

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 ²) | 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.

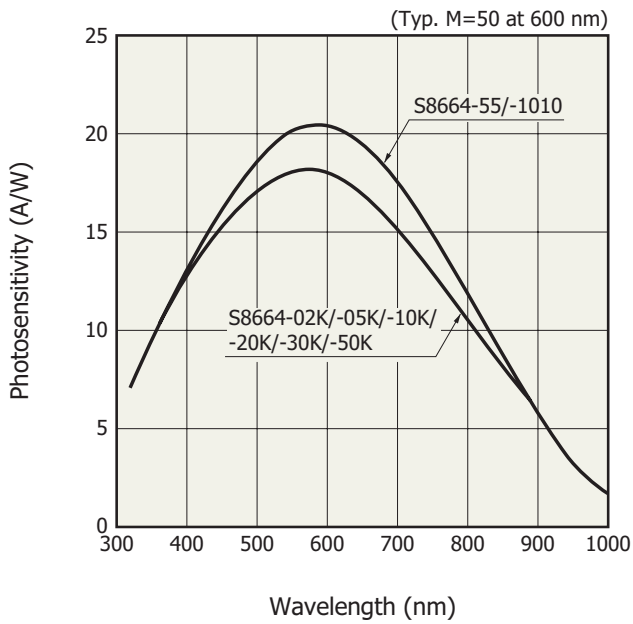
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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 | | |

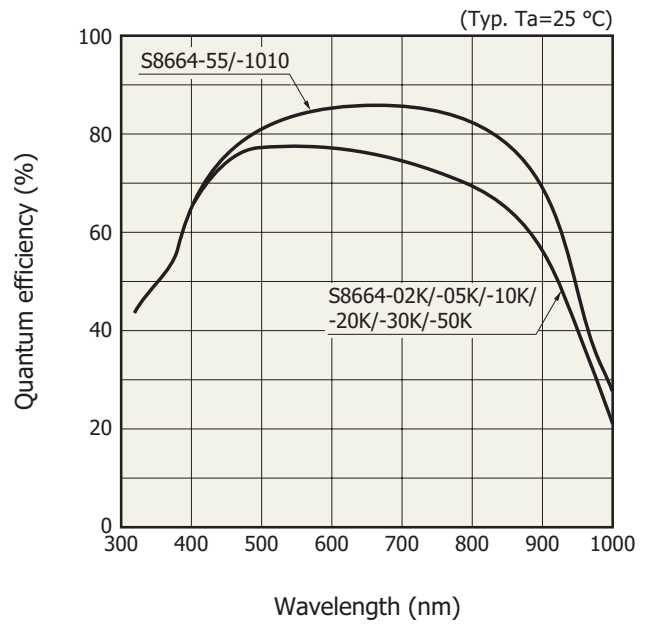
*4: Values measured at a gain listed in the characteristics table

Spectral response



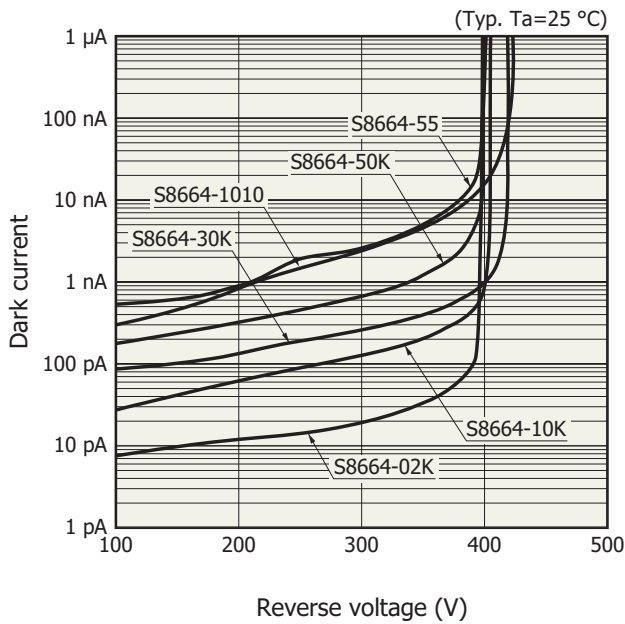
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Quantum efficiency vs. wavelength



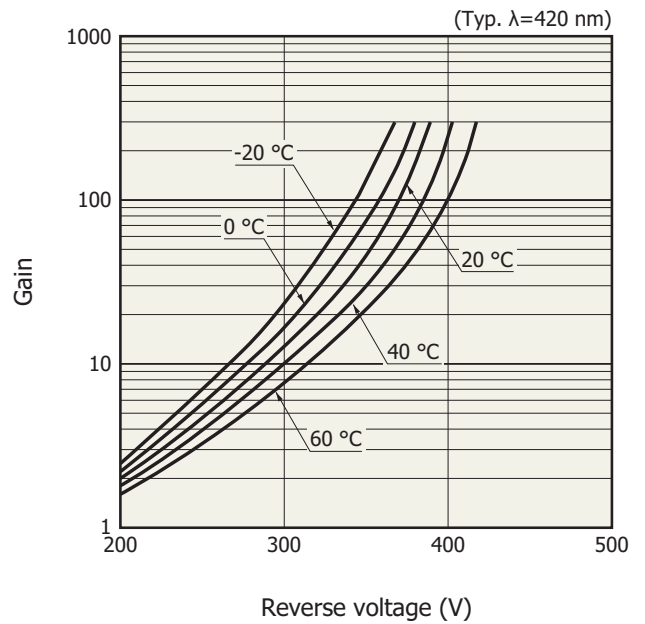
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Dark current vs. reverse voltage

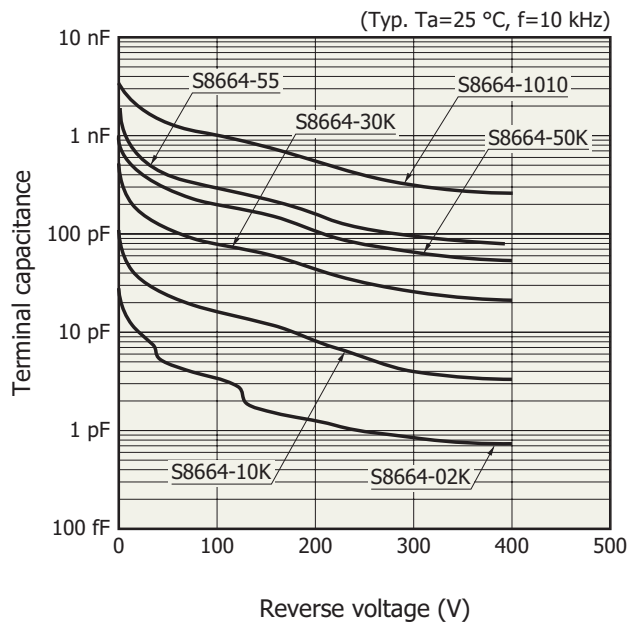


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Gain vs. reverse voltage



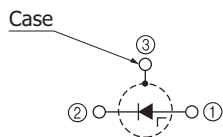
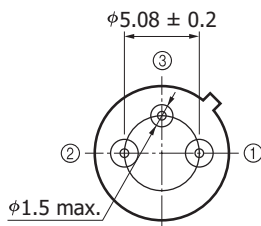
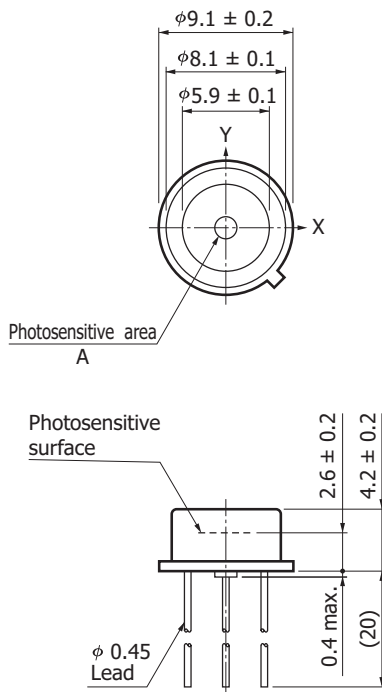
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Terminal capacitance vs. reverse voltage

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Dimensional outlines (unit: mm)

① S8664-02K/-05K/-10K/-20K

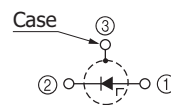
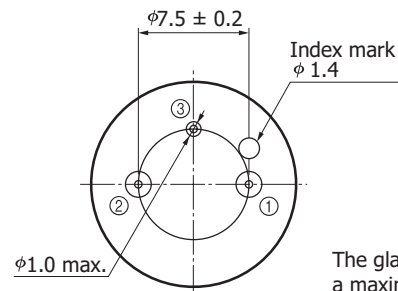
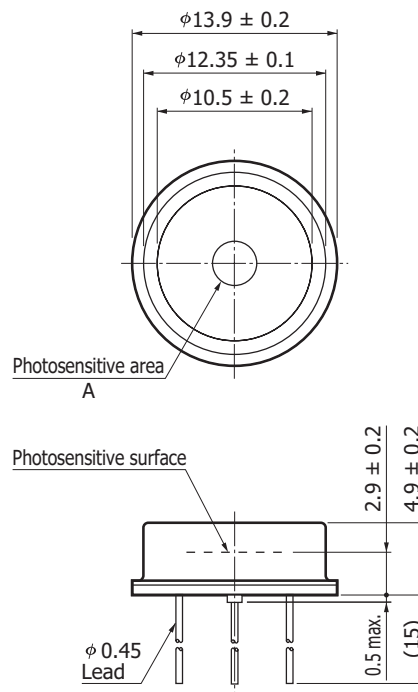


The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

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

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② S8664-30K/-50K

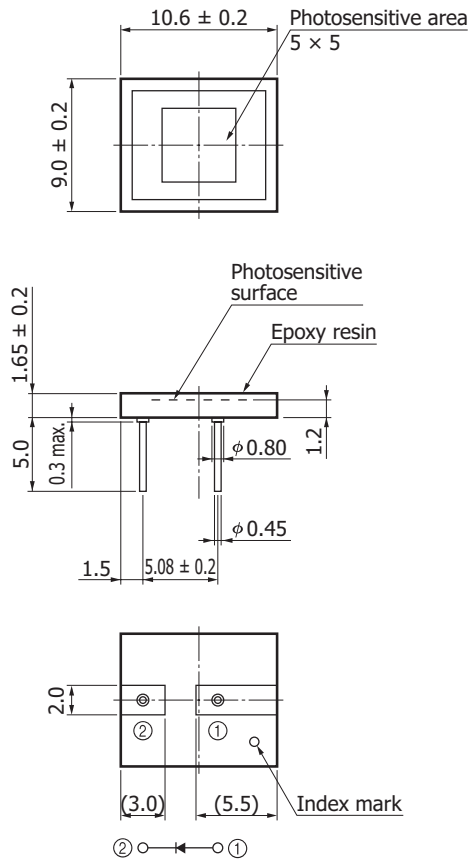


The glass window may extend a maximum of 0.2 mm beyond the upper surface of the cap.

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

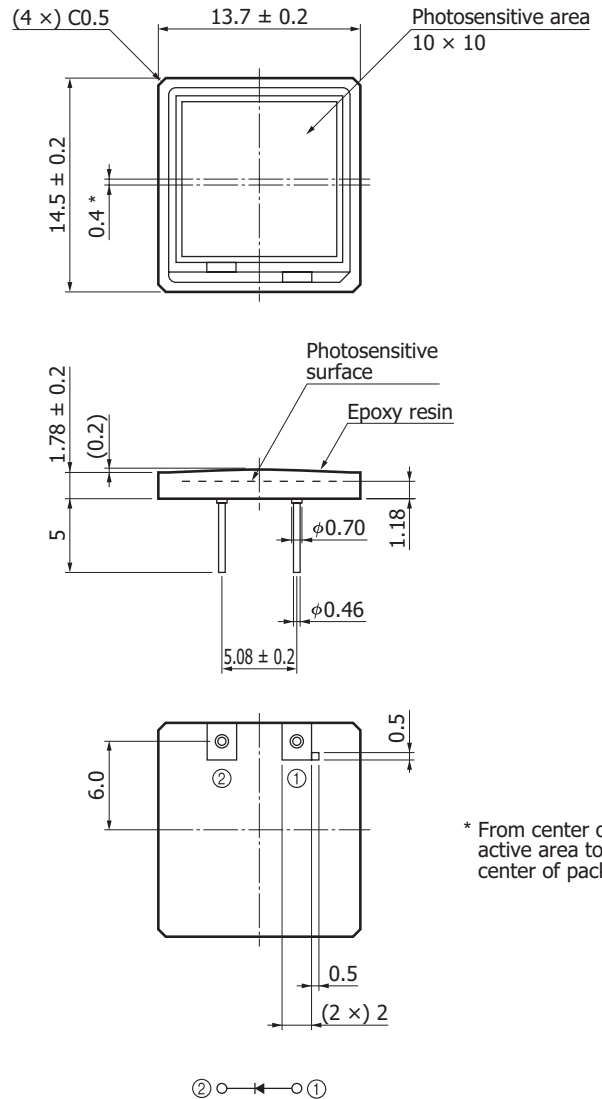
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③ S8664-55



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

■ 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.

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