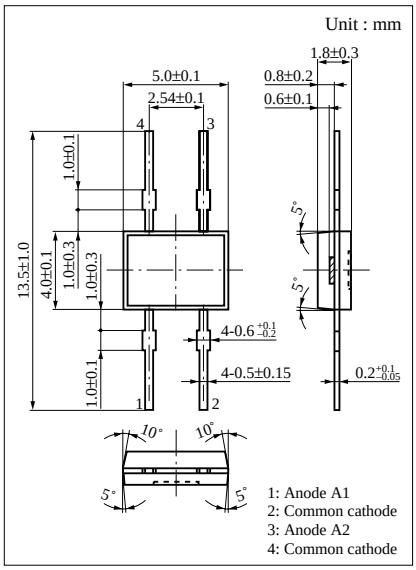
PNZ3112

PIN Photodiode

For optical control systems



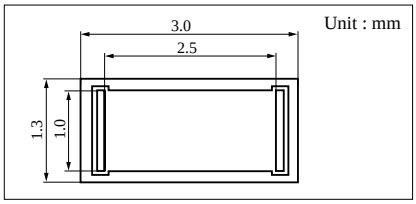
Features

- 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 lx*1	16	20		µA
Peak sensitivity wavelength	λ_P	V_R = 1V		940		nm
Response time	t_r, t_f*2	V_R = 1V, R_L = 1kΩ		10		µs
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		kΩ
Gradient of position signal	a*4	V_R = 1V		0.08		

*1 $I_L = I_1 + I_2$

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

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

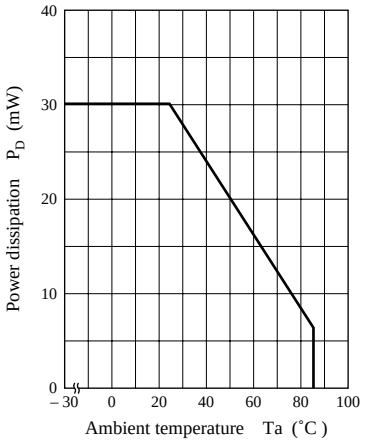
*2 GaAs light emitting diode light source (λ = 800nm)

*3 V_a is the potential difference between anodes A1 and A2.

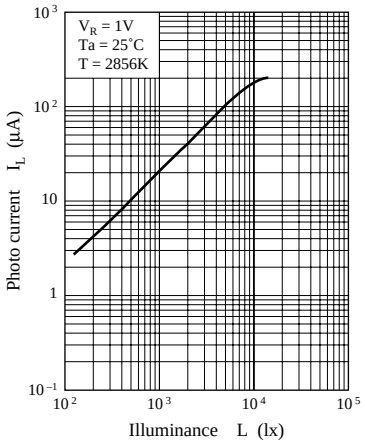
*4 $a = | (I_1–I_2)/(I_1+I_2) |$

Note :Incident light is at the position 100 µm from the reference position.
The reference position is the position where $I_1 = I_2$.

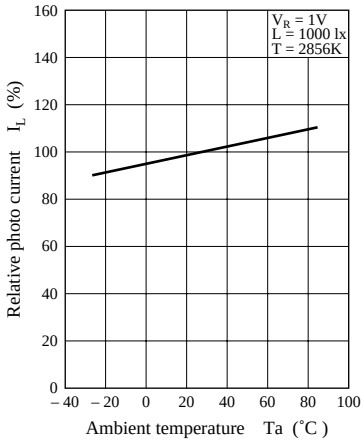
P_D — Ta



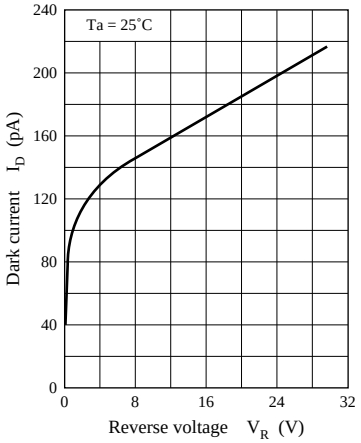
I_L — L



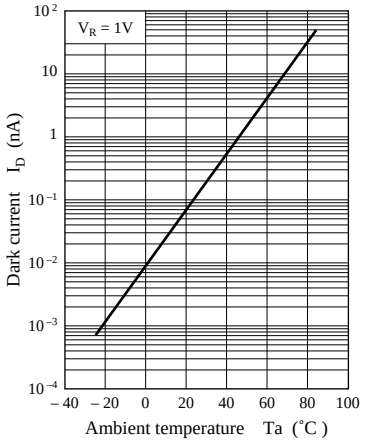
I_L — Ta



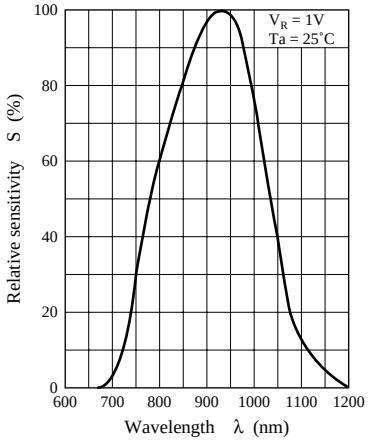
I_D — V_R



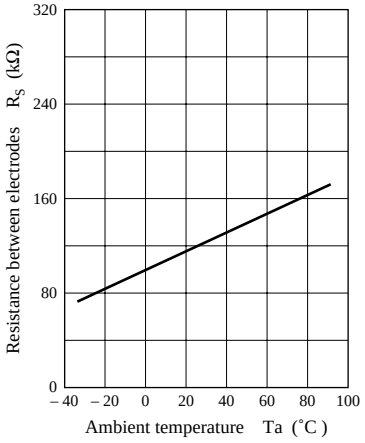
I_D — Ta



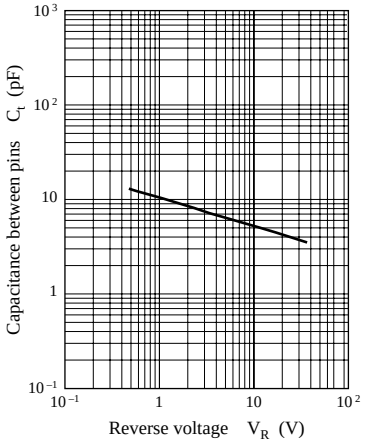
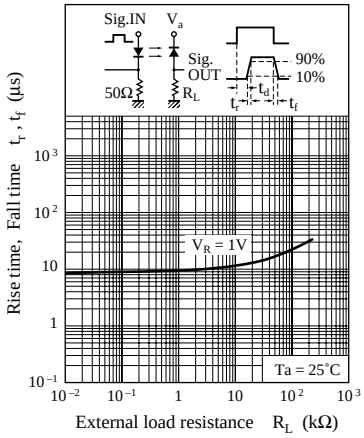
Spectral sensitivity characteristics



R_S — Ta



C_t — V_R



t_r , t_f — R_L