

# Si PIN photodiode S2506/S6775/S6967 series, S6786

## Plastic SIP (Single In-line Package)



S2506/S6775/S6967 series and S6786 are Si PIN photodiodes with large active areas, molded into a clear or visible-cut plastic SIP (Single In-line Package) for detecting visible to near infrared range or near infrared range only. These Si PIN photodiodes feature high sensitivity, high-speed response and large active areas, allowing you to choose the optimum type that best matches your application.

### Features

- S2506-02: Visible to near infrared range
- S2506-04: Visible-cut
- S6786 : Visible to near infrared range, high sensitivity, high-speed response
- S6775, S6967: Visible to near infrared range, high sensitivity, high-speed response, large active area
- S6775-01, S6967-01: Visible-cut, high sensitivity, high-speed response, large active area
- Plastic package: 7 × 7.8 mm
- Active area size
- S2506 series, S6786: 2.77 × 2.77 mm
- S6775/S6967 series : 5.5 × 4.8 mm

### Applications

- Spatial light transmission
- Optical switches
- Laser radar, etc.

### General ratings / Absolute maximum ratings

| Type No. | Dimensional outline | Package | Active area size (mm) | Effective active area (mm <sup>2</sup> ) | Absolute maximum ratings    |                          |                                 |                               |
|----------|---------------------|---------|-----------------------|--|-----------------------------|--------------------------|---------------------------------|-------------------------------|
|          |                     |         |                       |  | Reverse voltage VR Max. (V) | Power dissipation P (mW) | Operating temperature Topr (°C) | Storage temperature Tstg (°C) |
| S2506-02 | ①                   | Plastic | 2.77 × 2.77           | 7.7                                      | 35                          | 150                      | -25 to +85                      | -40 to +100                   |
| S2506-04 |                     |         |                       |  |                             |                          |                                 |                               |
| S6786    |                     |         |                       |  |                             |                          |                                 |                               |
| S6775    | ②                   |         | 5.5 × 4.8             | 26.4                                     |                             | 50                       |                                 |                               |
| S6775-01 |                     |         |                       |  |                             |                          |                                 |                               |
| S6967    |                     |         |                       |  |                             |                          |                                 |                               |
| S6967-01 |                     |         |                       |  |                             |                          |                                 |                               |

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

| Type No. | Spectral response range λ (nm) | Peak sensitivity wavelength λp (nm) | Photo sensitivity S (A/W) |        |        |        | Short circuit current Isc 100 lx (μA) | Dark current Id |           | Temp. coefficient of Id TcId (times/°C) | Cut-off frequency fc RL=50 Ω -3 dB (MHz) | Terminal capacitance Ct f=1 MHz (pF) | NEP (W/Hz <sup>1/2</sup> ) |                            |      |      |      |
|----------|--------------------------------|-------------------------------------|---------------------------|--------|--------|--------|---------------------------------------|-----------------|-----------|---|--|--------------------------------------|----------------------------|----------------------------|------|------|------|
|          |                                |                                     | λp                        | 660 nm | 780 nm | 830 nm |                                       | Typ. (nA)       | Max. (nA) |   |  |                                      |                            |                            |      |      |      |
|          |                                |                                     |                           |        |        |        |                                       |                 |           |   |  |                                      |                            |                            |      |      |      |
| S2506-02 | 320 to 1100                    | 960                                 | 0.56                      | 0.4    | 0.48   | 0.5    | 7.3                                   | 0.1 *1          | 10 *1     | 1.15                                    | 25 *1                                    | 15 *1                                | 1.0 × 10 <sup>-14</sup> *1 |                            |      |      |      |
| S2506-04 | 760 to 1100                    |                                     |                           | -      | -      | 0.25   | 4.1                                   |                 |           |   |  |                                      |                            |                            |      |      |      |
| S6786    | 320 to 1060                    | 960                                 | 0.65                      | 0.45   | 0.55   | 0.6    | 7.5                                   | 0.3 *2          | 5 *2      |   | 60 *2                                    | 15 *2                                |                            | 1.5 × 10 <sup>-14</sup> *2 |      |      |      |
| S6775    | 320 to 1100                    |                                     |                           |        |        |        |                                       |                 |           |   |  |                                      |                            |                            | 0.7  | -    | 0.48 |
| S6775-01 | 700 to 1100                    | 960                                 | 0.68                      | -      | 0.48   | 0.54   | 21                                    | 0.5 *2          | 10 *2     |   | 15 *2                                    | 40 *2                                |                            | 1.8 × 10 <sup>-14</sup> *2 |      |      |      |
| S6967    | 320 to 1060                    |                                     |                           |        |        |        |                                       |                 |           |   |  |                                      |                            |                            | 0.65 | 0.45 | 0.55 |
| S6967-01 | 700 to 1060                    |                                     |                           |        |        |        |                                       |                 |           | 0.63                                    |  |                                      | -                          |                            | 0.48 | 0.54 | 18   |

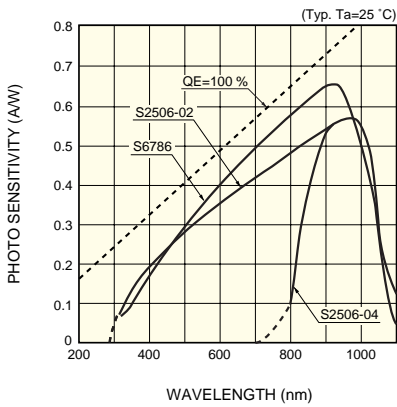
\*1: VR=12 V

\*2: VR=10 V

**SOLID STATE DIVISION**

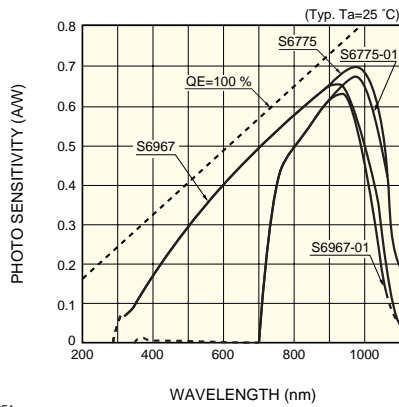
## ■ Spectral response

S2506 series, S6786



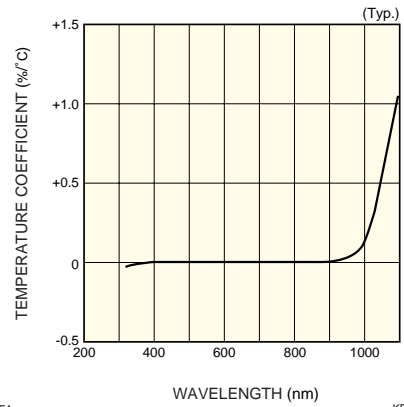
KPINB0348EA

S6775/S6967 series



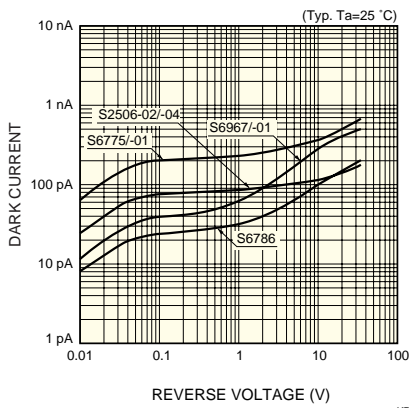
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## ■ Photo sensitivity temperature characteristic (S2506-02)



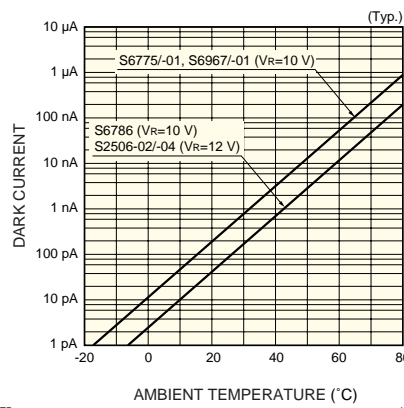
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## ■ Dark current vs. reverse voltage



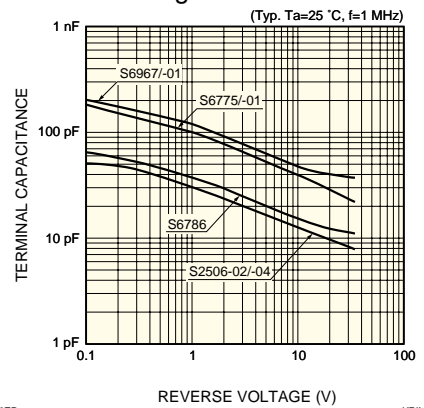
KPINB0168EB

## ■ Dark current vs. ambient temperature



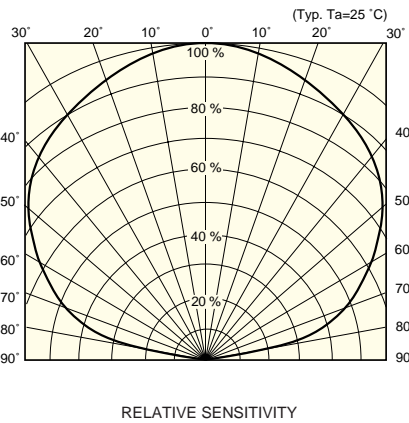
KPINB0169EB

## ■ Terminal capacitance vs. reverse voltage



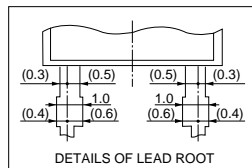
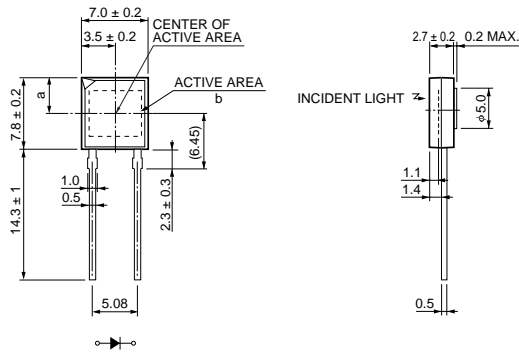
KPINB0170EB

## ■ Directivity (S2506-02)



KPINB0065EB

## ■ Dimensional outline (unit: mm, tolerance unless otherwise noted: ±0.1)



| Type No.              | a          | b           |
|-----------------------|------------|-------------|
| S2506 series<br>S6786 | 2.8 ± 0.2  | 2.77 × 2.77 |
| S6775/S6967 series    | 3.65 ± 0.2 | 5.5 × 4.8   |

KPINA0084EB

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