

# PNZ3112

## PIN Photodiode

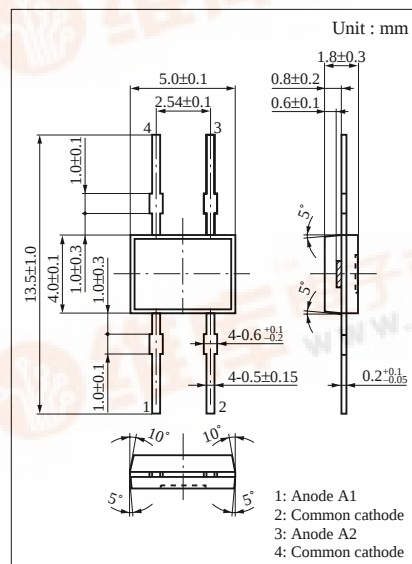
For optical control systems

### Features

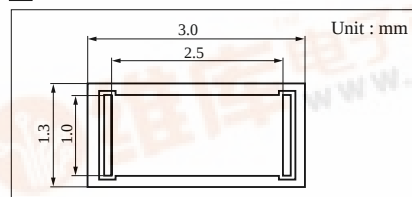
- High sensitivity and low dark current
- For one-dimensional light-point position detection
- Good positional linearity
- Small plastic package
- Adoption of visible light cutoff resin

### Absolute Maximum Ratings (Ta = 25°C)

| Parameter                     | Symbol    | Ratings     | Unit |
|-------------------------------|-----------|-------------|------|
| Reverse voltage (DC)          | $V_R$     | 30          | V    |
| Power dissipation             | $P_D$     | 30          | mW   |
| Operating ambient temperature | $T_{opr}$ | -25 to +85  | °C   |
| Storage temperature           | $T_{stg}$ | -30 to +100 | °C   |



### Dimensions of detection area



### Electro-Optical Characteristics (Ta = 25°C)

| Parameter                     | Symbol          | Conditions                           | min | typ  | max | Unit       |
|-------------------------------|-----------------|--------------------------------------|-----|------|-----|------------|
| Dark current                  | $I_D$           | $V_R = 1V$                           |     |      | 2   | nA         |
| Photo current                 | $I_L$           | $V_R = 1V, L = 1000 \text{ lx}^{*1}$ | 16  | 20   |     | $\mu A$    |
| Peak sensitivity wavelength   | $\lambda_p$     | $V_R = 1V$                           |     | 940  |     | nm         |
| Response time                 | $t_r, t_f^{*2}$ | $V_R = 1V, R_L = 1k\Omega$           |     | 10   |     | $\mu s$    |
| Capacitance between pins      | $C_t$           | $V_R = 1V, f = 1MHz$                 |     | 10   |     | pF         |
| Resistance between electrodes | $R_S^{*3}$      | $V_R = 1V, V_a = 0.5V$               |     | 120  |     | k $\Omega$ |
| Gradient of position signal   | $a^{*4}$        | $V_R = 1V$                           |     | 0.08 |     |            |

<sup>\*1</sup>  $I_L = I_1 + I_2$

Note:  $I_1$  and  $I_2$  are the photoelectric currents of anodes A1 and A2.

White tungsten lamp light source (color temperature  $T = 2856K$ )

<sup>\*2</sup> GaAs light emitting diode light source ( $\lambda = 800nm$ )

<sup>\*3</sup>  $V_a$  is the potential difference between anodes A1 and A2.

<sup>\*4</sup>  $a = |(I_1 - I_2) / (I_1 + I_2)|$

Note: Incident light is at the position 100  $\mu m$  from the reference position.

The reference position is the position where  $I_1 = I_2$ .

