

# PNA1801L (PN168)

## Silicon planar type

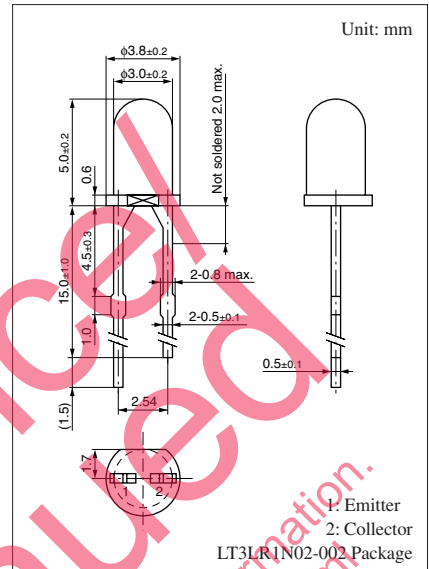
For optical control systems

### ■ Features

- High sensitivity
- Wide spectral sensitivity characteristics, suited for detecting GaAs LEDs
- Small size, high output power, low cost
- $\phi 3$  shell type plastic package

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

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



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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1, *2	$I_{CE(L)}$	$V_{CE} = 10\text{ V}, L = 500\text{ lx}$	0.8	3.0	9.6	mA
Dark current	$I_{CEO}$	$V_{CE} = 10\text{ V}$		5	500	nA
Peak emission wavelength	$\lambda_p$	$V_{CE} = 10\text{ V}$		800		nm
Half-power angle	$\theta$	The angle from which photocurrent becomes 50%		30		$^\circ$
Rise time *3	$t_r$	$V_{CC} = 10\text{ V}, I_{CE(L)} = 1\text{ mA}, R_L = 100\ \Omega$		4		$\mu\text{s}$
Fall time *3	$t_f$			4		$\mu\text{s}$
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_{CE(L)} = 1\text{ mA}, L = 1000\text{ lx}$		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%.

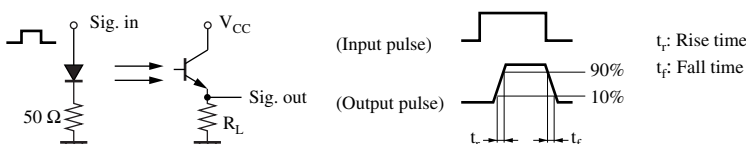
3. This device is designed be disregarded radiation.

4. \*1: Source: Tungsten (color temperature 2856 K)

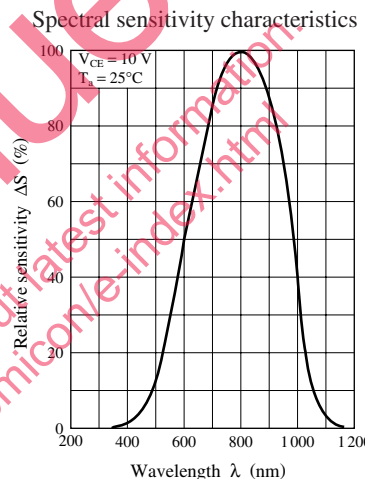
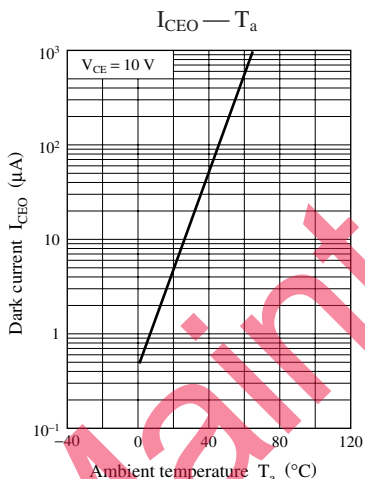
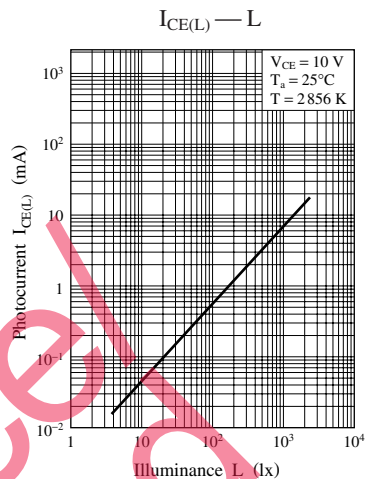
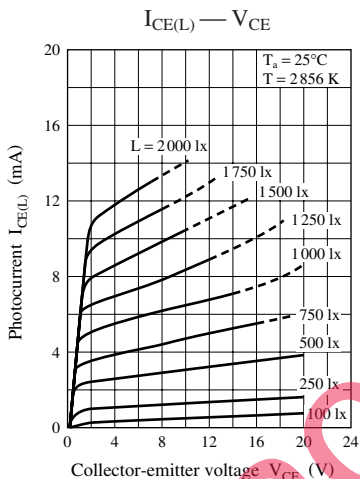
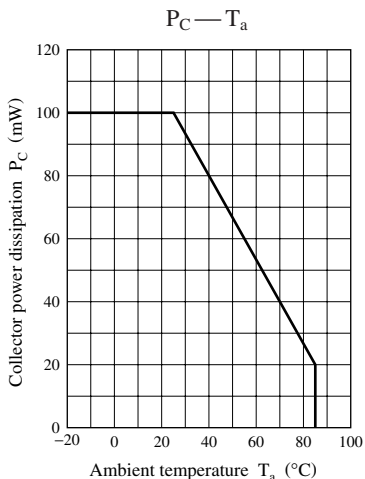
\*2: Rank classification

Rank	Q	R	S
$I_{CE(L)}$ (mA)	0.8 to 2.4	1.6 to 4.8	3.2 to 9.6

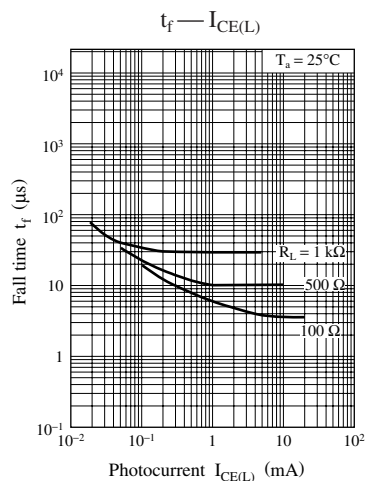
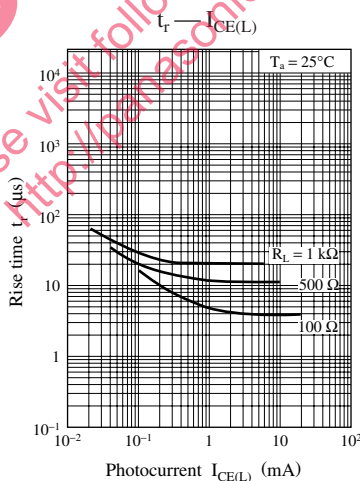
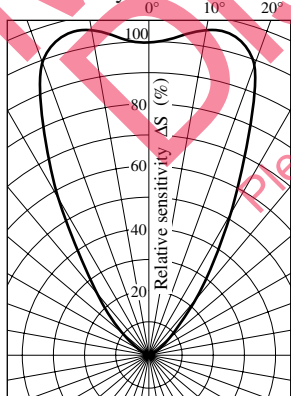
\*3: Switching time measurement circuit



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



Directivity characteristics



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