

PNZ123S

Silicon NPN Phototransistor

For optical control systems

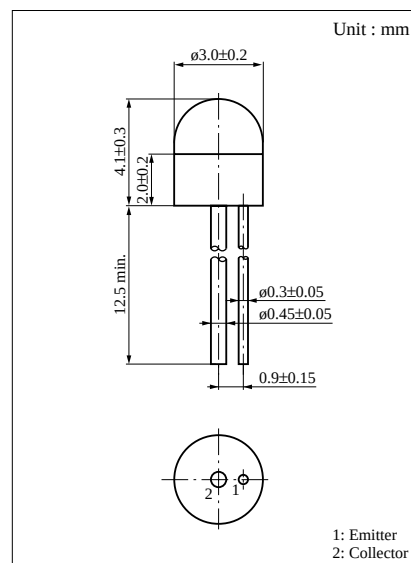
Can be combined with LN62S to form an photo interrupter

Features

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

Absolute Maximum Ratings ($T_a = 25^\circ C$)

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	$^\circ C$
Storage temperature	T_{stg}	-30 to +100	$^\circ C$

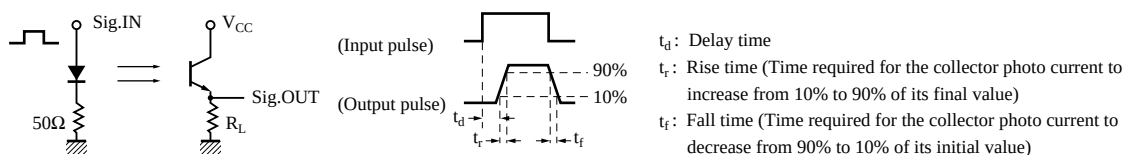


Electro-Optical Characteristics ($T_a = 25^\circ C$)

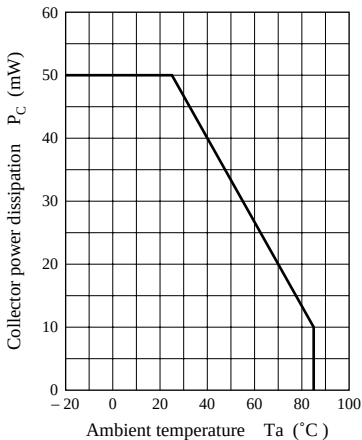
Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		1	100	nA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10V, L = 1000 \text{ lx}^{*1}$	400		700	μA
Peak sensitivity wavelength	λ_p	$V_{CE} = 10V$		800		nm
Acceptance half angle	θ	Measured from the optical axis to the half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

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

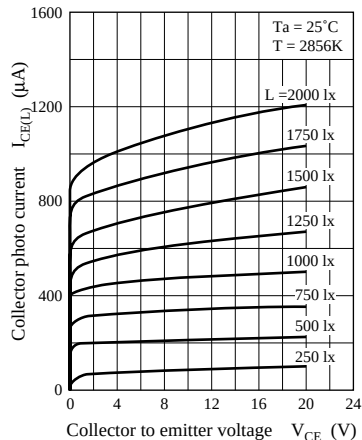
*2 Switching time measurement circuit



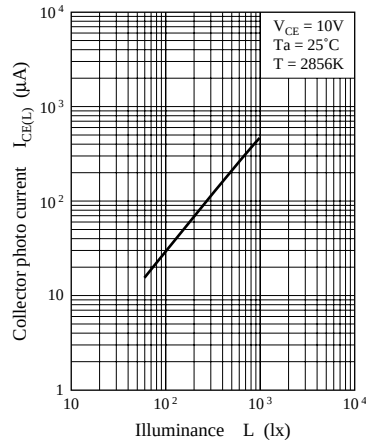
$P_C - T_a$



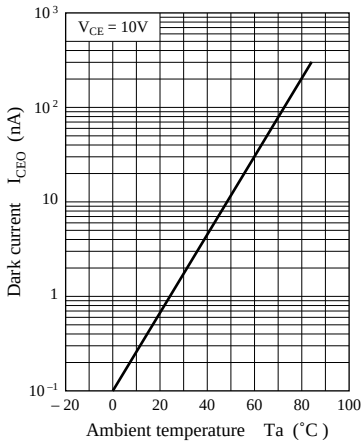
$I_{CE(L)} - V_{CE}$



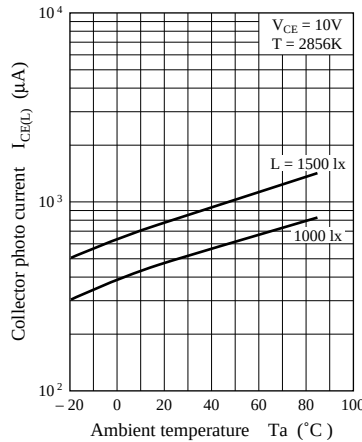
$I_{CE(L)} - L$



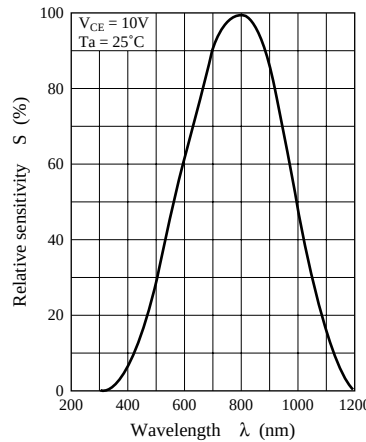
$I_{CEO} - T_a$



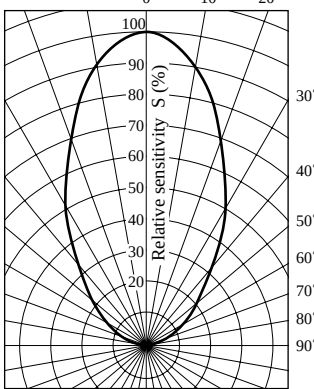
$I_{CE(L)} - T_a$



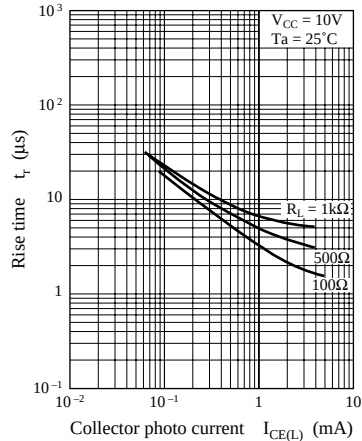
Spectral sensitivity characteristics



Directivity characteristics



$t_r - I_{CE(L)}$



$t_f - I_{CE(L)}$

