

PNZ158 (PN158)

Silicon NPN Phototransistor

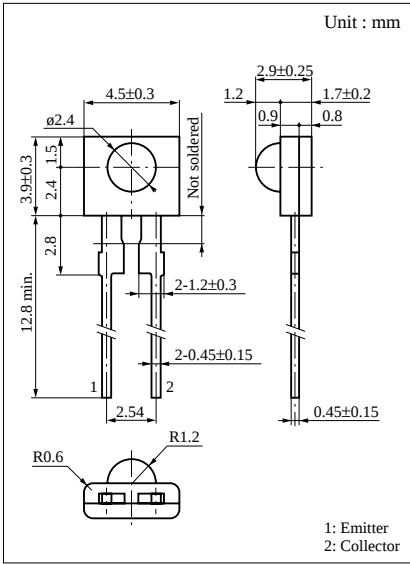
For optical control systems

■ Features

- High sensitivity
- Fast response : $t_r = 4 \mu s$ (typ.)
- Wide spectral sensitivity, suited for detecting various kinds of LEDs
- Small size, thin side-view type package

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

Parameter	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CEO}	20	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	100	mW
Operating ambient temperature	T_{opr}	-25 to +85	$^\circ C$
Storage temperature	T_{stg}	-30 to +100	$^\circ C$

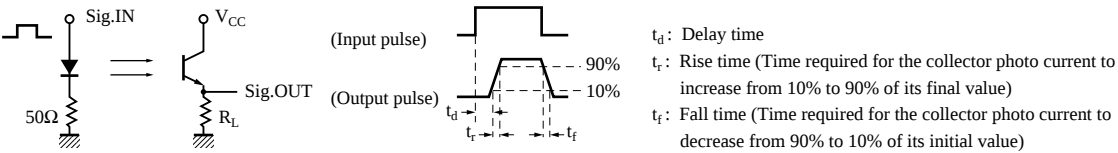


■ Electro-Optical Characteristics ($T_a = 25^\circ C$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		0.01	1	μA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10V, L = 500 \text{ lx}^{*1}$	1	4		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		40		deg.
Response time	t_r, t_f^{*2}	$V_{CC} = 10V, I_{CE(L)} = 5mA, R_L = 100\Omega$		4	10	μs
Collector saturation voltage	$V_{CE(sat)}$	$I_{CE(L)} = 1mA, L = 1000 \text{ lx}^{*1}$		0.2	0.5	V

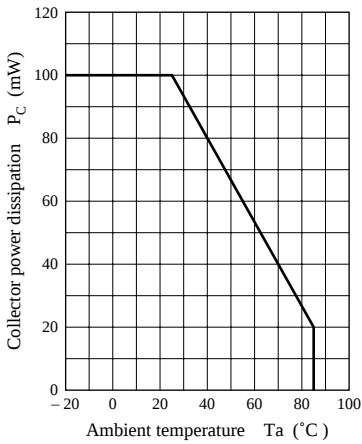
^{*1} Measurements were made using a tungsten lamp (color temperature $T = 2856K$) as a light source.

^{*2} Switching time measurement circuit

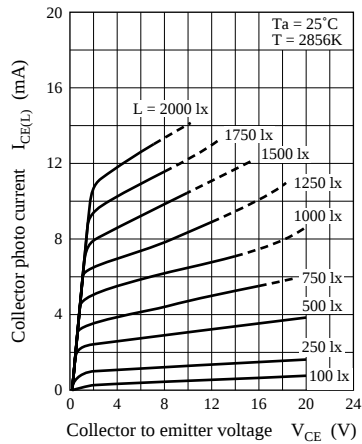


Note) The part number in the parenthesis shows conventional part number.

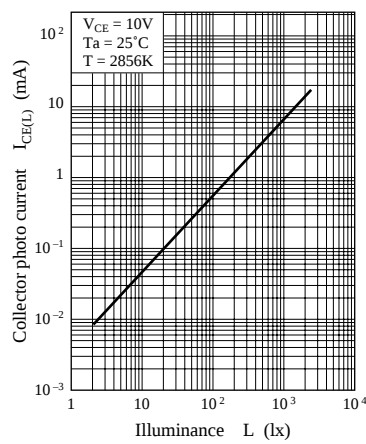
$P_C - T_a$



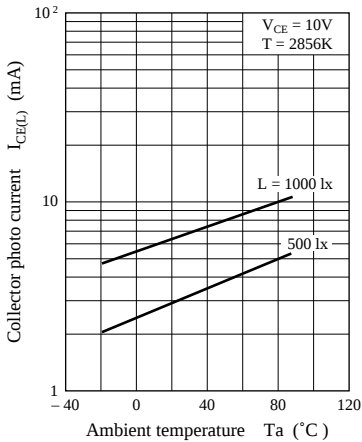
$I_{CE(L)} - V_{CE}$



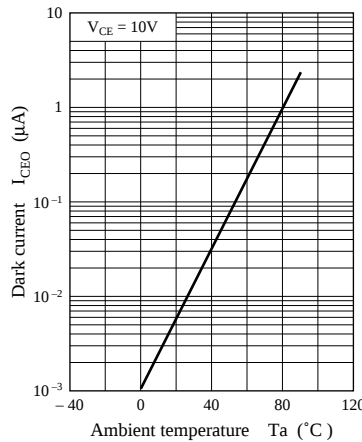
$I_{CE(L)} - L$



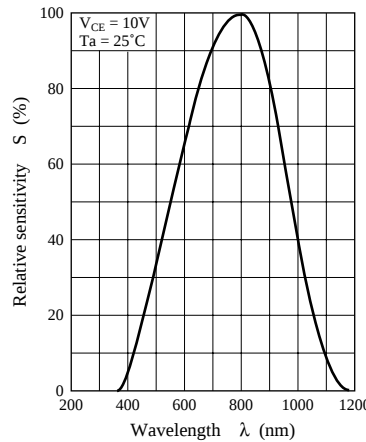
$I_{CE(L)} - T_a$



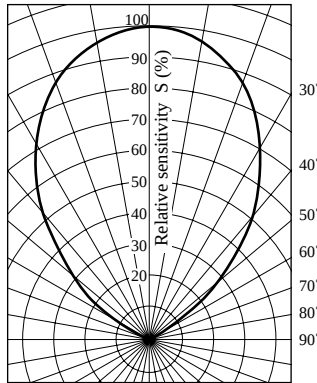
$I_{CEO} - T_a$



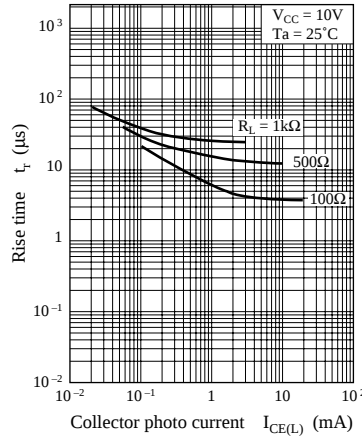
Spectral sensitivity characteristics



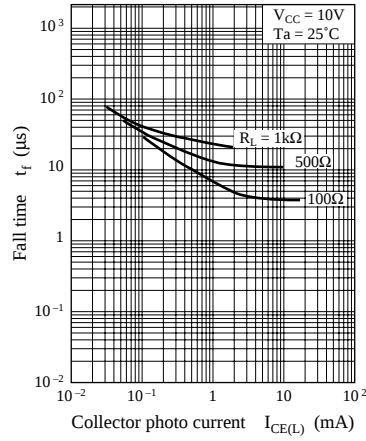
Directivity characteristics



$t_r - I_{CE(L)}$



$t_f - I_{CE(L)}$



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