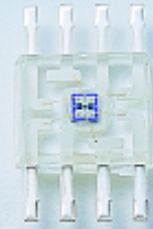


# Si PIN photodiode S6795, S7747

## 6-element photodiode / plastic package



S6795 and S7747 are 6-element Si PIN photodiodes molded into clear plastic packages. These photodiodes feature high sensitivity, low noise and low cross-talk. S7747 is specifically developed for violet laser detection, providing greatly improved sensitivity at  $\lambda=410$  nm.

Custom-designed devices (with different element shapes, number of elements, characteristics and packages) are also available to meet your specific needs. Feel free to contact our sales office.

### Features

- Clear plastic package (4 × 4.8 mm)
- High sensitivity  
S6795: Typ. 0.5 A/W ( $\lambda=680$  nm)  
S7747: Typ. 0.27 A/W ( $\lambda=410$  nm)
- High-speed response: Typ. 400 MHz ( $V_R=5$  V)
- Low cross-talk
- Low noise

### Applications

- CD, DVD and MO (Magneto Optical) disc signal readout
- Laser beam alignment
- Position detection, etc.
- Violet laser detection (S7747)
- Optical disc (DVD, etc.) pickup using violet laser (S7747)

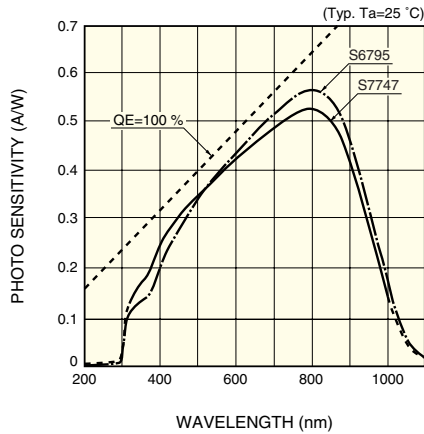
### ■ Absolute maximum ratings

| Parameter             | Symbol     | Value       | Unit |
|-----------------------|------------|-------------|------|
| Reverse voltage       | $V_R$ Max. | 20          | V    |
| Operating temperature | $T_{opr}$  | -25 to +85  | °C   |
| Storage temperature   | $T_{stg}$  | -40 to +100 | °C   |

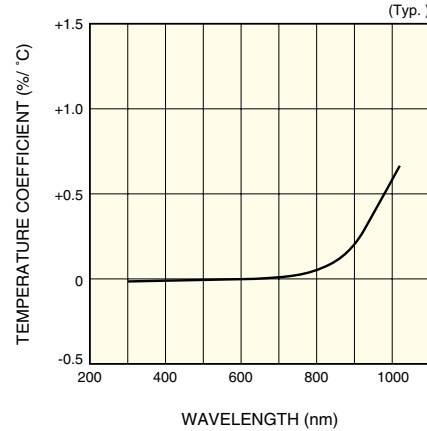
### ■ Electrical and optical characteristics ( $T_a=25$ °C, per 1 element)

| Parameter                        | Symbol      | Condition                                               | S6795 |                       |      | S7747 |                       |      | Unit                |
|----------------------------------|-------------|---------------------------------------------------------|-------|-----------------------|------|-------|-----------------------|------|---------------------|
|                                  |             |                                                         | Min.  | Typ.                  | Max. | Min.  | Typ.                  | Max. |                     |
| Spectral response range          | $\lambda$   |                                                         | -     | 320 to 1000           | -    | -     | 320 to 1000           | -    | nm                  |
| Peak sensitivity wavelength      | $\lambda_p$ |                                                         | -     | 800                   | -    | -     | 800                   | -    | nm                  |
| Photo sensitivity                | S           | $\lambda=410$ nm                                        | 0.19  | 0.22                  | -    | 0.24  | 0.27                  | -    | A/W                 |
|                                  |             | $\lambda=680$ nm                                        | 0.45  | 0.50                  | -    | 0.43  | 0.48                  | -    |                     |
| Dark current                     | $I_D$       | All element total<br>$V_R=5$ V                          | -     | 0.1                   | 1    | -     | 0.1                   | 1    | nA                  |
| Temperature coefficient of $I_D$ | $T_{CID}$   |                                                         | -     | 1.15                  | -    | -     | 1.15                  | -    | times/°C            |
| Cut-off frequency                | $f_c$       | $V_R=5$ V, $R_L=50$ $\Omega$<br>$\lambda=680$ nm, -3 dB | 200   | 400                   | -    | 200   | 400                   | -    | MHz                 |
| Terminal capacitance             | $C_t$       | $V_R=5$ V, $f=1$ MHz                                    | -     | 1                     | 2    | -     | 1                     | 2    | pF                  |
| Noise equivalent power           | NEP         | $V_R=5$ V                                               | -     | $9.9 \times 10^{-15}$ | -    | -     | $1.1 \times 10^{-14}$ | -    | W/Hz <sup>1/2</sup> |

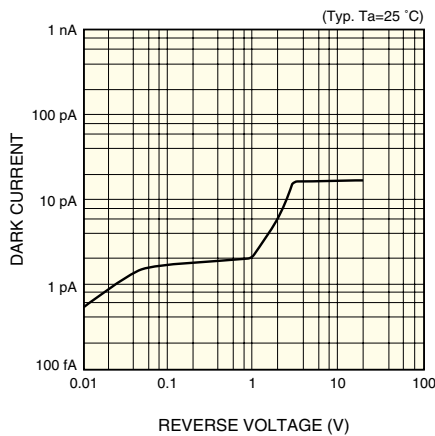
## ■ Spectral response



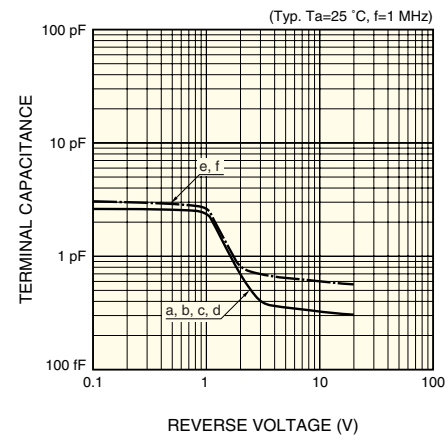
## ■ Photo sensitivity temperature characteristic



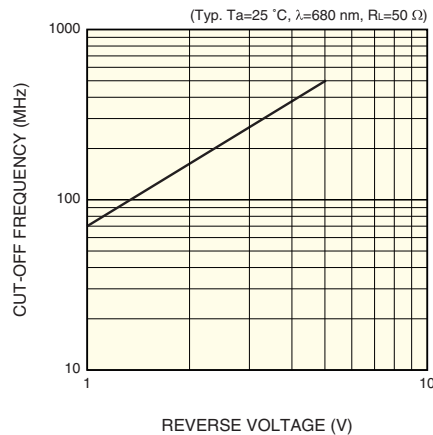
## ■ Dark current vs. reverse voltage



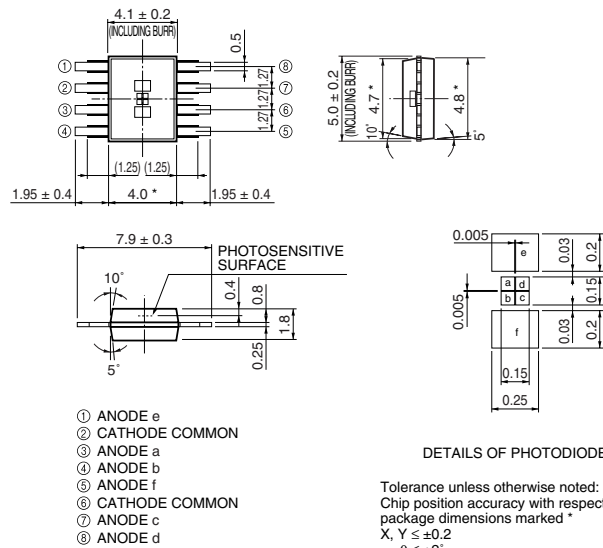
## ■ Terminal capacitance vs. reverse voltage (per element; see details of photodiode)



## ■ Cut-off frequency vs. reverse voltage



## ■ Dimensional outline (unit: mm)



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