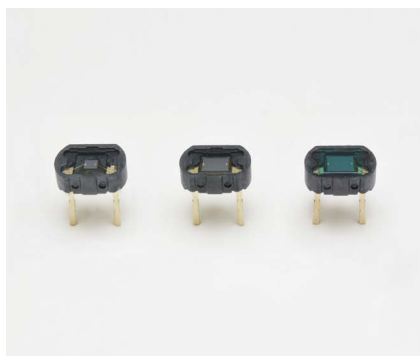


Si photodiodes

S16765/S16838/S16840 series



Low dark current, premolded packages

These are premolded package photodiodes that offer low dark current. There is little stray light incident from the side and back of the package to the photosensitive area, and they can measure from low to high illumination with high accuracy.

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 T_{opr} (°C)	Storage temperature T_{stg} (°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	1.3 × 1.3			
S16840-02MS						

*1: No dew condensation

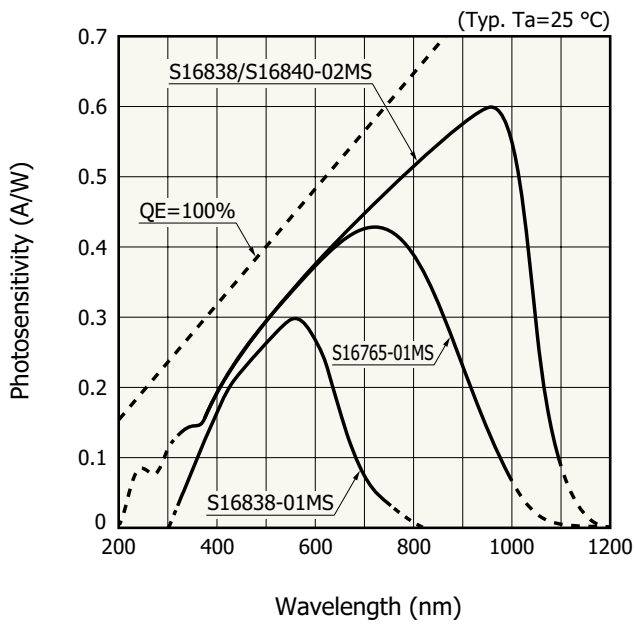
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

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.

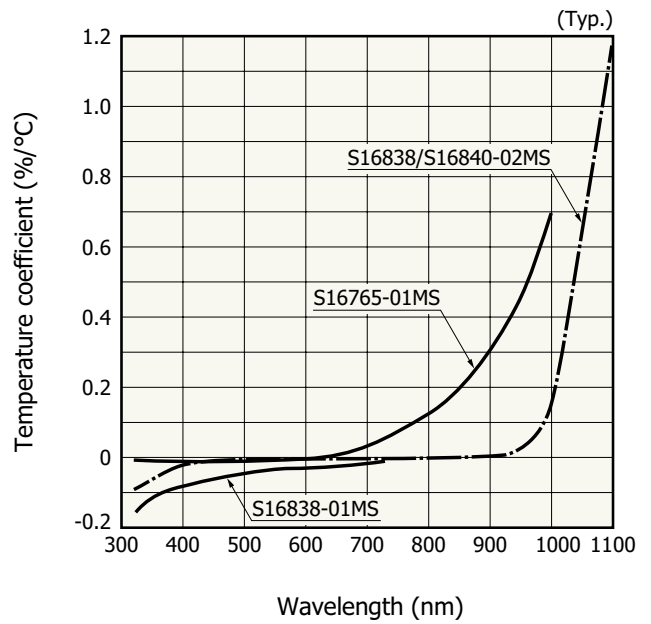
Electrical and optical characteristics (Typ. $T_a=25$ °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photosensitivity S (A/W)			Infrared sensitivity ratio (%)	Short circuit current I_{sc} 100 lx (μ A)	Temp. coefficient of I_{sc} (%/°C)	Dark current I_D $V_R=1$ V max. (pA)	Temp. coefficient of T_{CID} (times/°C)	Rise time t_r $V_R=0$ V $R_L=1$ k Ω (μ s)	Terminal capacitance C_t $V_R=0$ V $f=10$ kHz (pF)	Shunt resistance R_{sh} $V_R=10$ mV	
			λ_p	GaP LED 560 nm	He-Ne laser 633 nm								Min. (G Ω)	Typ. (G Ω)
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	10	0.5	200	250		
S16840-02MS	320 to 1100	960	0.58	0.33	0.38	-	1.3	0.1						

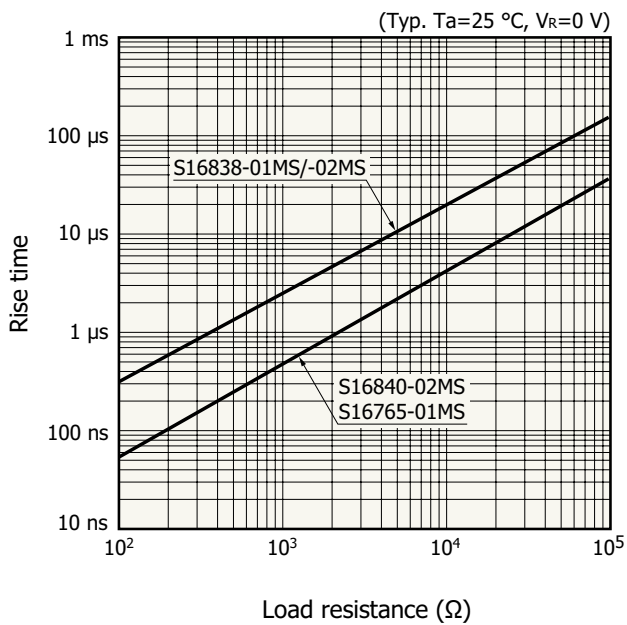
Spectral response



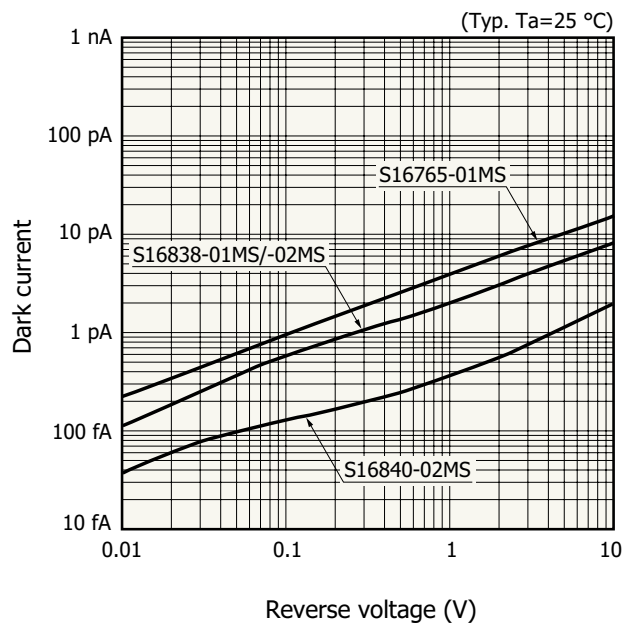
Photosensitivity temperature characteristics



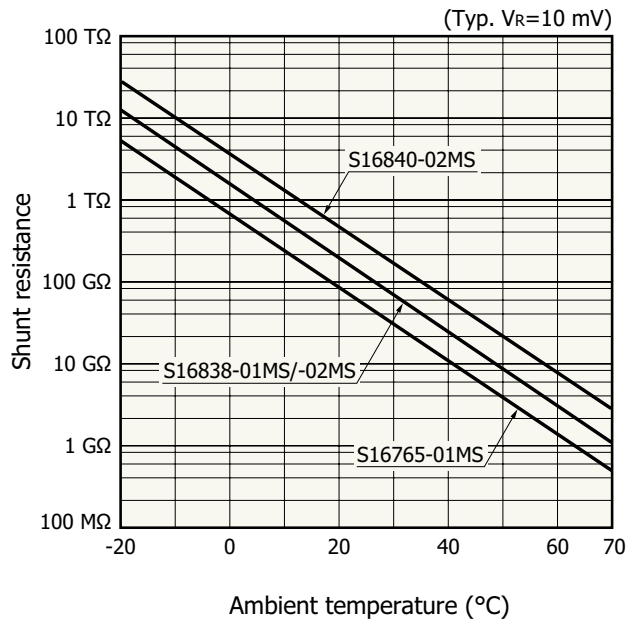
Rise time vs. load resistance



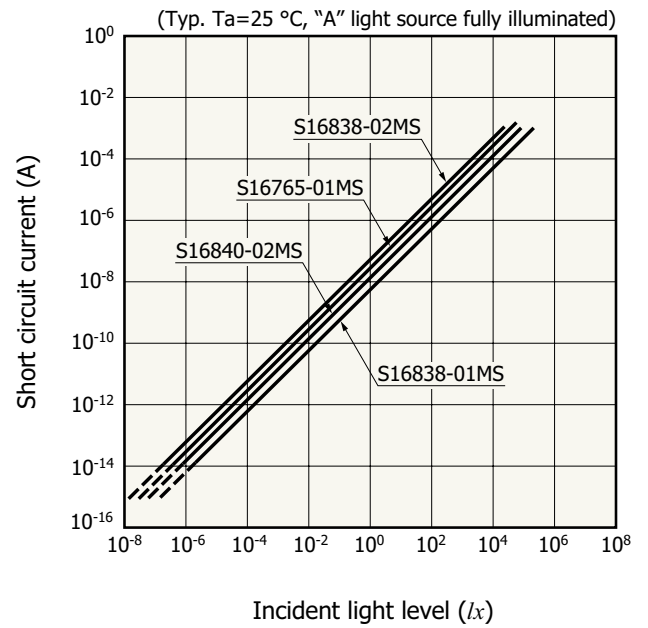
Dark current vs. reverse voltage



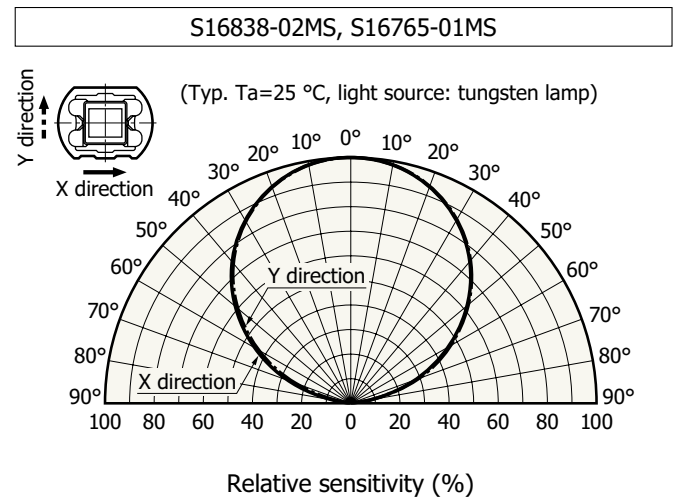
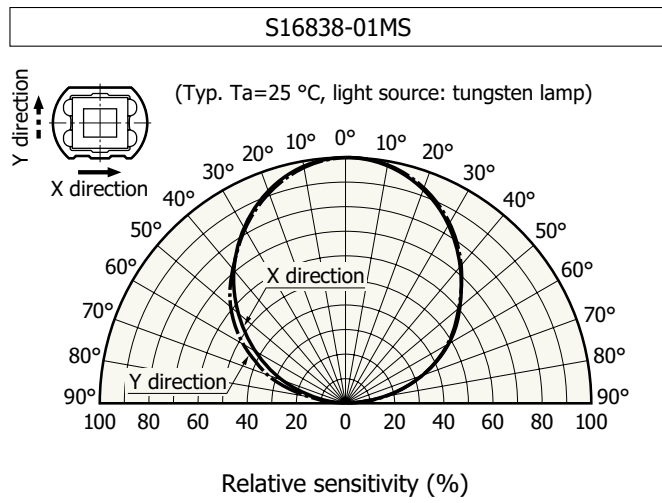
Shunt resistance vs. ambient temperature



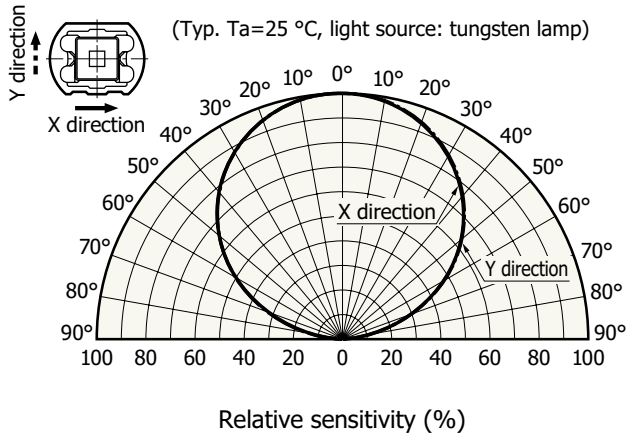
Linearity



Directivity



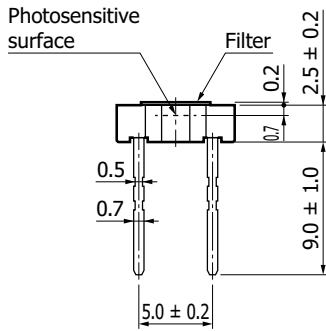
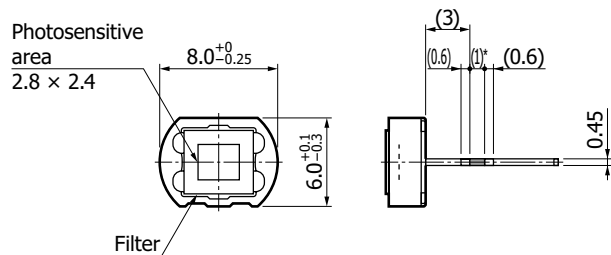
S16840-02MS



KSPDB0436EA

Dimensional outlines (unit: mm)

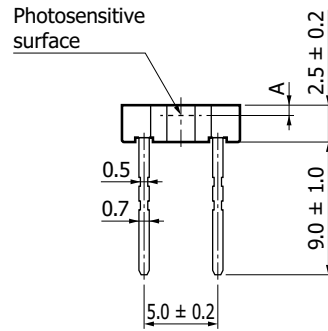
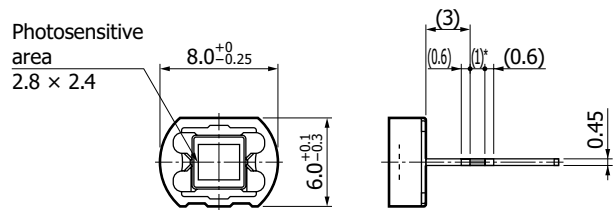
S16838-01MS



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

KSPDA0225EA

S16838-02MS, S16765-01MS



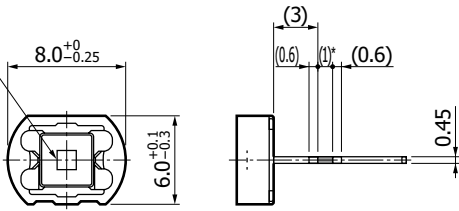
Tolerance unless otherwise noted: ±0.15
 Values in parentheses indicate reference value.
 * Tie-bar cut area (no plating)

	S16838-02MS	S16765-01MS
A	0.7	0.6

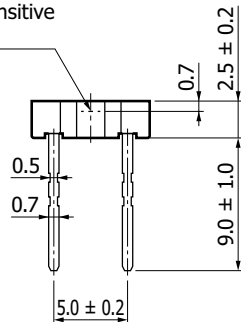
KSPDA0226EA


S16840-02MS

Photosensitive
area
□1.3



Photosensitive
surface



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

Information described in this material is current as of February 2023.

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, 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 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 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 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, Section 2, 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