

# PNZ147 (PN147)

## Silicon planar type

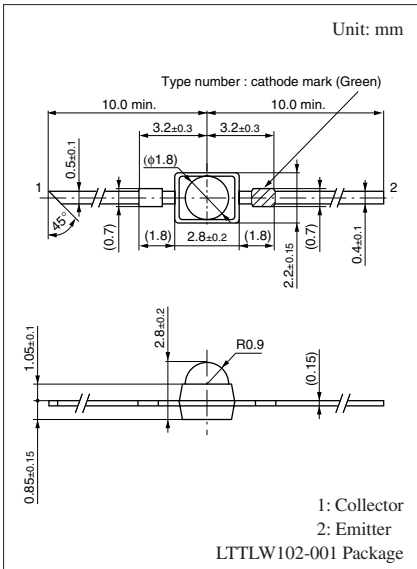
For optical control systems

### ■ Features

- High sensitivity
- Wide spectral sensitivity characteristics, suited for detecting GaAs LEDs
- Fast response:  $t_r, t_f = 3 \mu s$  (typ.)
- Small size designed for easier mounting to printed circuit board

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	20	V
Emitter-collector voltage (Base open)	$V_{ECO}$	5	V
Collector current	$I_C$	20	mA
Collector power dissipation	$P_C$	50	mW
Operating ambient temperature	$T_{opr}$	-25 to +85	$^\circ C$
Storage temperature	$T_{stg}$	-30 to +100	$^\circ C$



### ■ Electrical-Optical Characteristics $T_a = 25^\circ C \pm 3^\circ C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1	$I_{CE(L)1}$ *2	$V_{CE} = 10 V, L = 2 lx$	3	12		$\mu A$
	$I_{CE(L)2}$	$V_{CE} = 10 V, L = 500 lx$		3.5		mA
Dark current	$I_{CEO}$	$V_{CE} = 10 V$		0.01	0.50	$\mu A$
Peak emission wavelength	$\lambda_p$	$V_{CE} = 10 V$		800		nm
Half-power angle	$\theta$	The angle from which photocurrent becomes 50%		24		$^\circ$
Rise time *3	$t_r$	$V_{CC} = 10 V, I_{CE(L)} = 5 mA, R_L = 100 \Omega$		3	10	$\mu s$
Fall time *3	$t_f$			3	10	$\mu s$
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_{CE(L)} = 1 mA, L = 1000 lx$		0.2	0.5	V

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. Spectral sensitivity characteristics: Sensitivity for wave length over 400 nm maximum sensitivity ratio is 100%.

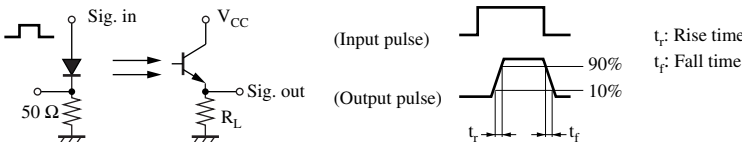
3. This device is designed be disregarded radiation.

5. \*1: Source: Tungsten (color temperature 2856 K)

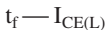
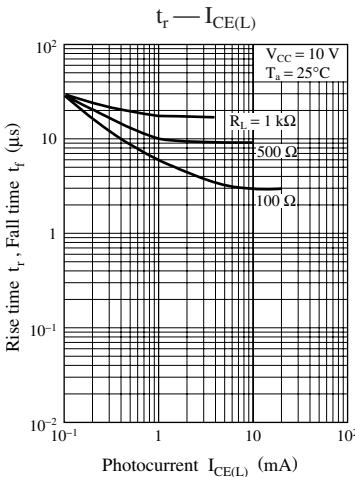
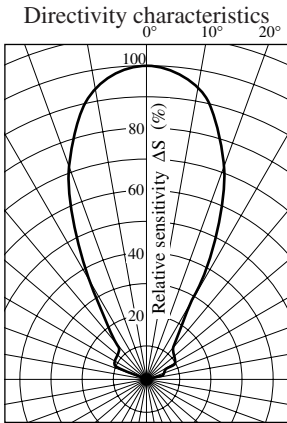
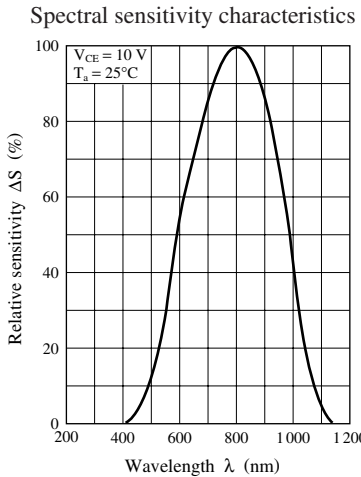
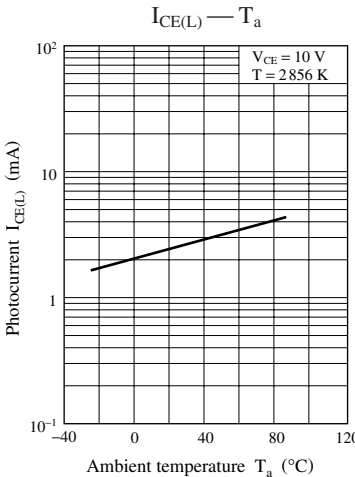
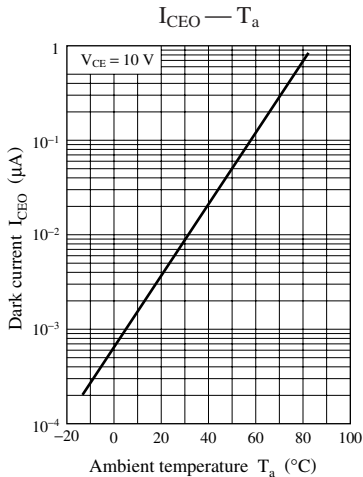
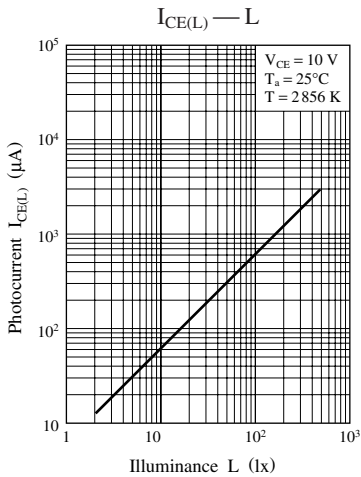
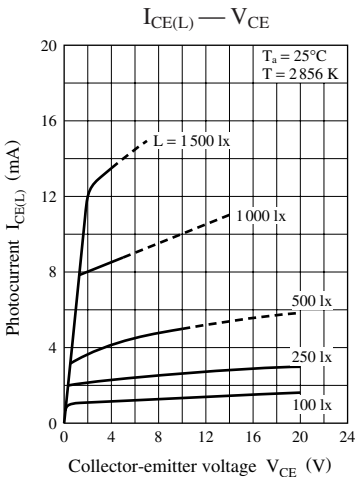
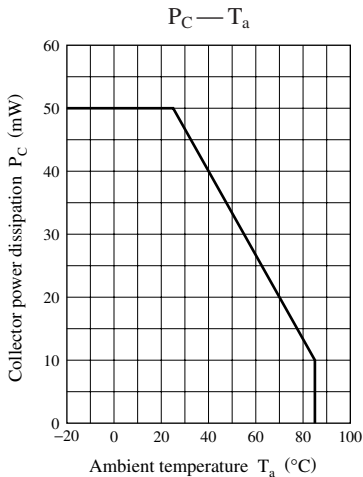
\*2: Rank classification

Rank	Q	R	S
$I_{CE(L)} (\mu A)$	3.0 to 11.0	7.0 to 24.0	>16.0

\*3: Switching time measurement circuit



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



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