

# PNZ313 (PN313)

## Silicon planar type

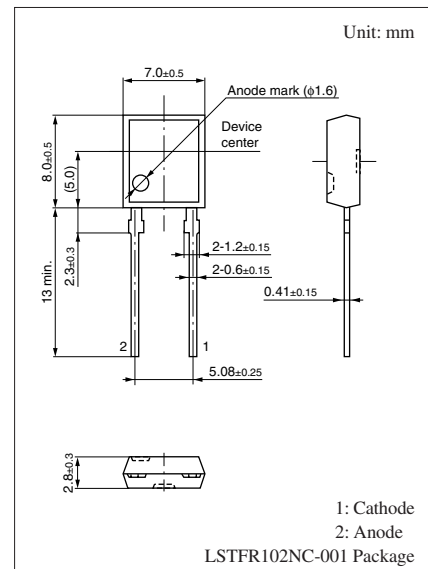
For optical control systems

### ■ Features

- Fast response which is well suited to high speed modulated light detection:  $t_r$ ,  $t_f$  = 50 ns (typ.)
- High sensitivity, high reliability
- Peak emission wavelength matched with infrared light emitting diodes:  $\lambda_p$  = 940 nm (typ.)
- Wide detection area, wide half-power angle:  $\theta$  = 65° (typ.)
- Adoption of visible light cutoff resin

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Reverse voltage	$V_R$	30	V
Power dissipation	$P_D$	100	mW
Operating ambient temperature	$T_{opr}$	-30 to +80	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to +80	$^\circ\text{C}$



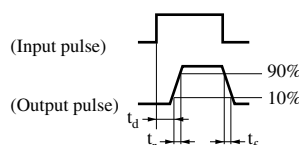
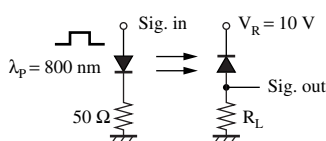
### ■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Dark current	$I_D$	$V_R = 10\text{ V}$		5	50	nA
Photocurrent *1	$I_L$	$V_R = 10\text{ V}$ , $L = 1\ 000\text{ lx}$	35	50		$\mu\text{A}$
Peak emission wavelength	$\lambda_p$	$V_R = 10\text{ V}$		940		nm
Rise time *2	$t_r$	$V_R = 10\text{ V}$ , $R_L = 1\text{ k}\Omega$		50		ns
Fall time *2	$t_f$			50		ns
Rise time *2	$t_r$	$V_R = 10\text{ V}$ , $R_L = 100\text{ k}\Omega$		5		$\mu\text{s}$
Fall time *2	$t_f$			5		$\mu\text{s}$
Terminal capacitance	$C_t$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$		70		pF
Half-power angle	$\theta$	The angle from which photocurrent becomes 50%		65		$^\circ$

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. \*1: Source: Tungsten (color temperature 2856 K)

\*2: Switching time measurement circuit

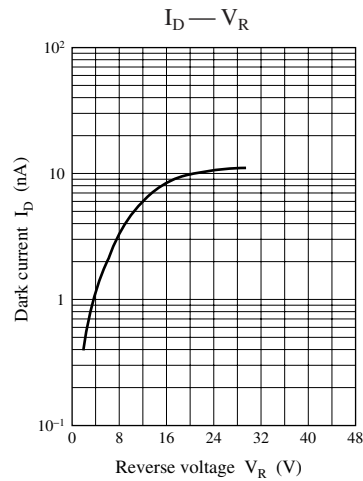
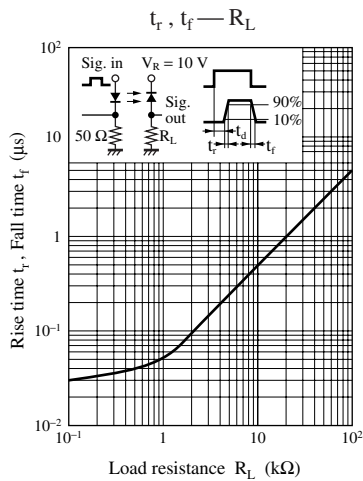
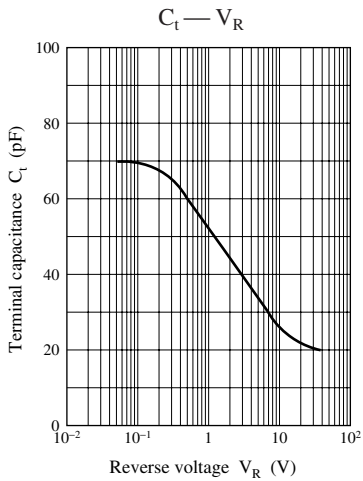
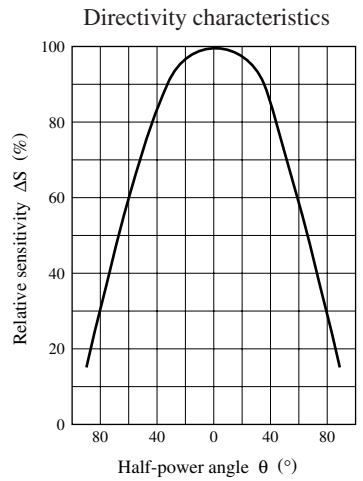
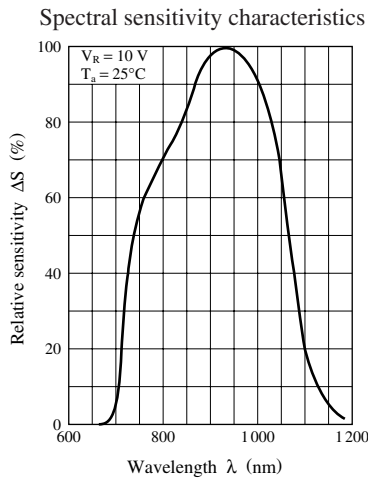
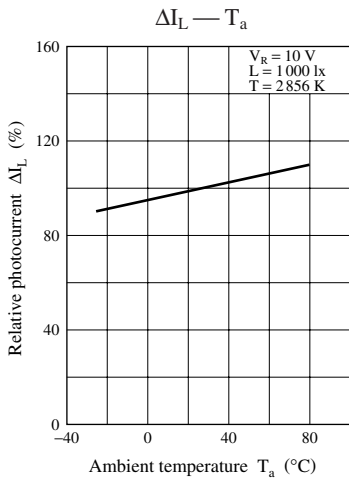
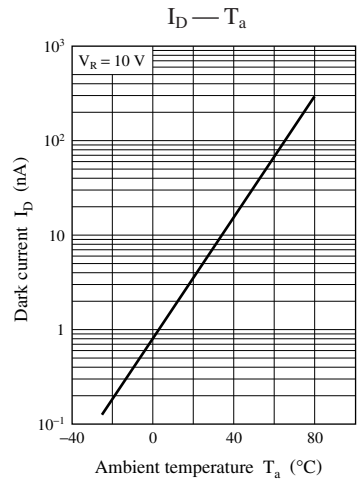
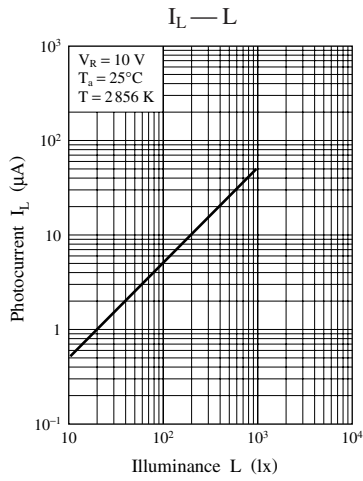
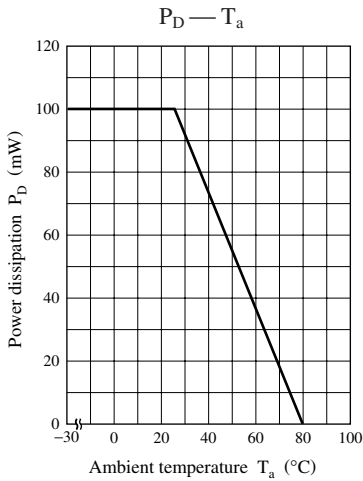


$t_d$ : Delay time

$t_r$ : Rise time (Time required for the collector photocurrent to increase from 10% to 90% of its final value)

$t_f$ : Fall time (Time required for the collector photocurrent to decrease from 90% to 10% of its initial value)

Note) The part number in the parenthesis shows conventional part number.



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