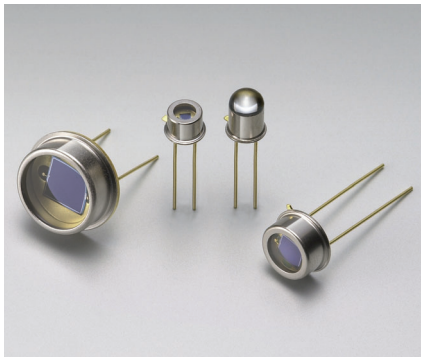
HAMAMATSU
PHOTON IS OUR BUSINESS

# Si photodiodes



## S2386 series

**For visible to near IR, general-purpose photometry**

### Features

- **High sensitivity in visible to near infrared range**
- **Low dark current**
- **High reliability**
- **Superior linearity**

### Applications

- **Analytical instruments**
- **Optical measurement equipment**

### Structure / Absolute maximum ratings

| Type no. | Dimensional outline/ Window material* | Package | Photosensitive area size (mm) | Absolute maximum ratings | | |
|---|---|---|---|---|---|---|
| | | | | Reverse voltage VR max (V) | Operating temperature Topr (°C) | Storage temperature Tstg (°C) |
| S2386-18K | (1)/K | TO-18 | 1.1 × 1.1 | 30 | -40 to +100 | -55 to +125 |
| S2386-18L | (2)/L | | | | | |
| S2386-5K | (3)/K | TO-5 | 2.4 × 2.4 | | | |
| S2386-44K | (4)/K | | 3.6 × 3.6 | | | |
| S2386-45K | (5)/K | | 3.9 × 4.6 | | | |
| S2386-8K | (6)/K | TO-8 | 5.8 × 5.8 | | | |

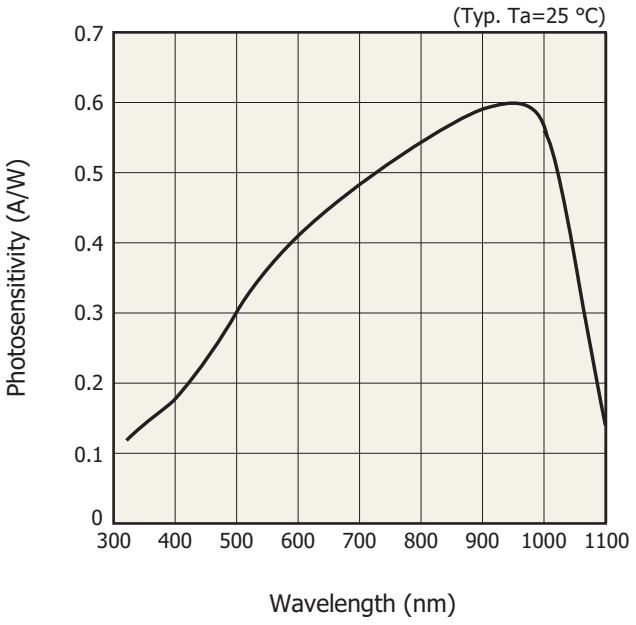
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

* Window material K=borosilicate glass, L=lens type borosilicate glass

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

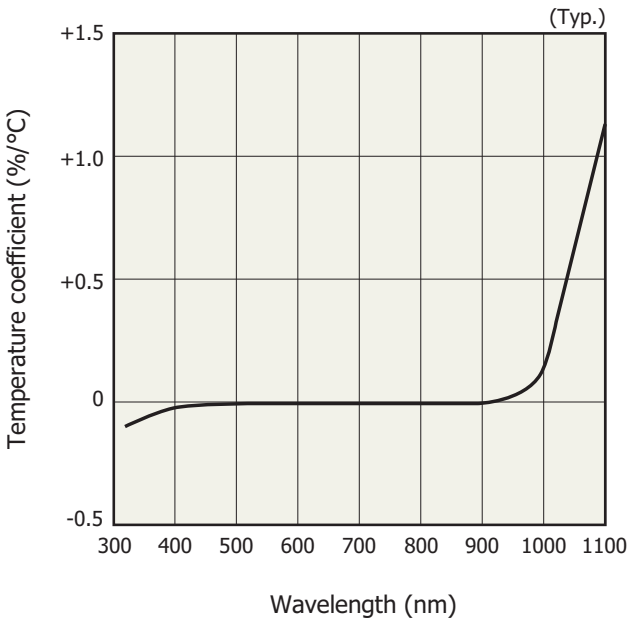
| Type no. | Spectral response range λ (nm) | Peak sensitivity wavelength λp (nm) | Photosensitivity S (A/W) | | | | Short circuit current Isc 100 lx | | Dark current ID VR= 10 mV max. (pA) | Temp. coefficient of ID TCID (times/°C) | Rise time tr VR=0 V RL=1 kΩ (µs) | Terminal capacitance Ct VR=0 V f=10 kHz (pF) | Shunt resistance Rsh VR=10 mV | | Noise equivalent power NEP VR=0 V λ=λp (W/Hz$^{1/2}$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | λp | GaP LED 560 nm | He-Ne laser 633 nm | GaAs LED 930 nm | Min. (µA) | Typ. (µA) | | | | | Min. (GΩ) | Typ. (GΩ) | |
| S2386-18K | 320 to 1100 | 960 | 0.6 | 0.38 | 0.43 | 0.59 | 1 | 1.3 | 2 | 1.12 | 0.4 | 140 | 5 | 100 | $6.8 \times 10^{-16}$ |
| S2386-18L | | | | | | | 4 | 6.5 | | | | | | | |
| S2386-5K | | | | | | | 4.4 | 6.0 | 5 | | 1.8 | 730 | 2 | 50 | $9.6 \times 10^{-16}$ |
| S2386-44K | | | | | | | 9.6 | 12 | 20 | | 3.6 | 1600 | 0.5 | 25 | $1.4 \times 10^{-15}$ |
| S2386-45K | | | | | | | 12 | 17 | 30 | | 5.5 | 2300 | 0.3 | | |
| S2386-8K | | | | | | | 26 | 33 | 50 | | 10 | 4300 | 0.2 | 10 | $2.1 \times 10^{-15}$ |

## Spectral response



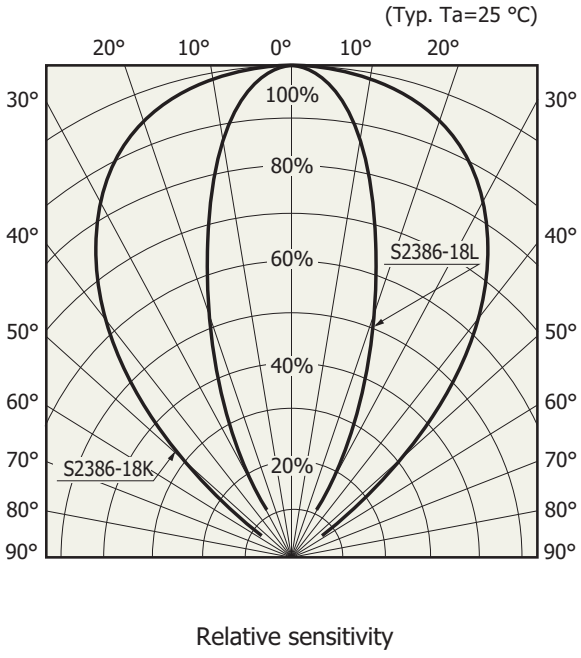

KSPDB0110EB

## Photosensitivity temperature characteristic



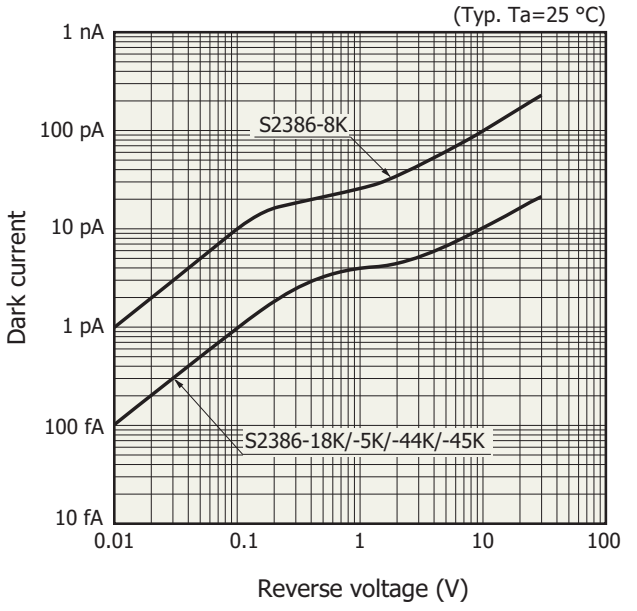

KSPDB0058EC

## Directivity




KSPDB0111EA

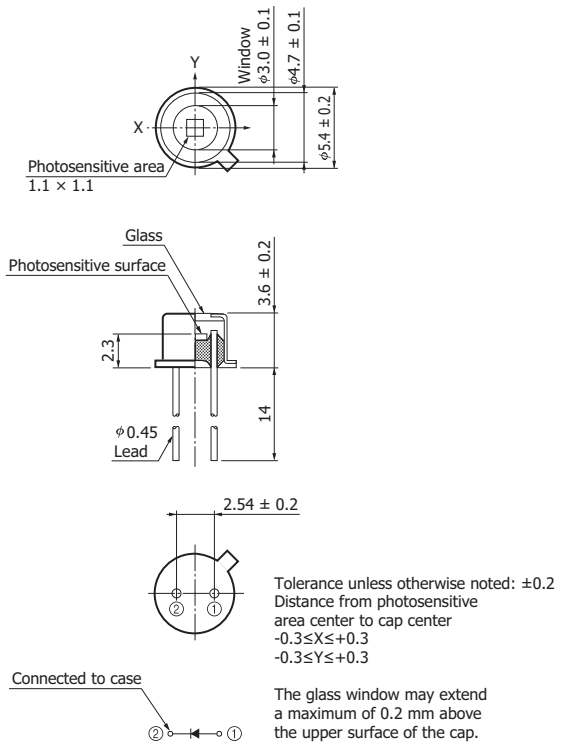
## Dark current vs. reverse voltage




KSPDB0113ED

## Dimensional outlines (unit: mm)

### (1) S2386-18K

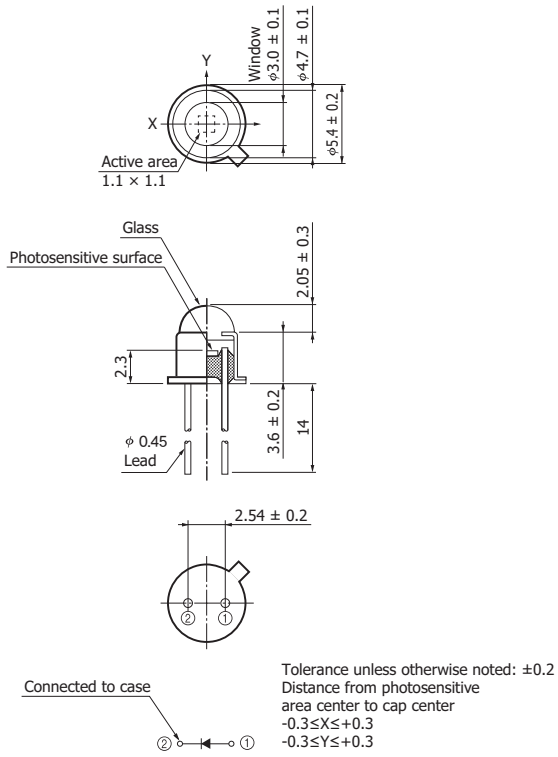



Tolerance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

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

KSPDA0191ED

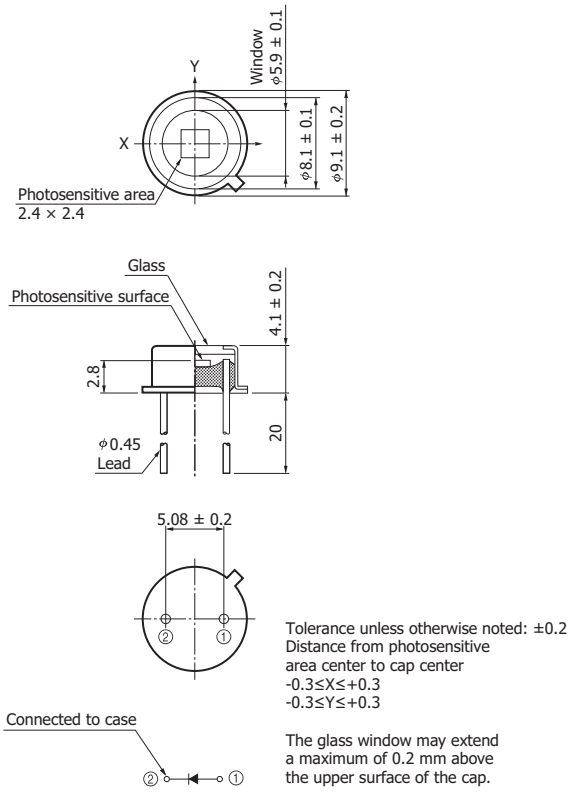
### (2) S2386-18L




Tolerance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

KSPDA0048EF

### (3) S2386-5K

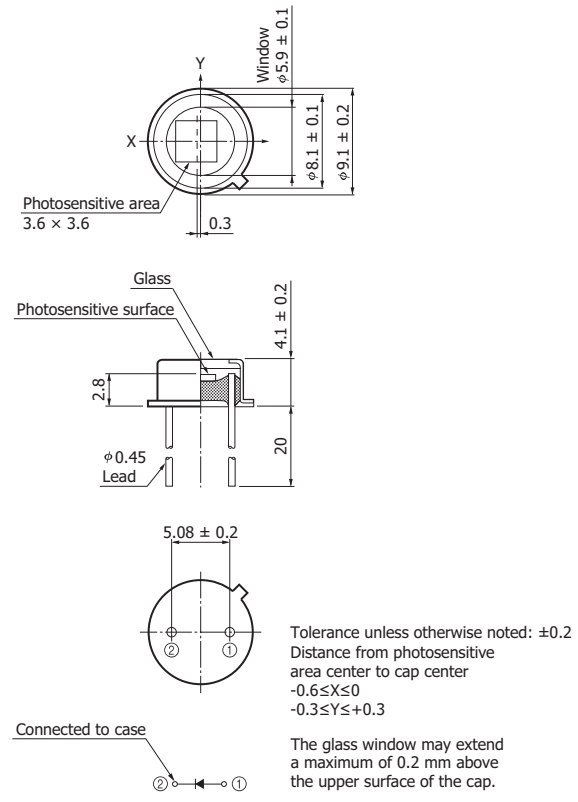



Tolerance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.3≤X≤+0.3
-0.3≤Y≤+0.3

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

KSPDA0192ED

### (4) S2386-44K

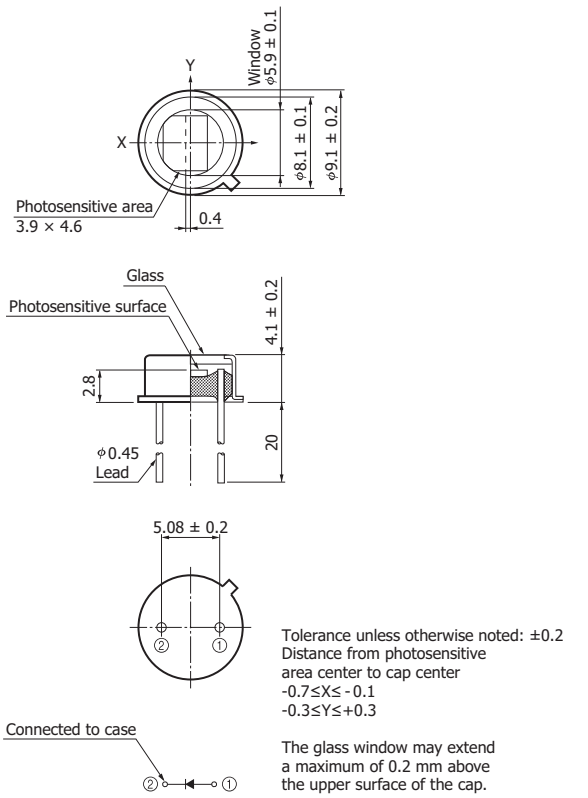



Tolerance unless otherwise noted: ±0.2
Distance from photosensitive area center to cap center
-0.6≤X≤0
-0.3≤Y≤+0.3

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

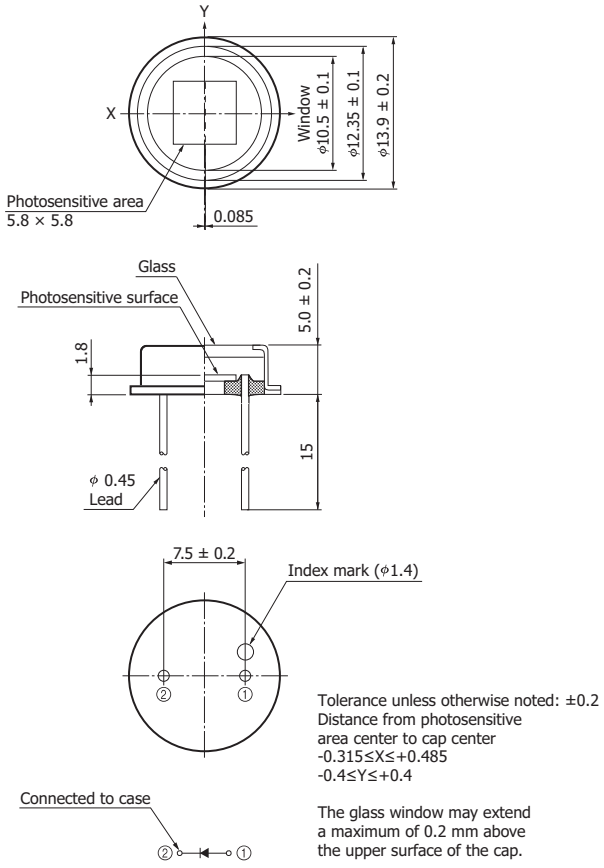
KSPDA0193ED

(5) S2386-45K




KSPDA0178EF

(6) S2386-8K




KSPDA0194ED

## Related information

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

■ Precautions

· Disclaimer
· Metal, ceramic, plastic package products

■ Technical information

· Si photodiode/Application circuit examples



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, N.J. 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218, E-mail: 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
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, United Kingdom, 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, 20020 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.: B1201, Jiaming Center, No.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, 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

Cat. No. KSPD1035E09 Apr. 2019 DN