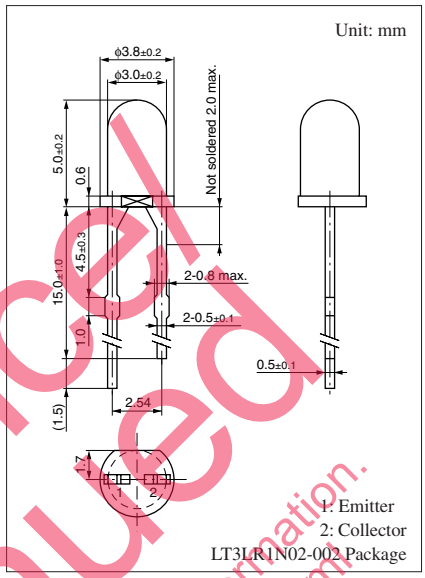
PNA1801L (PN168)

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
- φ3 shell type plastic package

■ Absolute Maximum Ratings $T_a = 25°C$

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	°C
Storage temperature	T_{stg}	−30 to +100	°C

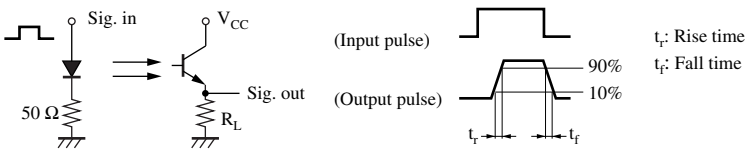
■ Electrical-Optical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1, *2	$I_{CE(L)}$	V_{CE} = 10 V, L = 500 lx	0.8	3.0	9.6	mA
Dark current	I_{CEO}	V_{CE} = 10 V		5	500	nA
Peak emission wavelength	λ_p	V_{CE} = 10 V		800		nm
Half-power angle	θ	The angle from which photocurrent becomes 50%		30		°
Rise time *3	t_r	V_{CC} = 10 V, $I_{CE(L)}$ = 1 mA, R_L = 100 Ω		4		μs
Fall time *3	t_f			4		μs
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_{CE(L)}$ = 1 mA, L = 1 000 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 2 856 K)
∗2: Rank classification

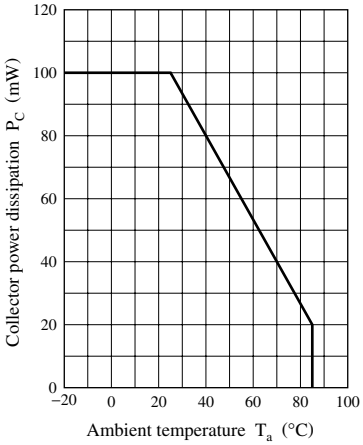
Rank	Q	R	S
$I_{CE(L)}$ (mA)	0.8 to 2.4	1.6 to 4.8	3.2 to 9.6

∗3: Switching time measurement circuit

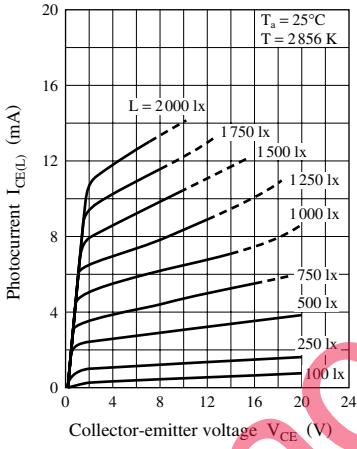


Note) The part number in the parenthesis shows conventional part number.

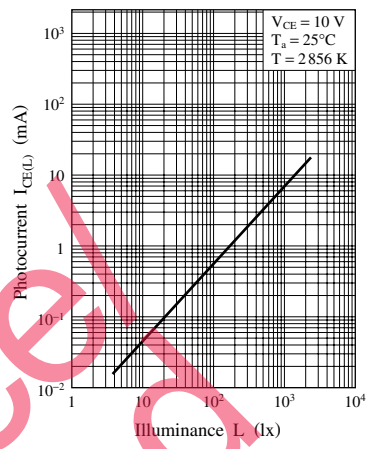
P_C — T_a



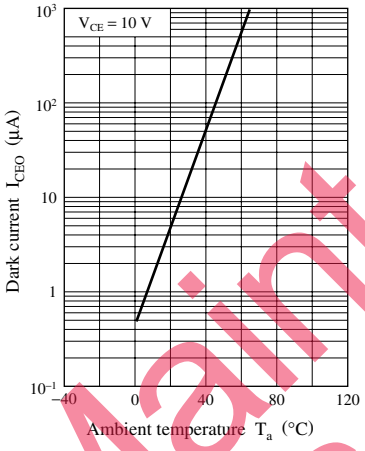
$I_{CE(L)}$ — V_{CE}



$I_{CE(L)}$ — L

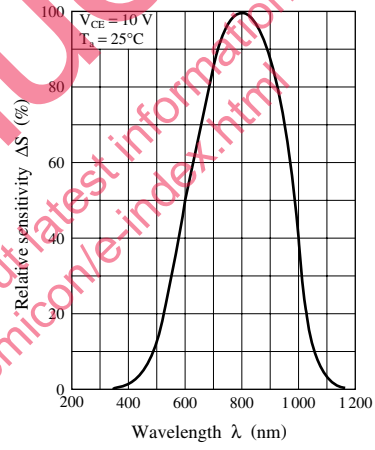


I_{CEO} — T_a

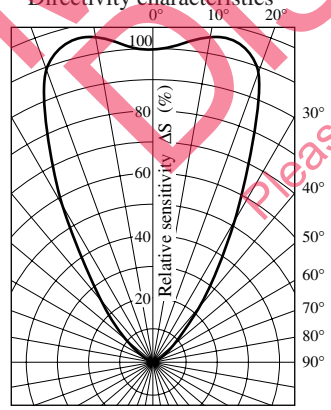


$I_{CE(L)}$ — T_a

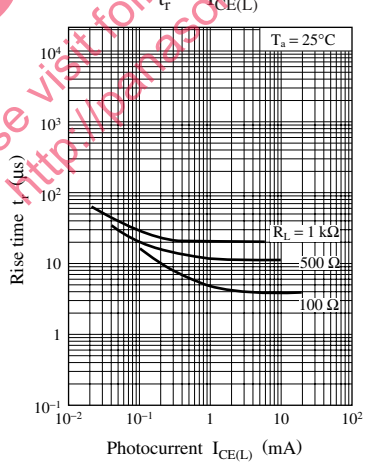
Spectral sensitivity characteristics



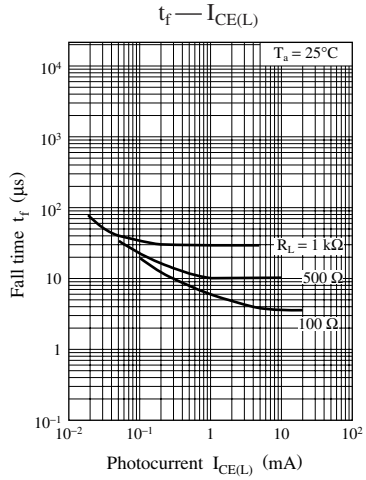
Directivity characteristics



t_r — $I_{CE(L)}$



t_f — $I_{CE(L)}$



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