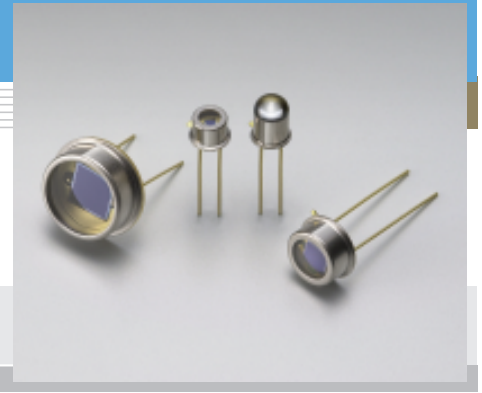


# Si photodiode S2386 series

For visible to IR, general-purpose photometry



## Features

- High sensitivity
- Low dark current
- High reliability
- High linearity

## Applications

- Analytical equipment
- Optical measurement equipment

### ■ General ratings / Absolute maximum ratings

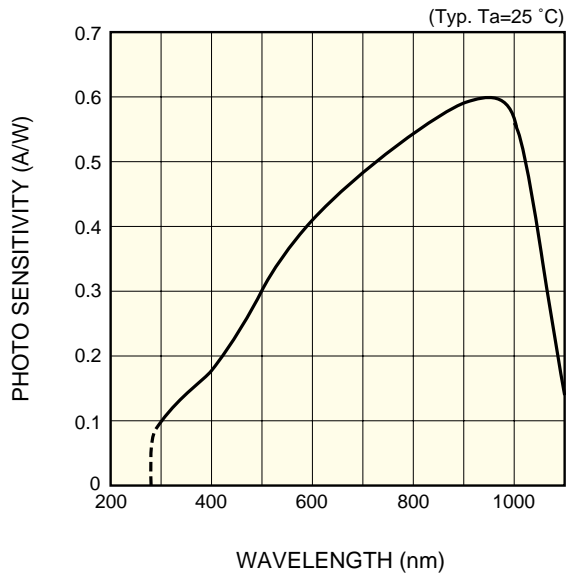
| Type No.  | Dimensional outline/<br>Window material * | Package<br>(mm) | Active area size<br>(mm) | Effective active area<br>(mm <sup>2</sup> ) | Absolute maximum ratings          |   |   |
|-----------|---|-----------------|--------------------------|---|-----------------------------------|---|---|
|           |   |                 |                          |   | Reverse voltage<br>VR Max.<br>(V) | Operating temperature<br>T <sub>opr</sub><br>(°C) | Storage temperature<br>T <sub>stg</sub><br>(°C) |
| S2386-18K | ①/K                                       | TO-18           | 1.1 × 1.1                | 1.2   | 30                                | -40 to +100                                       | -55 to +125                                     |
| S2386-18L | ②/L                                       |                 |                          |   |                                   |   |   |
| S2386-5K  | ③/K                                       | TO-5            | 2.4 × 2.4                | 5.7   |                                   |   |   |
| S2386-44K |   |                 | 3.6 × 3.6                | 13  |                                   |   |   |
| S2386-45K |   |                 | 3.9 × 4.6                | 17.9  |                                   |   |   |
| S2386-8K  | ⑤/K                                       | TO-8            | 5.8 × 5.8                | 33  |                                   |   |   |

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

| Type No.  | Spectral response range<br>λ<br>(nm) | Peak sensitivity wavelength<br>λ <sub>p</sub><br>(nm) | Photo sensitivity S (A/W) |                |                    |                 | Short circuit current I <sub>sc</sub> 100 lx |                         | Dark current I <sub>D</sub> VR=10 mV Max. (pA) | Temp. coefficient of I <sub>D</sub> T <sub>CID</sub> (times/°C) | Rise time t <sub>r</sub> VR=0 V RL=1 kΩ (μs) | Terminal capacitance C <sub>t</sub> VR=0 V f=10 kHz (pF) | Shunt resistance R <sub>sh</sub> VR=10 mV |      | NEP VR=0 V λ=λ <sub>p</sub> (W/Hz <sup>1/2</sup> ) |                         |
|-----------|--------------------------------------|---|---------------------------|----------------|--------------------|-----------------|--|-------------------------|--|---|--|--|---|------|--|-------------------------|
|           |                                      |   | λ <sub>p</sub>            | GaP LED 560 nm | He-Ne laser 633 nm | GaAs LED 930 nm | Min. (μA)                                    | Typ. (μA)               |  |   |  |  | Min.                                      | 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 × 10 <sup>-16</sup>                            |                         |
| S2386-18L |                                      |   |                           |                |                    |                 | 4  | 5.7                     |  |   |  |  | 25  | 100  |  |                         |
| S2386-5K  |                                      |   |                           |                |                    |                 | 4.4  | 6.0                     |  |   |  |  | 5   | 50   |  | 9.6 × 10 <sup>-16</sup> |
| S2386-44K |                                      |   |                           |                |                    |                 | 9.6  | 12                      |  |   |  |  | 20  | 25   |  |                         |
| S2386-45K |                                      |   |                           |                |                    |                 | 12   | 17                      |  |   |  |  | 30  | 25   |  |                         |
| S2386-45K |                                      |   |                           |                |                    |                 | 12   | 17                      |  |   |  |  | 30  | 25   |  |                         |
| S2386-8K  | 26                                   | 33  | 50                        | 10             | 4300               | 0.2             | 10   | 2.1 × 10 <sup>-15</sup> |  |   |  |  |   |      |  |                         |

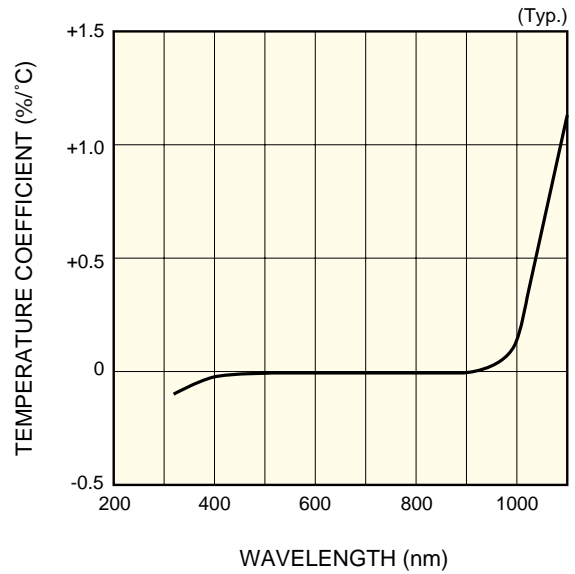
\* Window material K: borosilicate glass, L: lens type borosilicate glass

■ Spectral response



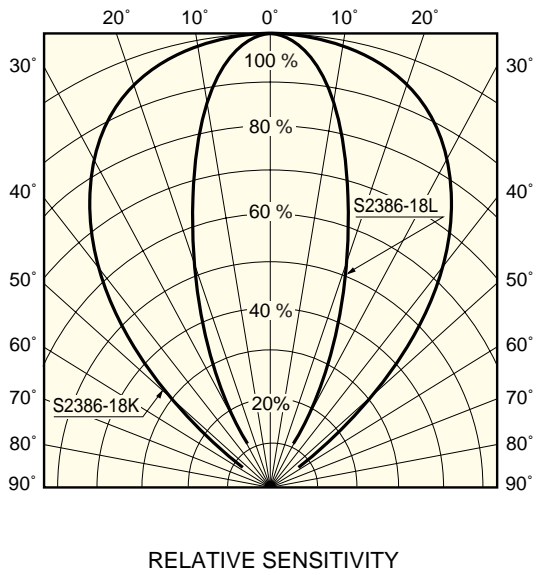
KSPDB0110EA

■ Photo sensitivity temperature characteristic



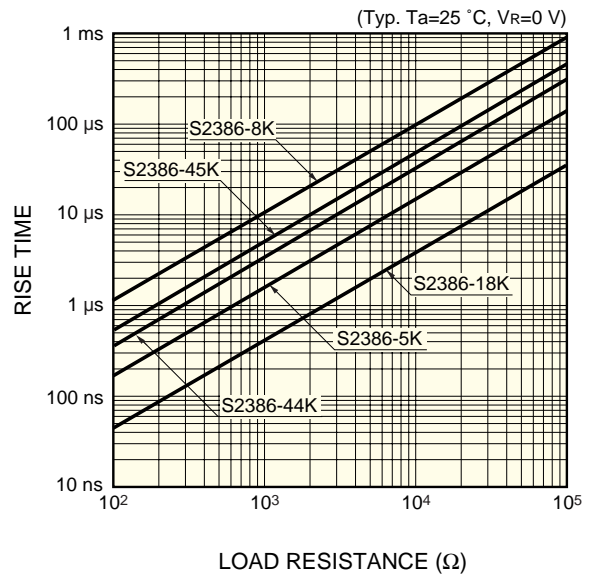
KSPDB0068EB

■ Directivity



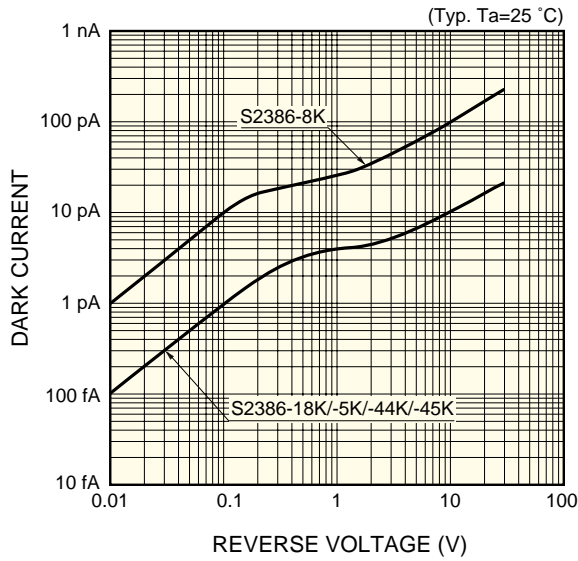
KSPDB0111EA

■ Rise time vs. load resistance



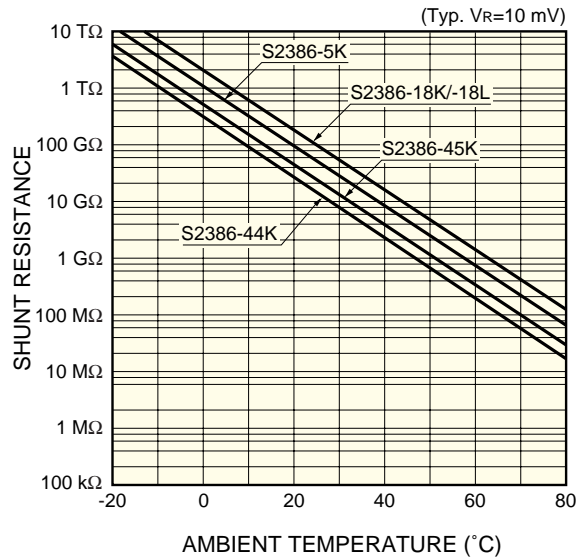
KSPDB0112EA

■ Dark current vs. reverse voltage



KSPDB0113EB

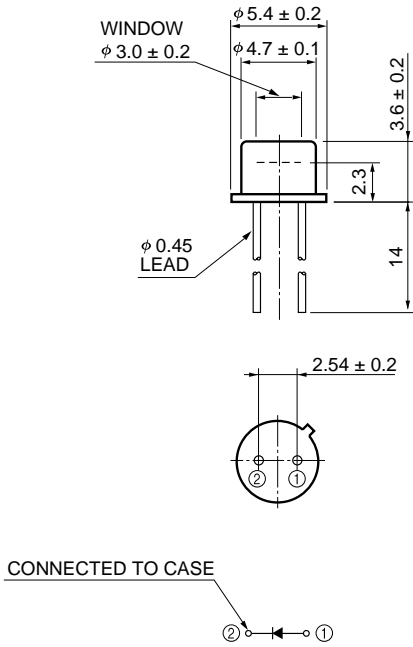
■ Shunt resistance vs. ambient temperature



KSPDB0114EA

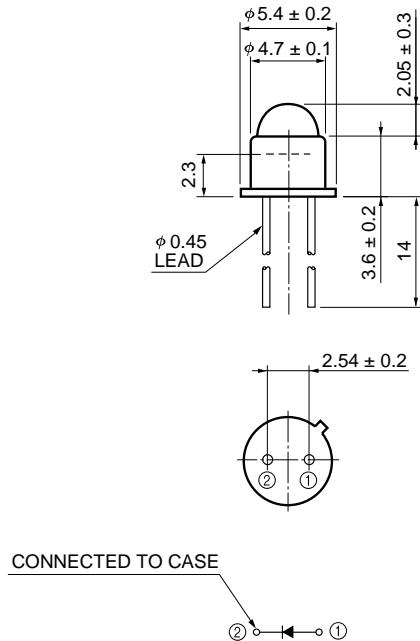
■ Dimensional outlines (unit: mm)

① S2386-18K



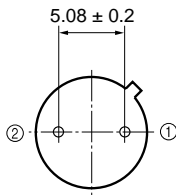
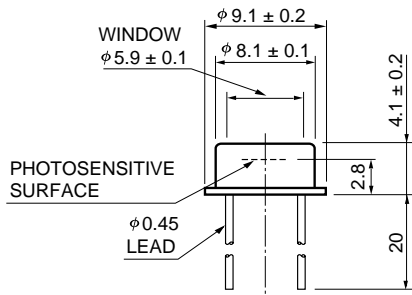
KSPDA0102EB

② S2386-18L

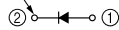


KSPDA0048EB

③ S2386-5K/-44K



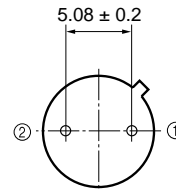
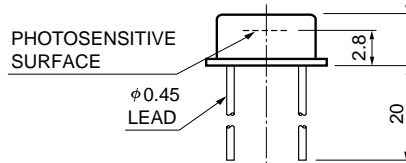
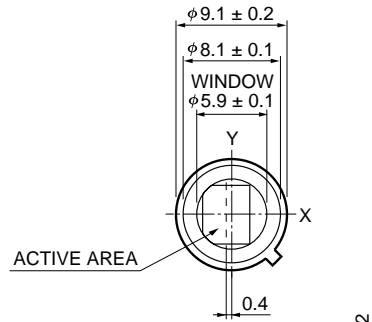
CONNECTED TO CASE



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

KSPDA0103EA

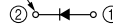
④ S2386-45K



CHIP CENTER TO CAP CENTER  
 $-0.7 \leq X \leq -0.1$   
 $-0.3 \leq Y \leq +0.3$

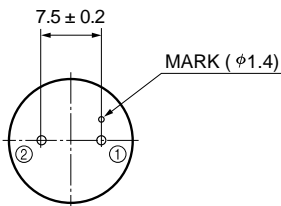
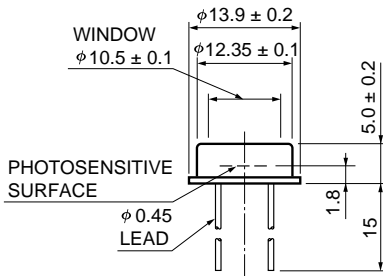
The K type borosilicate glass window may extend a maximum of 0.2 mm above the upper surface of the cap.

CONNECTED TO CASE

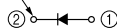


KSPDA0178EA

⑤ S2386-8K



CONNECTED TO CASE



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

KSPDA0104EA

**HAMAMATSU**

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2006 Hamamatsu Photonics K.K.

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184, www.hamamatsu.com

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

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

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

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741