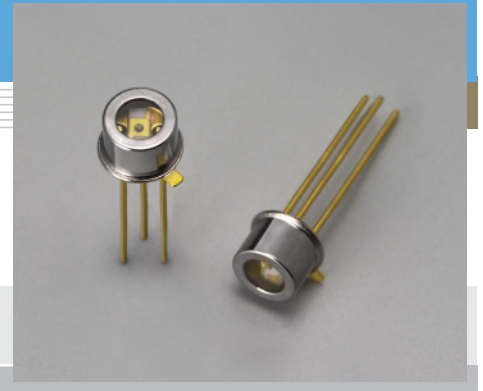


# InGaAs PIN photodiode G8376 series

## Standard type



InGaAs PIN photodiodes are NIR (near infrared) detectors that feature high-speed response and low noise. Various active area sizes are provided to meet wide applications.

### Features

- Low noise, low dark current
- Low terminal capacitance
- 3-pin TO-18 package

### Applications

- NIR (near infrared) photometry
- Optical communication

### ■ Specifications / Absolute maximum ratings

| Type No. | Window material  | Package | Active area<br>(mm) | Absolute maximum ratings        |  |  |
|----------|--|---------|---------------------|---------------------------------|--|--|
|          |  |         |                     | Reverse voltage<br>$V_R$<br>(V) | Operating temperature<br>$T_{opr}$<br>(°C) | Storage temperature<br>$T_{stg}$<br>(°C) |
| G8376-01 | Borosilicate glass<br>with anti-reflective<br>coating (optimized<br>for 1.55 $\mu\text{m}$ peak) | TO-18   | $\phi 0.04$         | 20                              | -40 to +85                                 | -55 to +125                              |
| G8376-02 |  |         | $\phi 0.08$         |                                 |  |  |
| G8376-03 |  |         | $\phi 0.3$          |                                 |  |  |
| G8376-05 |  |         | $\phi 0.5$          |                                 |  |  |

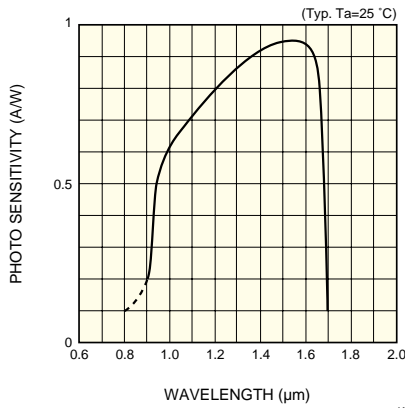
### ■ Electrical and optical characteristics (Typ. $T_a=25^\circ\text{C}$ , unless otherwise noted)

| Type No. | Spectral response range<br>( $\mu\text{m}$ ) | Peak sensitivity wavelength<br>$\lambda_p$<br>( $\mu\text{m}$ ) | Photo sensitivity S |            |                     |            | Dark current $I_D$<br>$V_R=5\text{ V}$ |           | Cut-off frequency<br>$f_c$<br>$V_R=2\text{ V}$<br>$R_L=50\ \Omega$<br>-3 dB<br>(MHz) | Terminal capacitance<br>$C_t$<br>$V_R=5\text{ V}$<br>$f=1\text{ MHz}$<br>(pF) | Shunt resistance<br>$R_{sh}$<br>$V_R=10\text{ mV}$<br>(M $\Omega$ ) | $D^*$<br>$\lambda=\lambda_p$<br>( $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$ ) | NEP<br>$\lambda=\lambda_p$<br>( $\text{W}/\text{Hz}^{1/2}$ ) |
|----------|--|---|---------------------|------------|---------------------|------------|--|-----------|--|---|---|--|--|
|          |  |   | $1.3\ \mu\text{m}$  |            | $\lambda=\lambda_p$ |            | Typ. (nA)                              | Max. (nA) |  |   |   |  |  |
|          |  |   | Min. (A/W)          | Typ. (A/W) | Min. (A/W)          | Typ. (A/W) |  |           |  |   |   |  |  |
| G8376-01 | 0.9 to 1.7                                   | 1.55  | 0.8                 | 0.9        | 0.85                | 0.95       | 0.06                                   | 0.3       | 3000   | 0.5   | 10000   | $5 \times 10^{12}$   | $2 \times 10^{-15}$  |
| G8376-02 |  |   |                     |            |                     |            | 0.08                                   | 0.4       | 2000   | 1   | 8000  |  | $2 \times 10^{-15}$  |
| G8376-03 |  |   |                     |            |                     |            | 0.3                                    | 1.5       | 400 *  | 5   | 1000  |  | $4 \times 10^{-15}$  |
| G8376-05 |  |   |                     |            |                     |            | 0.5                                    | 2.5       | 200 *  | 12  | 300   |  | $8 \times 10^{-15}$  |

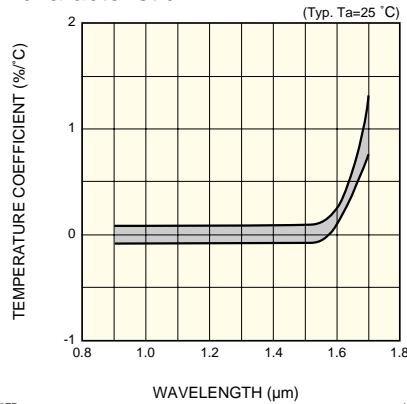
\*  $V_R=5\text{ V}$

G8376 series may be damaged by Electro Static Discharge, etc. Be careful when using G8376 series.

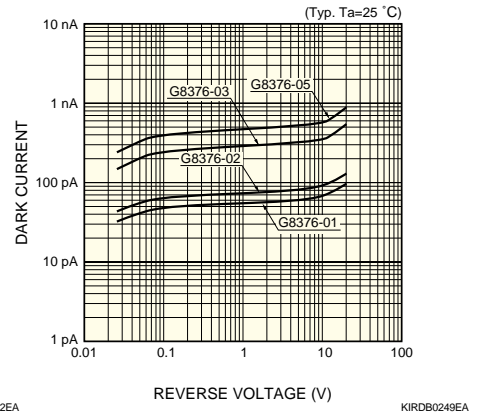
## ■ Spectral response



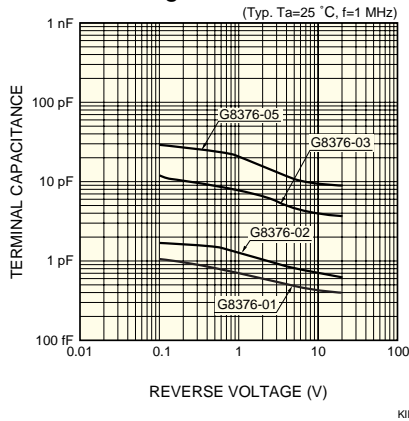
## ■ Photo sensitivity temperature characteristic



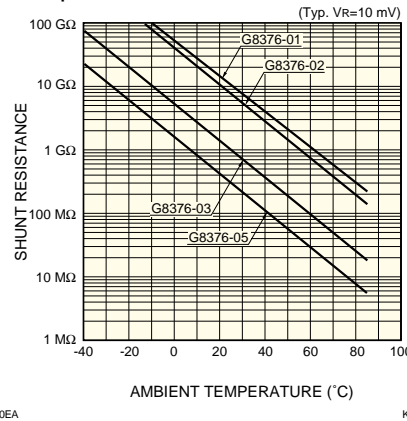
## ■ Dark current vs. reverse voltage



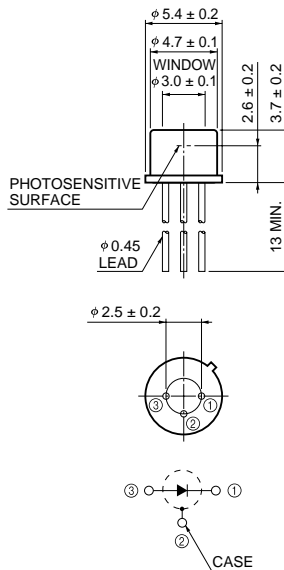
## ■ Terminal capacitance vs. reverse voltage



## ■ Shunt resistance vs. ambient temperature



## ■ Dimensional outline (unit: mm)



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