

PNZ121S

Silicon NPN Phototransistor

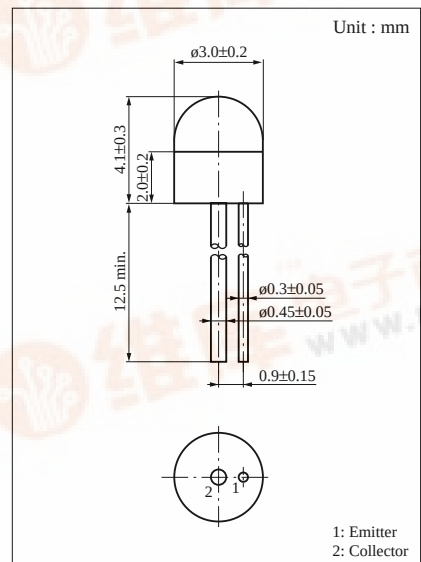
For optical control systems

Features

- Stable operations in high illuminance region
- Low dark current
- Fast response : $t_r = 1 \mu s$ (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	$^\circ C$

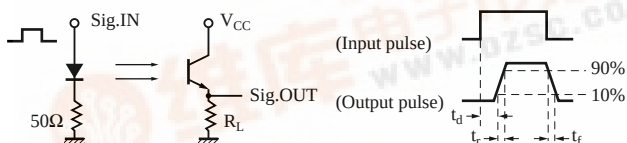


Electro-Optical Characteristics ($T_a = 25^\circ C$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		1	100	nA
Collector photo current	$I_{CE(L)}^{*3}$	$V_{CE} = 10V, L = 1000 \text{ lx}^{*1}$	120		280	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}	$V_{CC} = 10V, I_{CE(L)} = 1mA, R_L = 100\Omega$		1		μs
Fall time	t_f^{*2}			1.3		μs

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

^{*2} Switching time measurement circuit



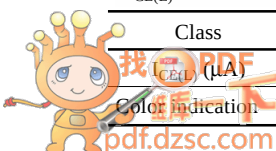
t_d : Delay time

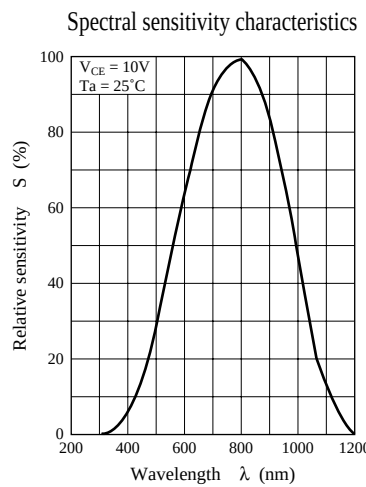
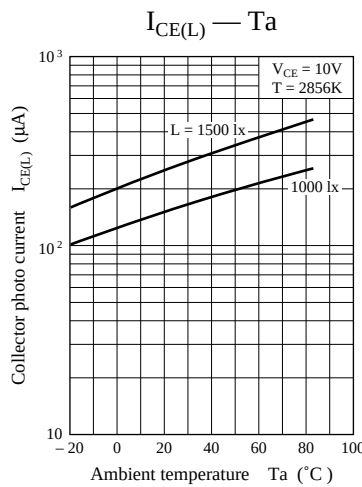
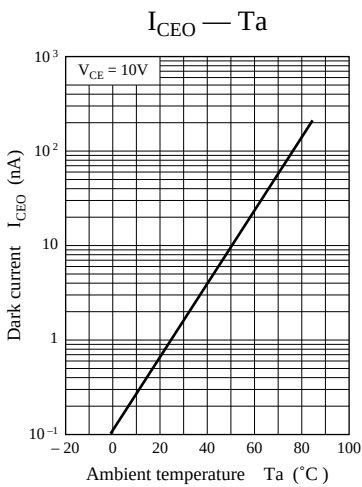
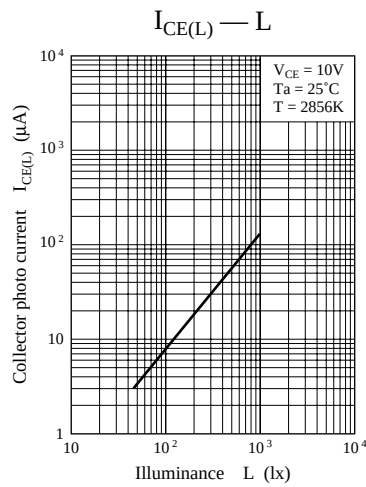
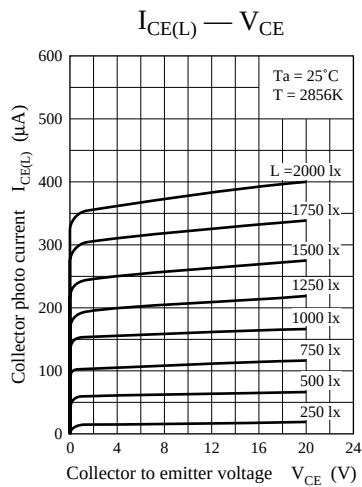
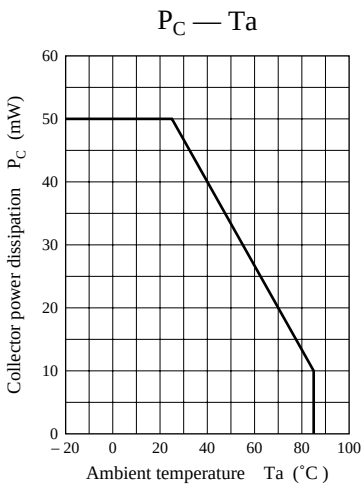
t_r : Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)

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

^{*3} $I_{CE(L)}$ Classifications

Class	Q	R	S	T
$I_{CE(L)} (\mu A)$	120 to 180	160 to 200	180 to 235	210 to 280
Color indication	Black	Red	Green	—





Directivity characteristics

