

PNZ115 (PN115)

Silicon NPN Phototransistor

For optical control systems

■ Features

- High sensitivity
- Wide directional sensitivity, matched to GaAs LEDs : $\theta = 35$ deg. (typ.)
- Fast response : $t_r = 5 \mu s$ (typ.)
- Side-view type package

■ Absolute Maximum Ratings (Ta = 25°C)

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

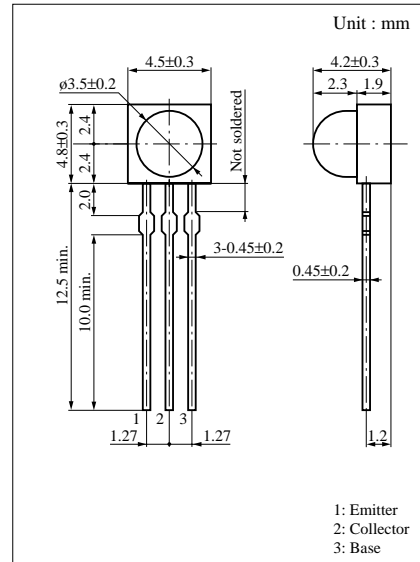


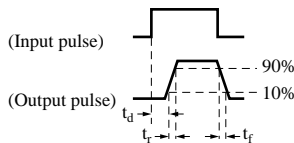
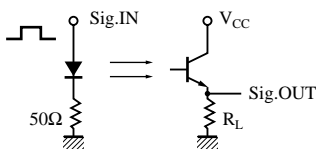
Photo-detectors

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

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		0.02	2	μA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10V, L = 100 lx^{*1}$	2.0	4.5		mA
Peak sensitivity wavelength	λ_P	$V_{CE} = 10V$		900		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		35		deg.
Rise time	t_r^{*2}	$V_{CC} = 10V, I_{CE(L)} = 5mA$ $R_L = 100\Omega$		5		μs
Fall time	t_f^{*2}			6		μs
Collector saturation voltage	$V_{CE(sat)}$	$I_{CE(L)} = 1mA, L = 1000 lx^{*1}$		0.3	0.6	V

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

*2 Switching time measurement circuit

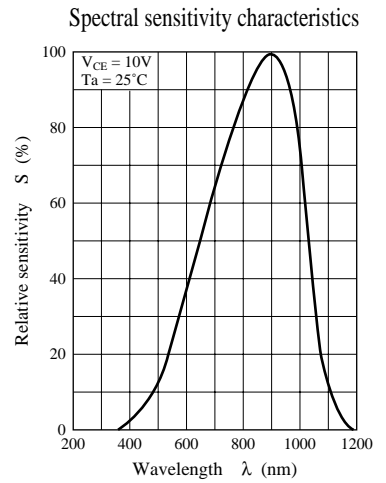
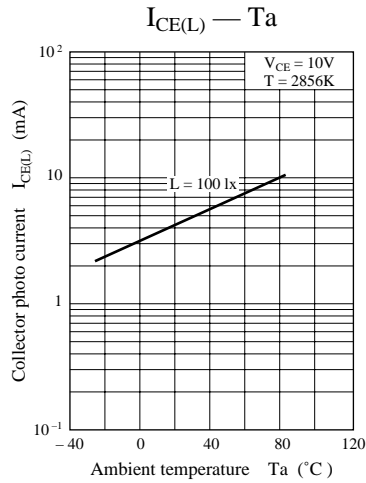
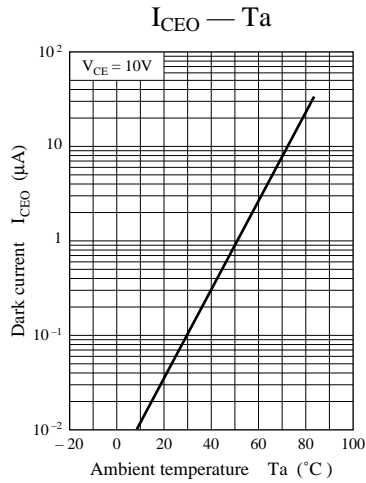
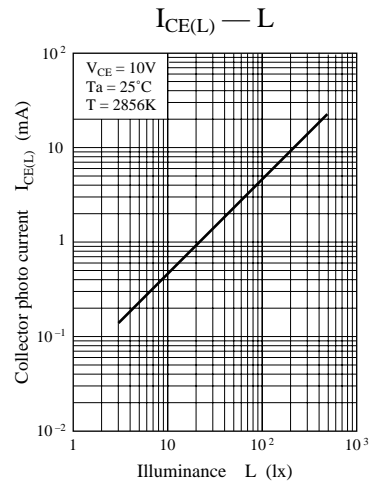
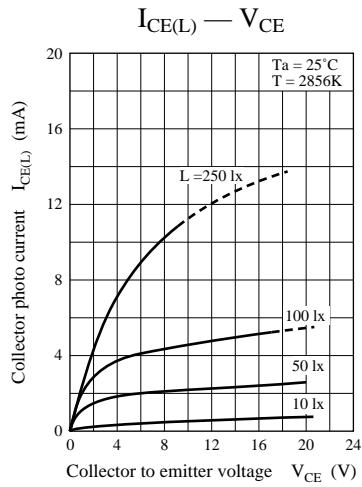
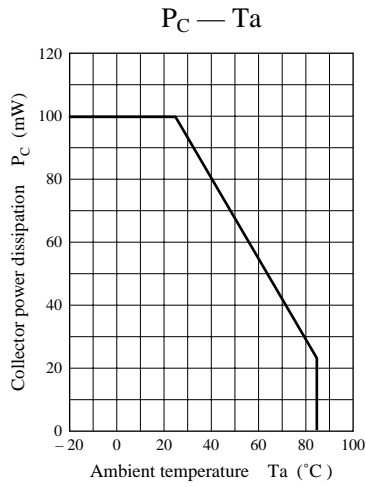


t_d : Delay time

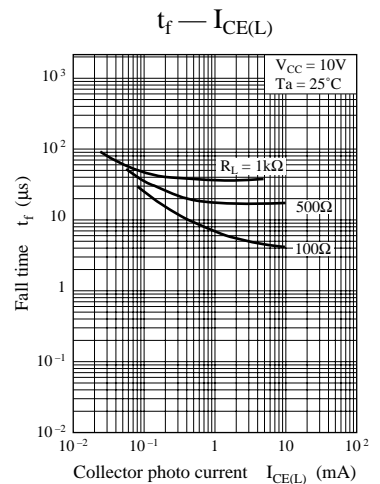
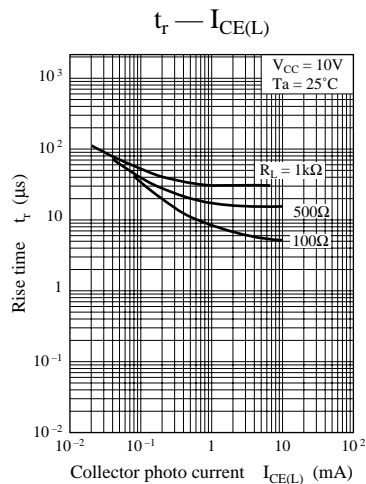
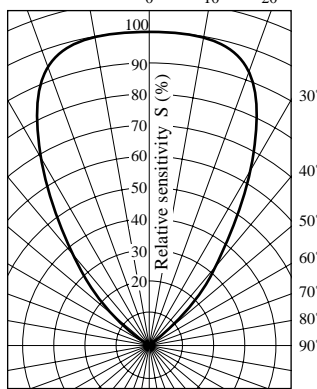
t_r : Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)

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

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



Directivity characteristics



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