

# PNZ123S

## Silicon NPN Phototransistor

For optical control systems

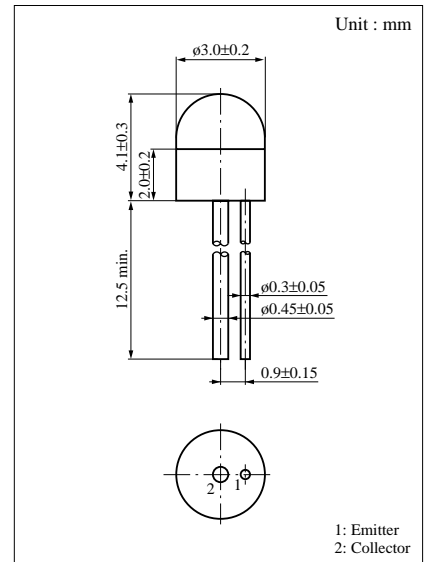
Can be combined with LN62S to form an photo interrupter

### ■ Features

- High sensitivity
- Low dark current
- Fast response :  $t_r = 3.5 \mu s$  (typ.)
- Small size ( $\phi 3$ ) ceramic package

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

Parameter	Symbol	Ratings	Unit
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to collector voltage	$V_{ECO}$	5	V
Collector current	$I_C$	10	mA
Collector power dissipation	$P_C$	50	mW
Operating ambient temperature	$T_{opr}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-30 to +100	°C

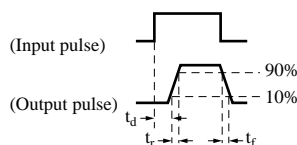
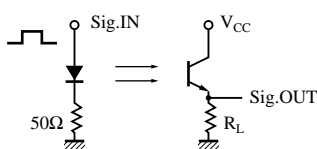


### ■ Electro-Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	$I_{CEO}$	$V_{CE} = 10V$		1	100	nA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10V, L = 1000 \text{ lx}^{*1}$	400		700	$\mu A$
Peak sensitivity wavelength	$\lambda_p$	$V_{CE} = 10V$		800		nm
Acceptance half angle	$\theta$	Measured from the optical axis to the half power point		30		deg.
Rise time	$t_r^{*2}$	$V_{CC} = 10V, I_{CE(L)} = 1mA, R_L = 100\Omega$		3.5		$\mu s$
Fall time	$t_f^{*2}$			5		$\mu s$

\*1 Measurements were made using a tungsten lamp (color temperature T = 2856K) as a light source.

\*2 Switching time measurement circuit



$t_d$ : Delay time

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

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

