=0 V f=10 kHz (pF)	Shunt resistance Rsh V_R=10 mV	
			λp	GaP LED 560 nm	He-Ne laser 633 nm								Min. (GΩ)	Typ. (GΩ)
S16765-01MS	320 to 1000	720	0.4	0.33	0.37	-	3.1	0.1	20	1.12	0.5	200	10	50
S16838-01MS	320 to 730	560	0.3	0.3	0.19	10	0.6	-0.01	10		2.5	700		100
S16838-02MS	320 to 1100	960	0.58	0.33	0.38	-	5.6	0.1						
S16840-02MS	320 to 1100	960	0.58	0.33	0.38	-	1.3	0.1	10		0.5	200		250

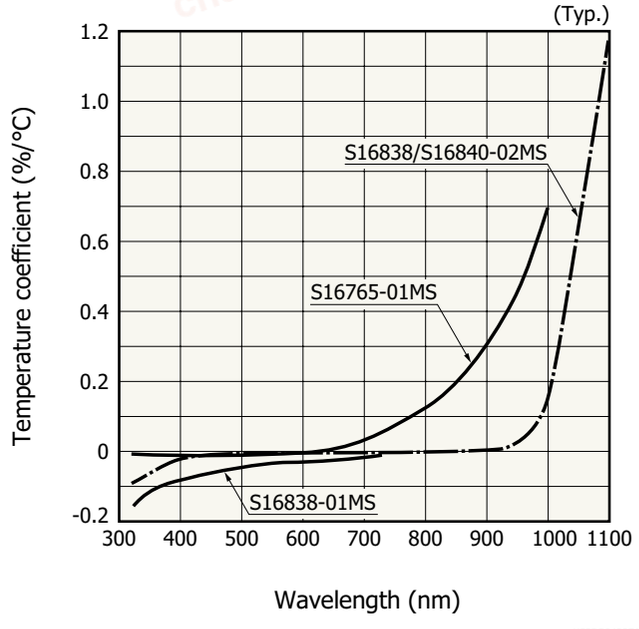
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Spectral response



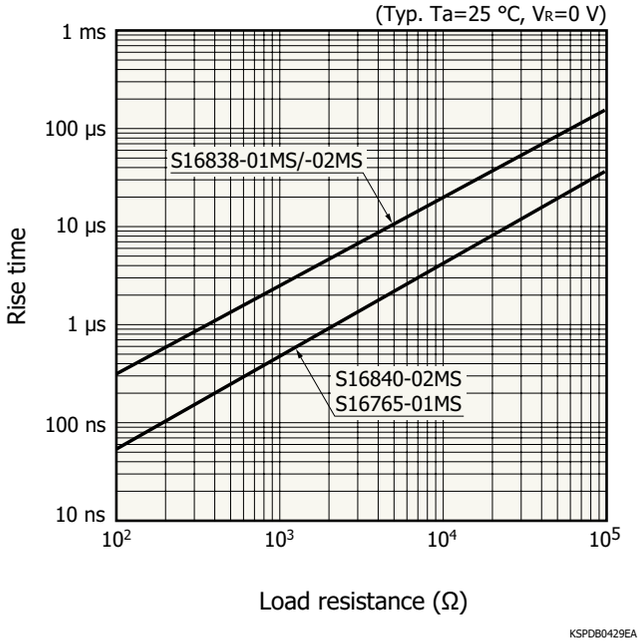
KSPDB0427EA

Photosensitivity temperature characteristics



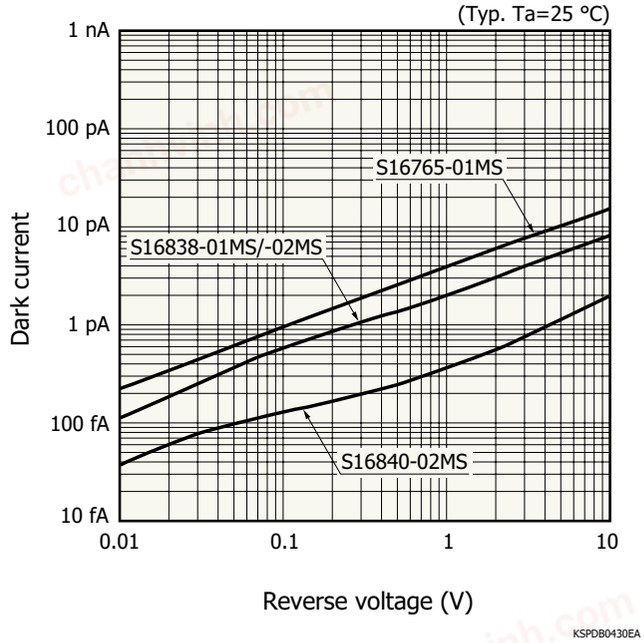
KSPDB0428EA

Rise time vs. load resistance



KSPDB0429EA

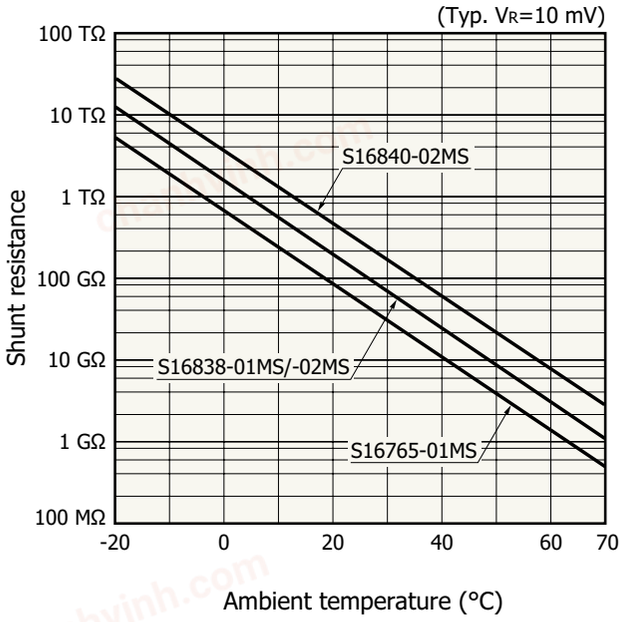
Dark current vs. reverse voltage



KSPDB0430EA

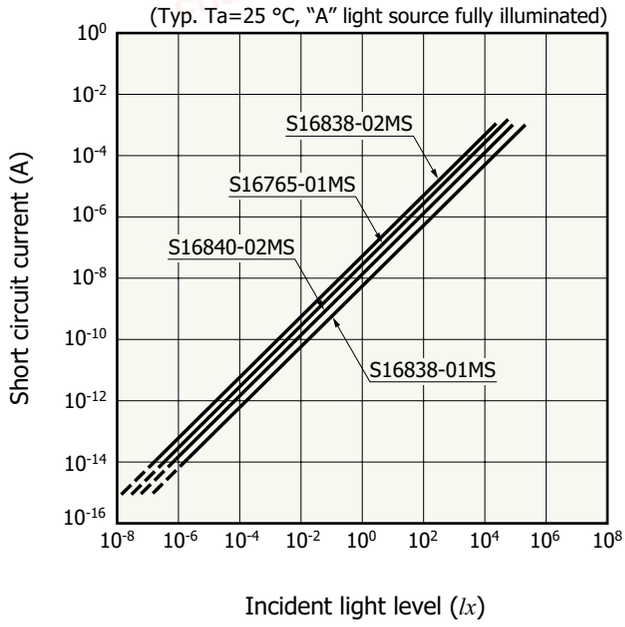
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Shunt resistance vs. ambient temperature



KSPDB0431EA

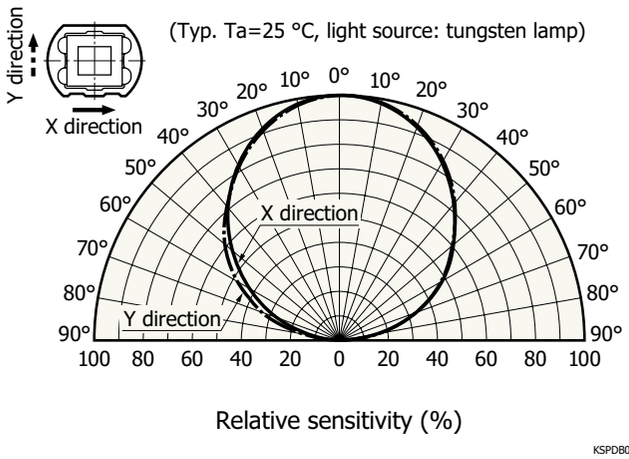
Linearity



KSPDB0432EB

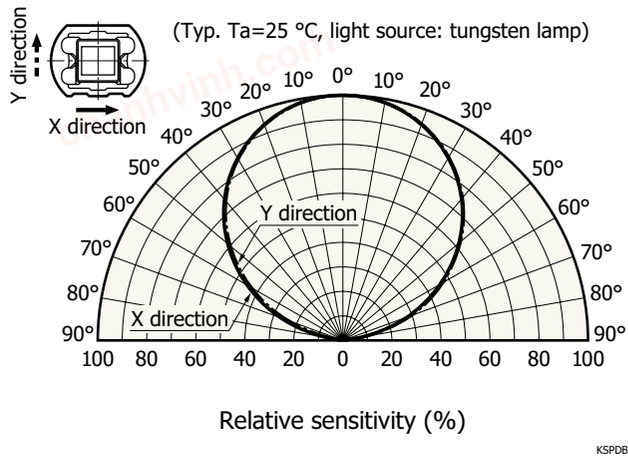
Directivity

S16838-01MS



KSPDB0433EA

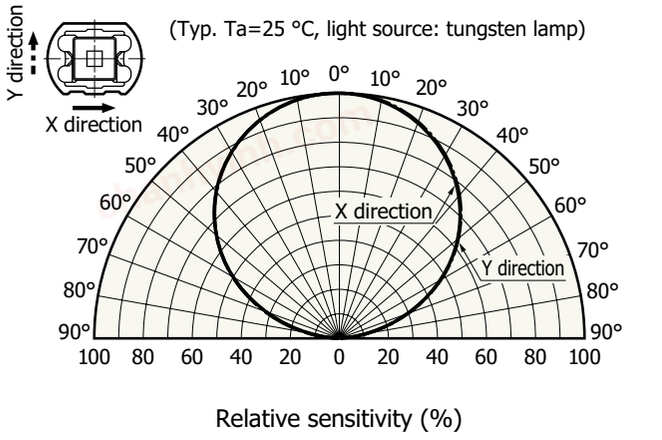
S16838-02MS, S16765-01MS



KSPDB0434EA

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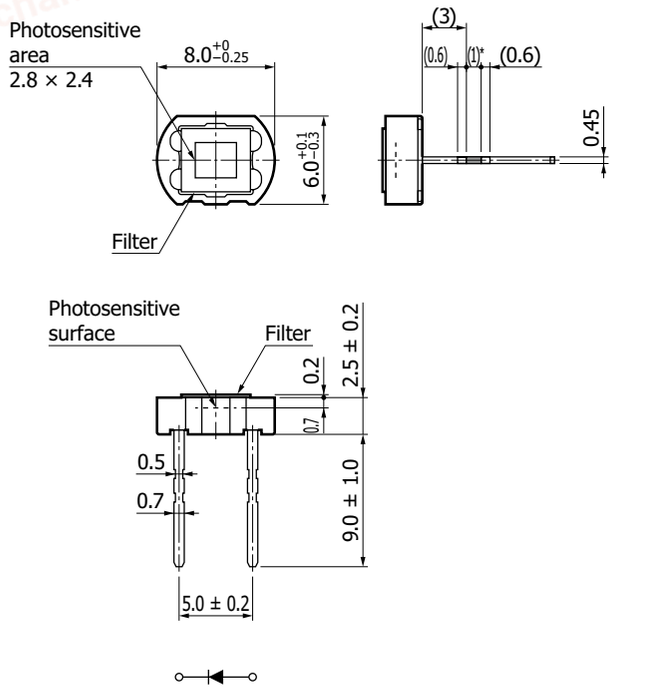
S16840-02MS



KSPDB0436EA

Dimensional outlines (unit: mm)

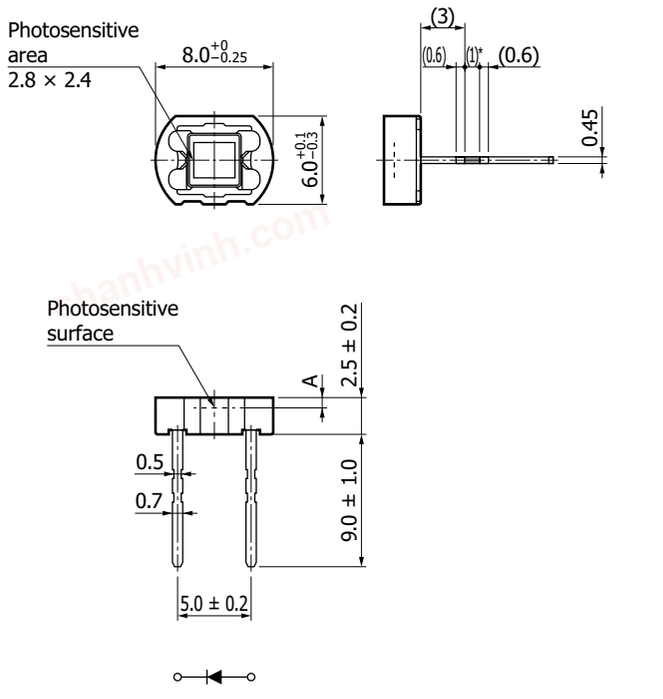
S16838-01MS



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

KSPDA0225EA

S16838-02MS, S16765-01MS



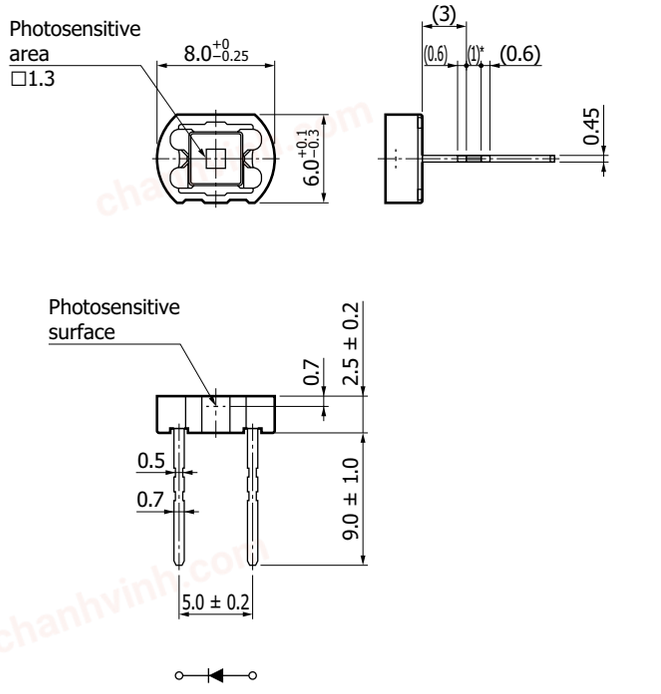
Tolerance unless otherwise noted: ±0.15
Values in parentheses indicate reference value.
* Tie-bar cut area (no plating)

	S16838-02MS	S16765-01MS
A	0.7	0.6

KSPDA0226EA

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S16840-02MS



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

KSPDA0228EA

Recommended soldering conditions

Parameter	Specification	Remarks
Solder temperature	260 °C max. (once, less than 5 s)	at least 2 mm away from lead roots

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Related information

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

■ Precautions
· Disclaimer
· Metal, ceramic, plastic package products

■ Technical note
· Si photodiodes

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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.
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.
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