

PNZ1270

Silicon NPN Phototransistor

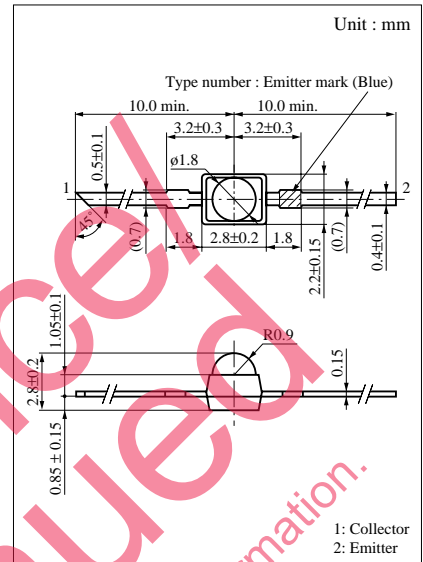
For optical control systems

■ Features

- High sensitivity
- Good collector photo current linearity with respect to optical power input
- Fast response : $t_r = 2.5 \mu s$ (typ.)
- Small size designed for easier mounting to printed circuit board

■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rated	Unit
Collector to emitter voltage	V_{CEO}	20	V
Emitter to collector voltage	V_{ECO}	5	V
Collector current	I_C	20	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

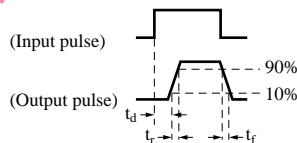
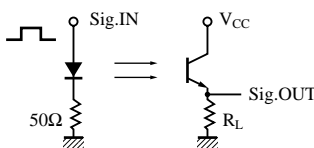


■ Electro-Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		1	100	nA
Collector photo current	$I_{CE(L)}^{*3}$	$V_{CE} = 10V, L = 1000 \text{ lx}^{*1}$	0.8		19.2	mA
Peak sensitivity wavelength	λ_p	$V_{CE} = 10V$		800		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		14		deg.
Rise time	t_r^{*2}	$V_{CC} = 10V, I_{CE(L)} = 1mA, R_L = 100\Omega$		2.5		μs
Fall time	t_f^{*2}			3.5		μs

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

*2 Switching time measurement circuit



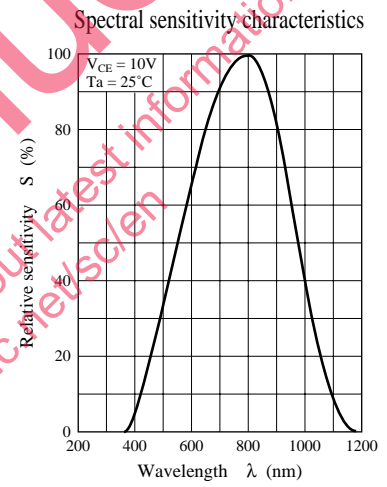
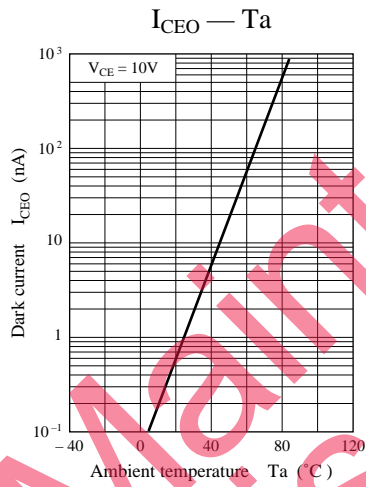
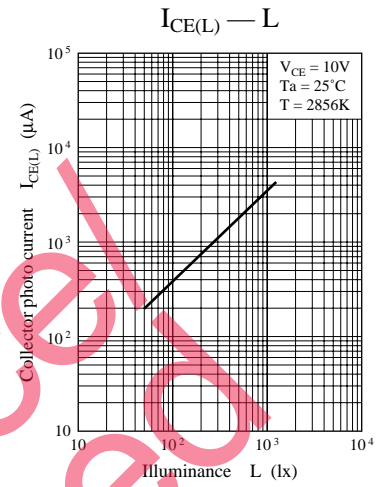
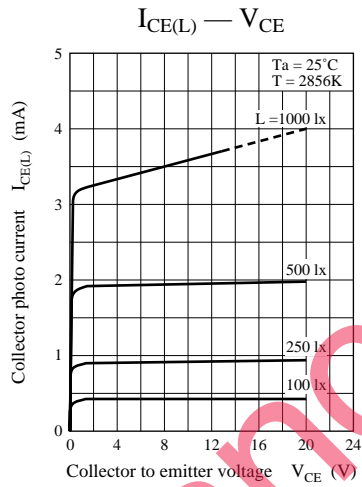
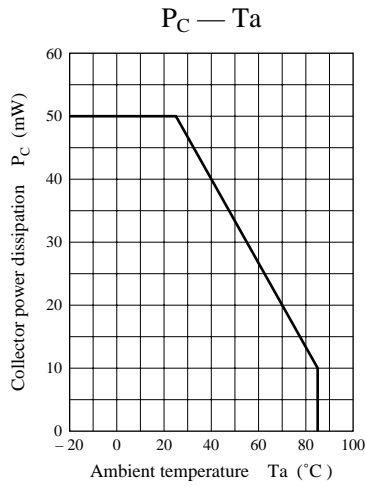
t_d : Delay time

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

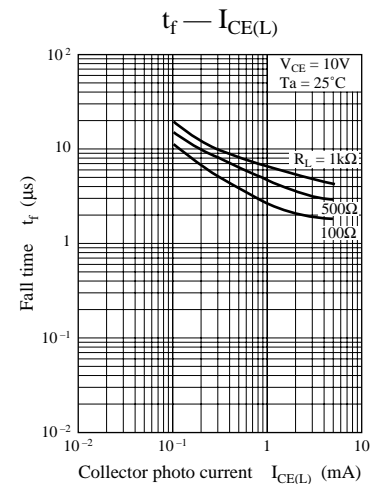
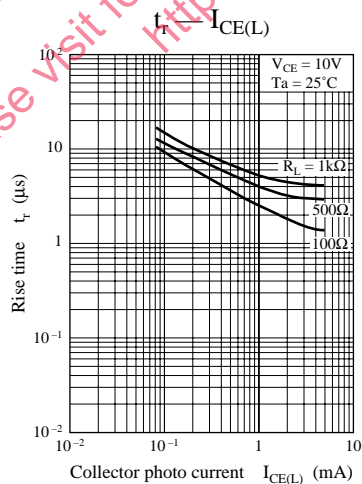
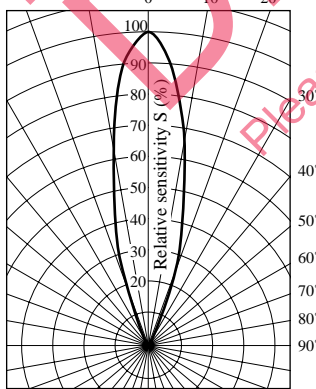
t_f : Fall time (Time required for the collector photo current to decrease from 90% to 10% of its initial value)

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

Class	Q	R	S	T
$I_{CE(L)}$ (mA)	0.8 to 2.4	1.6 to 4.8	3.2 to 9.6	6.4 to 19.2



Directivity characteristics



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