

S8664 series

**Short wavelength type APD**

**Features**

- High sensitivity at visible range
- Low noise
- High gain
- Low capacitance

**Applications**

- Low-light-level measurement
- Analytical instrument

**Structure / Absolute maximum ratings**

Type no.	Dimensional outline /Window material*1	Package	Effective photosensitive area size*2 (mm)	Effective photosensitive area (mm <sup>2</sup> )	Absolute maximum ratings		
					Operating temperature*3 Topr (°C)	Storage temperature*3 Tstg (°C)	
S8664-02K	①/K	TO-5	φ0.2	0.03	-20 to +60	-55 to +100	
S8664-05K			φ0.5	0.19			
S8664-10K			φ1.0	0.78			
S8664-20K			φ2.0	3.14			
S8664-30K	②/K	TO-8	φ3.0	7.0			
S8664-50K			φ5.0	19.6			
S8664-55	③/E	Ceramic	5 × 5	25			-20 to +80
S8664-1010	④/E		10 × 10	100			

\*1: K: Borosilicate glass E: Epoxy resin

\*2: Area in which a typical gain can be obtained

\*3: 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.

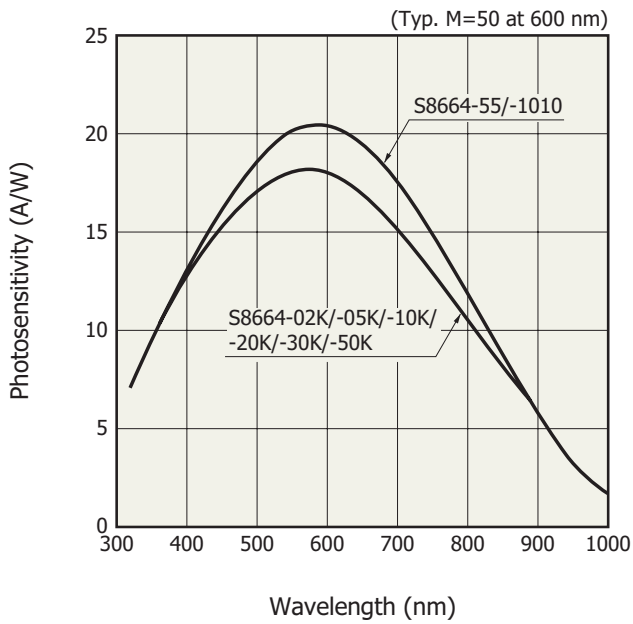
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

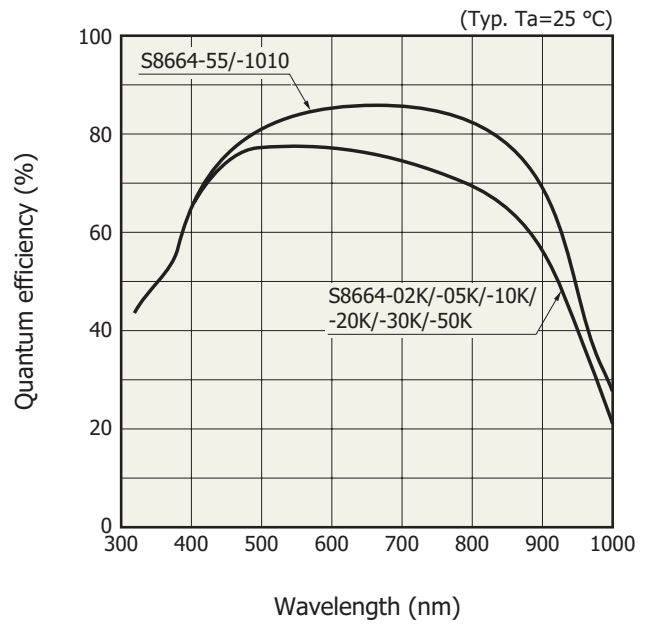
Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength*4 λp (nm)	Photo sensitivity S M=1 λ=420 nm (A/W)	Quantum efficiency QE M=1 λ=420 nm (%)	Breakdown voltage VBR ID=100 μA		Temperature coefficient of VBR (V/°C)	Dark current*4 ID		Cutoff frequency*4 fc (MHz)	Terminal capacitance*4 Ct (pF)	Excess Noise index*4 λ=420 nm	Gain M λ=420 nm
					Typ. (V)	Max. (V)		Typ. (nA)	Max. (nA)				
S8664-02K	320 to 1000	600	0.24	70	400	500	0.78	0.1	1	700	0.8	0.2	50
S8664-05K								0.2	1.5	680	1.6		
S8664-10K								0.3	3	530	4		
S8664-20K								0.6	6	280	11		
S8664-30K								1	15	140	22		
S8664-50K								3	35	60	55		
S8664-55								5	50	40	80		
S8664-1010								10	100	11	270		

\*4: Values measured at a gain listed in the characteristics table

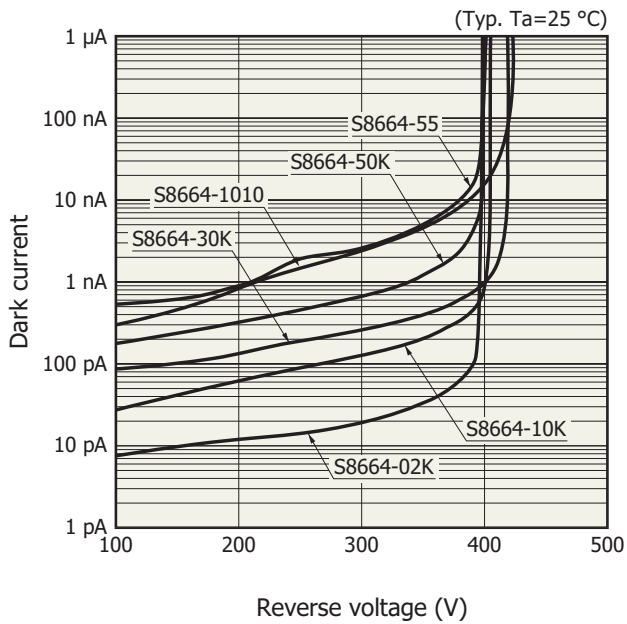
**Spectral response**



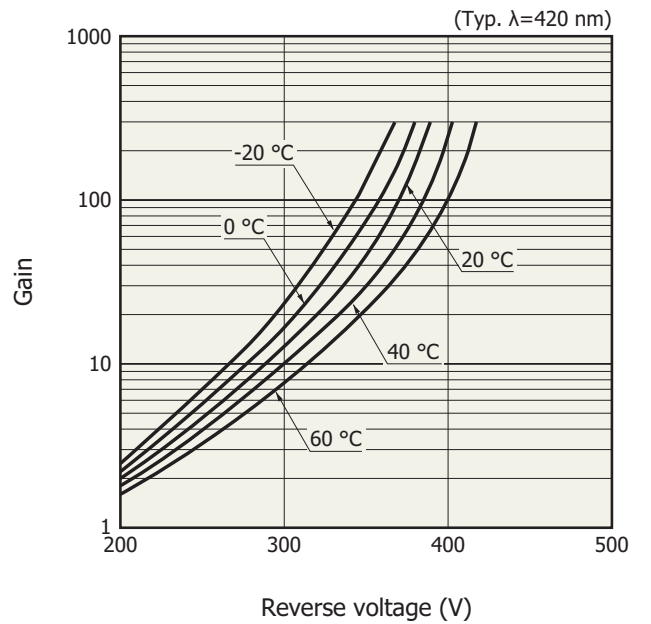
**Quantum efficiency vs. wavelength**

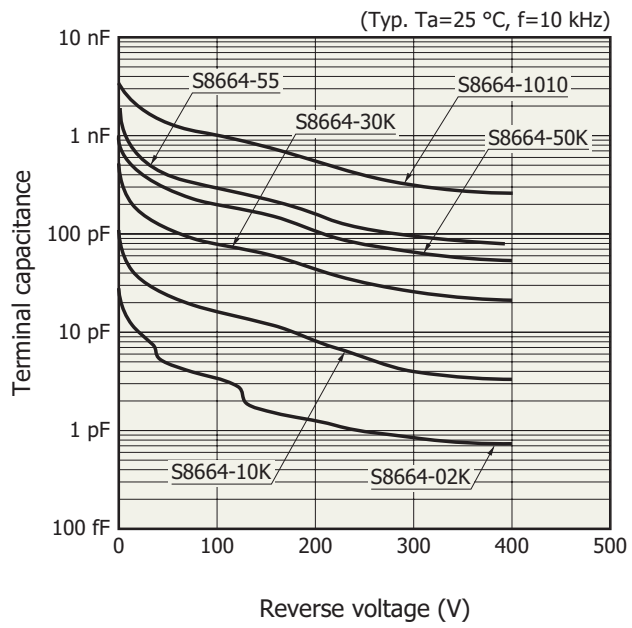


**Dark current vs. reverse voltage**



**Gain vs. reverse voltage**

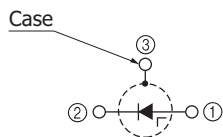
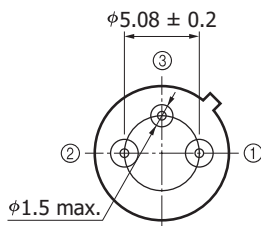
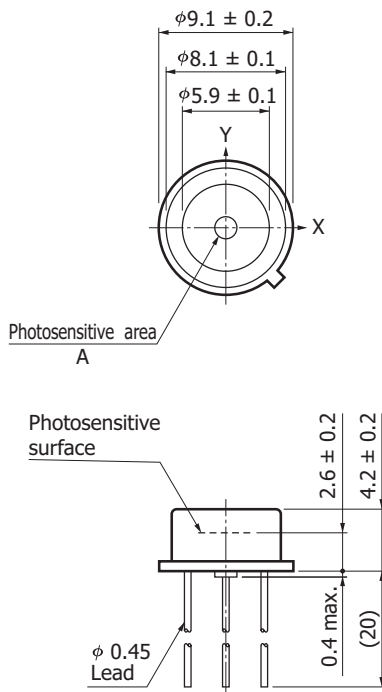


**Terminal capacitance vs. reverse voltage**

KAPDB0077EC

### Dimensional outlines (unit: mm)

① S8664-02K/-05K/-10K/-20K

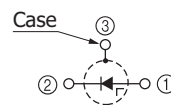
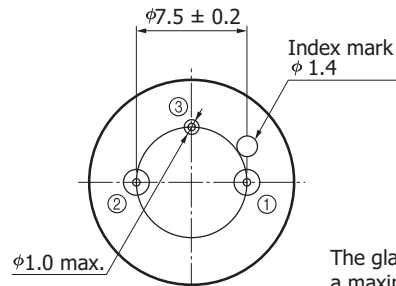
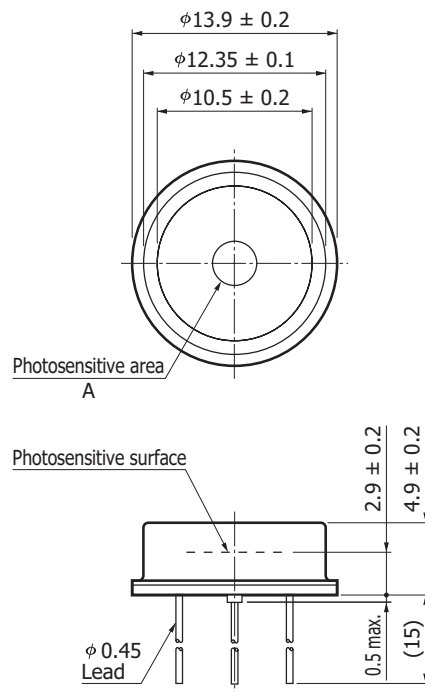


The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

Type no.	A
S8664-02K	$\phi 0.2$
S8664-05K	$\phi 0.5$
S8664-10K	$\phi 1.0$
S8664-20K	$\phi 2.0$

KAPDA0026EC

② S8664-30K/-50K

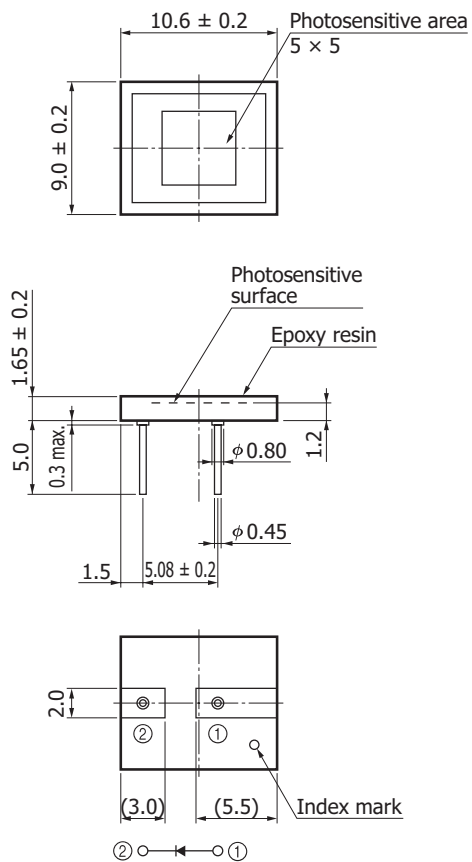


The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

Type no.	A
S8664-30K	$\phi 3.0$
S8664-50K	$\phi 5.0$

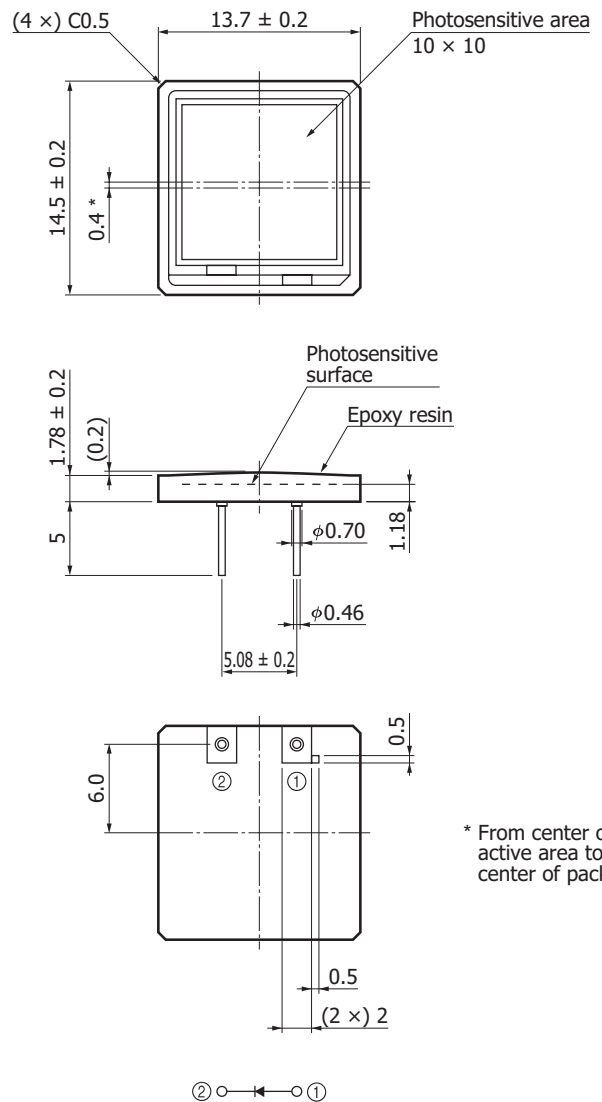
KAPDA0027EC

③ S8664-55



KAPDA0022EB

④ S8664-1010



KAPDA0036EB

### Recommended soldering conditions

#### S8664-02K/-05K/-10K/-20K/-30K/-50K

Solder temperature: 260 °C (10 s or less, once)

Solder the leads at a point at least 1 mm away from the package body.

#### S8664-55/-1010

Solder temperature: 260 °C (5 s or less, once)

Solder the leads at a point at least 1.5 mm away from the package body.

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](http://www.hamamatsu.com/sp/ssd/doc_en.html)

### ■ Precautions

- Disclaimer
- Metal, ceramic, plastic package products

Information described in this material is current as of December 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](http://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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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](mailto: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](mailto:info@hamamatsu.com.tw)