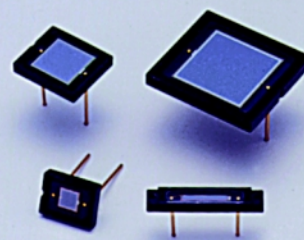


# Si photodiode S1227 series

For UV to visible, precision photometry; suppressed IR sensitivity



## Features

- High UV sensitivity: QE 75 % ( $\lambda=200$  nm)
- Suppressed IR sensitivity
- Low dark current

## Applications

- Analytical equipment
- Optical measurement equipment, etc.

### General ratings / Absolute maximum ratings

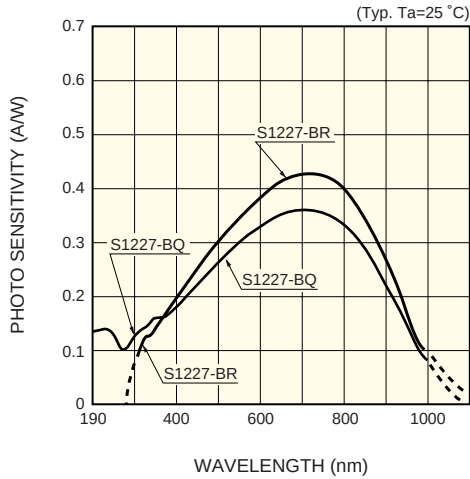
| Type No.     | Dimensional outline/<br>Window material * | Package    | Active area size | Effective active area | Absolute maximum ratings          |                                       |                                     |
|--------------|-------------------------------------------|------------|------------------|-----------------------|-----------------------------------|---------------------------------------|-------------------------------------|
|              |                                           |            |                  |                       | Reverse voltage<br>VR Max.<br>(V) | Operating temperature<br>Topr<br>(°C) | Storage temperature<br>Tstg<br>(°C) |
| S1227-16BQ   | ①/Q                                       | 2.7 × 15   | 1.1 × 5.9        | 5.9                   | 5                                 | -20 to +60                            | -20 to +80                          |
| S1227-16BR   | ②/R                                       |            |                  |                       |                                   |                                       |                                     |
| S1227-33BQ   | ③/Q                                       | 6 × 7.6    | 2.4 × 2.4        | 5.7                   |                                   |                                       |                                     |
| S1227-33BR   | ④/R                                       |            |                  |                       |                                   |                                       |                                     |
| S1227-66BQ   | ⑤/Q                                       | 8.9 × 10.1 | 5.8 × 5.8        | 33                    |                                   |                                       |                                     |
| S1227-66BR   | ⑥/R                                       |            |                  |                       |                                   |                                       |                                     |
| S1227-1010BQ | ⑦/Q                                       | 15 × 16.5  | 10 × 10          | 100                   |                                   |                                       |                                     |
| S1227-1010BR | ⑧/R                                       |            |                  |                       |                                   |                                       |                                     |

### Electrical and optical characteristics (Typ. T<sub>a</sub>=25 °C, unless otherwise noted)

| Type No.     | Spectral response range<br>$\lambda$<br>(nm) | Peak sensitivity wavelength<br>$\lambda_p$<br>(nm) | Photo sensitivity S (A/W) |        |      |                    | Short circuit current I <sub>sc</sub> 100 lx |           | Dark current I <sub>D</sub> V <sub>R</sub> =10 mV<br>Max.<br>(pA) | Temp. coefficient T <sub>CID</sub><br>(times/°C) | Rise time t <sub>r</sub> V <sub>R</sub> =0 V R <sub>L</sub> =1 kΩ<br>(μs) | Terminal capacitance C <sub>t</sub> V <sub>R</sub> =0 V f=10 kHz<br>(pF) | Shunt resistance R <sub>sh</sub> V <sub>R</sub> =10 mV<br>(GΩ) |      | NEP<br>(W/Hz <sup>1/2</sup> ) |
|--------------|----------------------------------------------|----------------------------------------------------|---------------------------|--------|------|--------------------|----------------------------------------------|-----------|-------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|------|-------------------------------|
|              |                                              |                                                    | $\lambda_p$               | 200 nm |      | He-Ne Laser 633 nm | Min. (μA)                                    | Typ. (μA) |                                                                   |                                                  |                                                                           |                                                                          |                                                                |      |                               |
|              |                                              |                                                    |                           | Min.   | Typ. |                    |                                              |           |                                                                   |                                                  |                                                                           |                                                                          |                                                                |      |                               |
|              |                                              |                                                    |                           |        |      |                    |                                              |           |                                                                   |                                                  |                                                                           |                                                                          | Min.                                                           | Typ. |                               |
| S1227-16BQ   | 190 to 1000                                  | 720                                                | 0.36                      | 0.10   | 0.12 | 0.34               | 2                                            | 3.2       | 5                                                                 | 1.12                                             | 0.5                                                                       | 170                                                                      | 2                                                              | 20   | 2.5 × 10 <sup>-15</sup>       |
| S1227-16BR   | 320 to 1000                                  |                                                    | 0.43                      | -      | -    | 0.39               | 2.2                                          | 3.7       |                                                                   |                                                  |                                                                           |                                                                          | 2                                                              | 20   | 2.1 × 10 <sup>-15</sup>       |
| S1227-33BQ   | 190 to 1000                                  |                                                    | 0.36                      | 0.10   | 0.12 | 0.34               | 2                                            | 3.0       | 5                                                                 |                                                  | 0.5                                                                       | 160                                                                      | 2                                                              | 20   | 2.5 × 10 <sup>-15</sup>       |
| S1227-33BR   | 320 to 1000                                  |                                                    | 0.43                      | -      | -    | 0.39               | 2.2                                          | 3.7       |                                                                   |                                                  |                                                                           |                                                                          | 2                                                              | 20   | 2.1 × 10 <sup>-15</sup>       |
| S1227-66BQ   | 190 to 1000                                  |                                                    | 0.36                      | 0.10   | 0.12 | 0.34               | 11                                           | 16        | 20                                                                |                                                  | 2                                                                         | 950                                                                      | 0.5                                                            | 5    | 5.0 × 10 <sup>-15</sup>       |
| S1227-66BR   | 320 to 1000                                  |                                                    | 0.43                      | -      | -    | 0.39               | 13                                           | 19        |                                                                   |                                                  |                                                                           |                                                                          | 0.5                                                            | 5    | 4.2 × 10 <sup>-15</sup>       |
| S1227-1010BQ | 190 to 1000                                  |                                                    | 0.36                      | 0.10   | 0.12 | 0.34               | 32                                           | 44        | 50                                                                |                                                  | 7                                                                         | 3000                                                                     | 0.2                                                            | 2    | 8.0 × 10 <sup>-15</sup>       |
| S1227-1010BR | 320 to 1000                                  |                                                    | 0.43                      | -      | -    | 0.39               | 36                                           | 53        |                                                                   |                                                  |                                                                           |                                                                          | 0.2                                                            | 2    | 6.7 × 10 <sup>-15</sup>       |

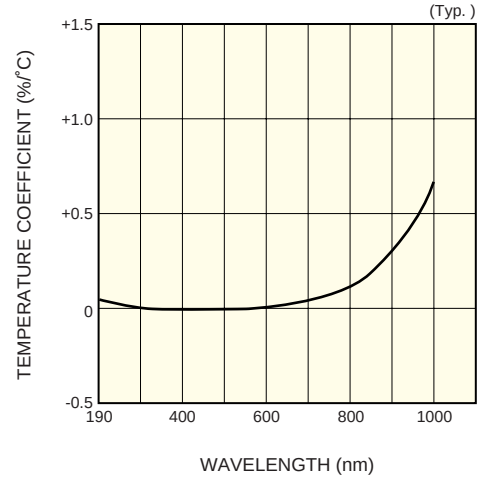
\* Window material Q: quartz glass, R: resin coating

## Spectral response



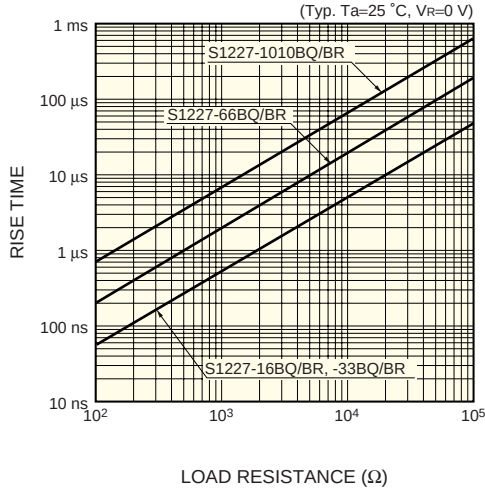
KSPDB0094EA

## Photo sensitivity temperature characteristic



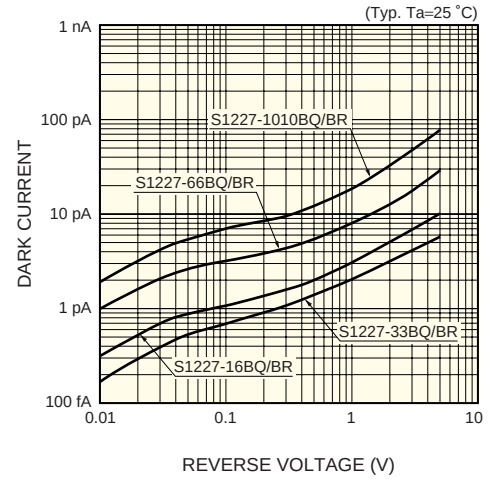
KSPDB0090EB

## Rise time vs. load resistance



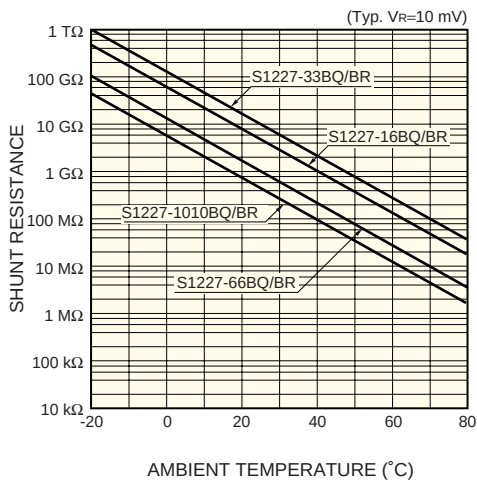
KSPDB0095EA

## Dark current vs. reverse voltage



KSPDB0096EB

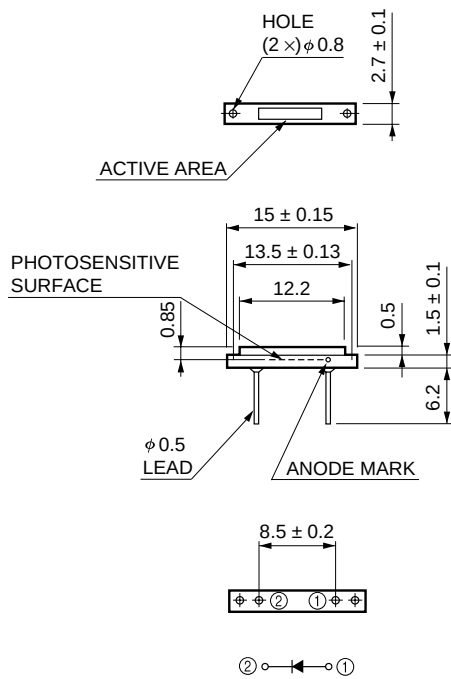
## Shunt resistance vs. ambient temperature



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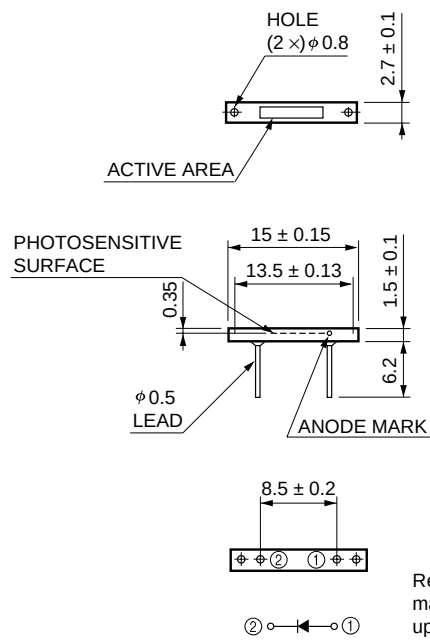
## ■ Dimensional outlines (unit: mm)

① S1227-16BQ



KSPDA0094EA

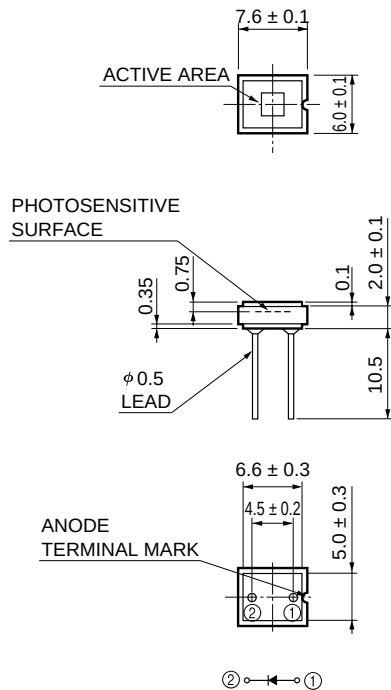
② S1227-16BR



Resin coating may extend a maximum of 0.1 mm above the upper surface of the package.

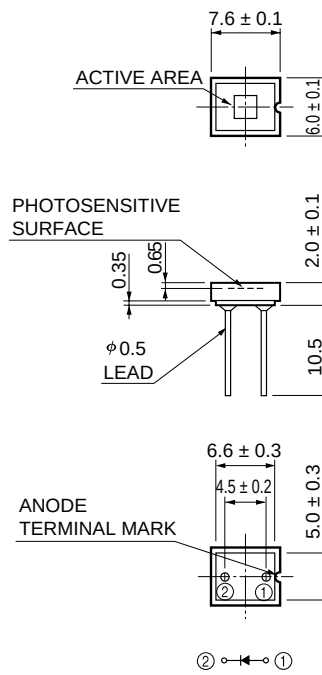
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③ S1227-33BQ



KSPDA0096EA

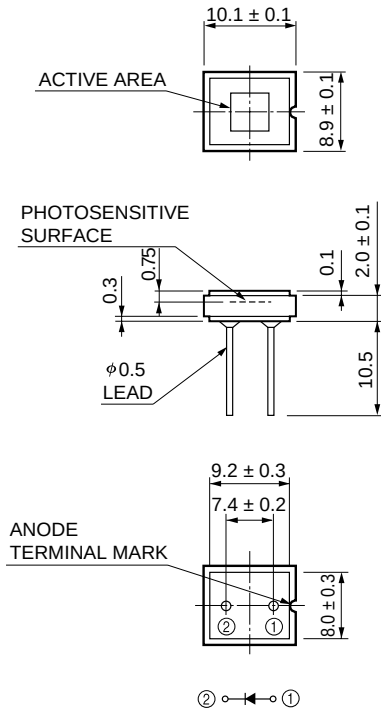
④ S1227-33BR



Resin coating may extend a maximum of 0.1 mm above the upper surface of the package.

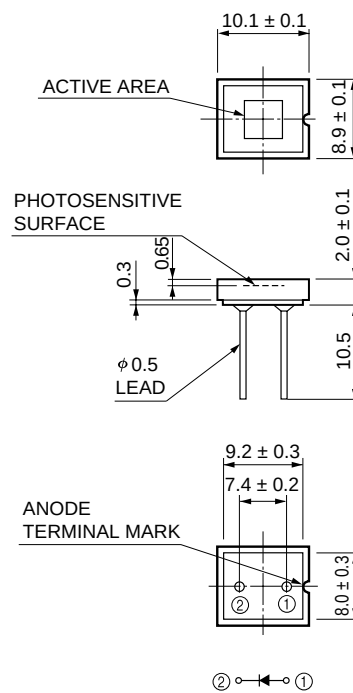
KSPDA0097EA

⑤ S1227-66BQ



KSPDA0098EA

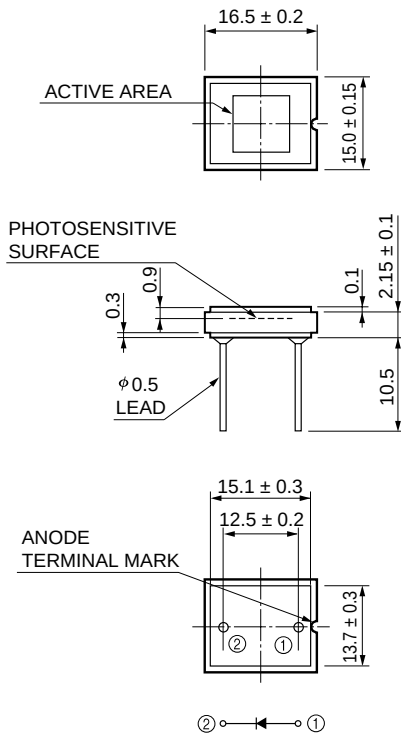
⑥ S1227-66BR



KSPDA0099EA

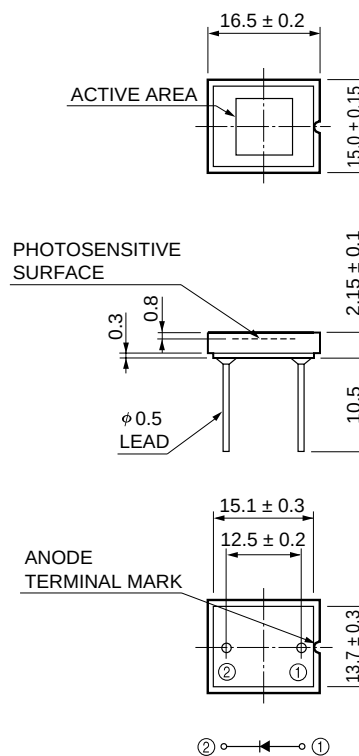
Resin coating may extend a maximum of 0.1 mm above the upper surface of the package.

⑦ S1227-1010BQ



KSPDA0100EA

⑧ S1227-1010BR



KSPDA0101EA

Resin coating may extend a maximum of 0.1 mm above the upper surface of the package.

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