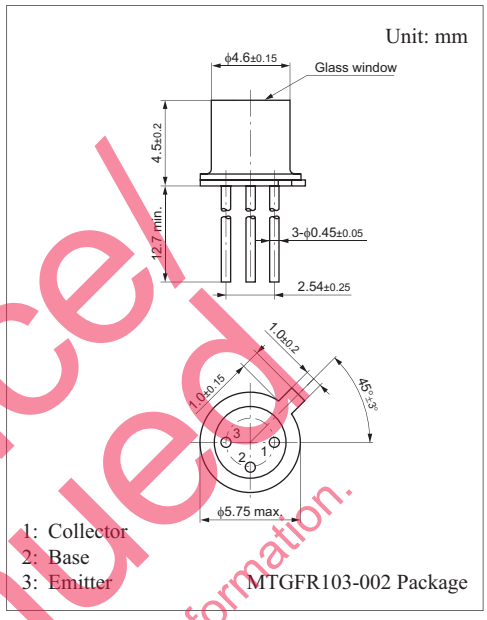
This product complies with the RoHS Directive (EU 2002/95/EC).

PNZ102F (PN102F)

Silicon planar type

For optical control systems



■ Features

- Low dark current: I_{CEO} = 5 nA (typ.)
- Fast response: t_r , t_r = 3 µs (typ.)
- Wide directivity characteristics

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	Unit
Collector-emitter voltage (Base open)	V_{CEO}	30	V
Collector-base voltage (Emitter open)	V_{CBO}	40	V
Emitter-collector voltage (Base open)	V_{ECO}	5	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Operating ambient temperature	T_{opr}	–25 to +85	°C
Storage temperature	T_{stg}	–30 to +100	°C

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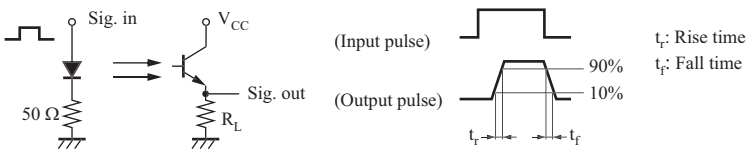
■ Electrical Characteristics T_a = 25°C±3°C

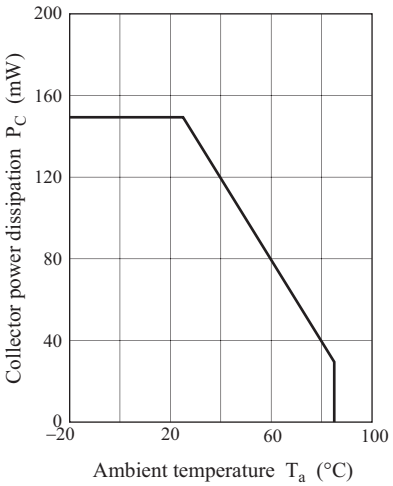
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1	$I_{CE(L)}$	V_{CE} = 10 V, L = 100 lx	0.1	0.3		mA
Dark current	I_{CEO}	V_{CE} = 10 V		5	300	nA
Peak sensitivity wavelength	λ_P	V_{CE} = 10 V		800		nm
Half-power angle	θ	The angle from which photocurrent becomes 50%		40		°
Rise time *2	t_r	V_{CC} = 10 V, $I_{CE(L)}$ = 5 mA, R_L = 100 Ω		3		µs
Fall time *2	t_f			3		µs
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_{CE(L)}$ = 0.1 mA, L = 500 lx		0.2	0.4	V

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. The rate of electric power reduction is 2.0 mW/°C above T_a = 25°C.
3. Spectral sensitivity characteristics: Sensitivity for wave length over 400 nm maximum sensitivity ratio is 100%.
4. This device is designed by disregarding radiation.
5 *1: Source: Tungsten (color temperature 2 856 K)
*2: Switching time measurement circuit

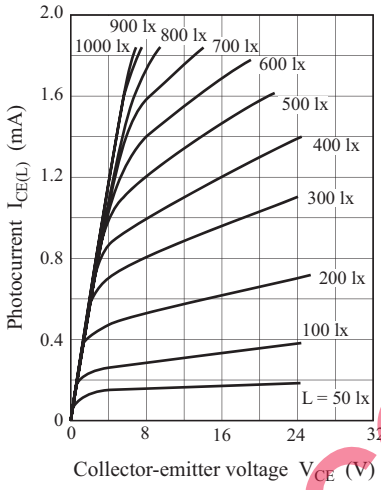


Note) The part number in the parenthesis shows conventional part number.

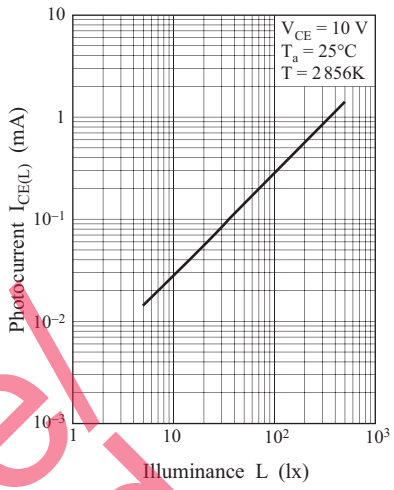
P_C — T_a



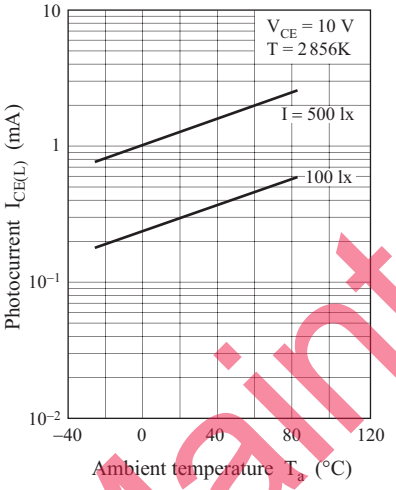
$I_{CE(L)}$ — V_{CE}



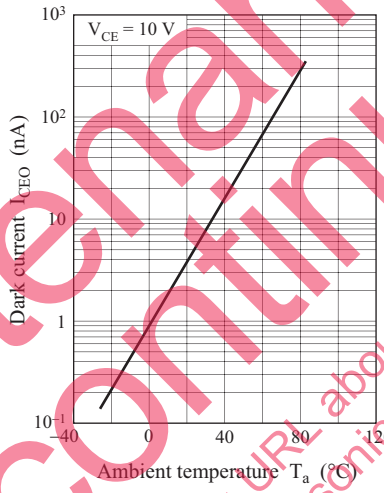
$I_{CE(L)}$ — L



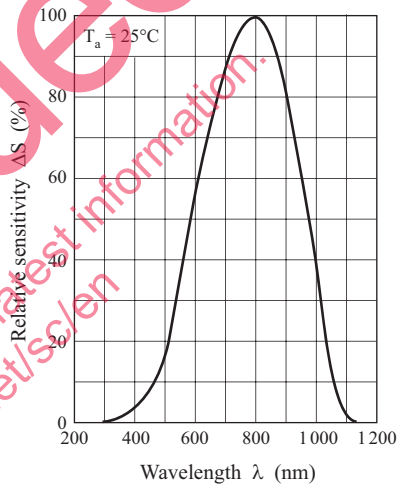
$I_{CE(L)}$ — T_a



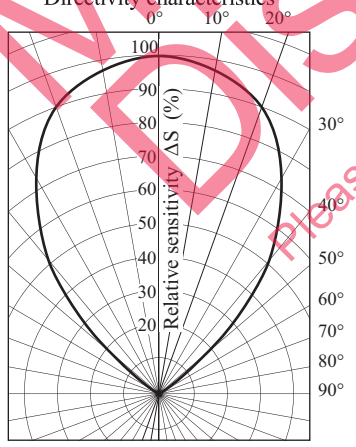
I_{CEO} — T_a



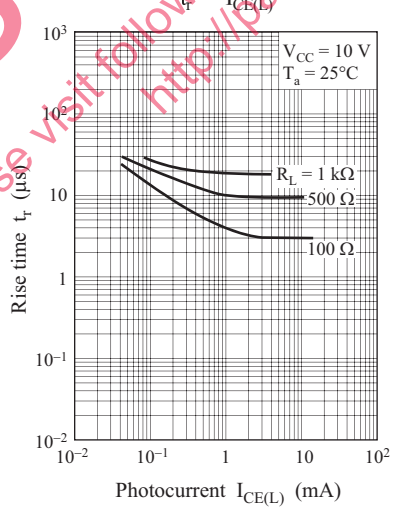
Spectral sensitivity characteristics



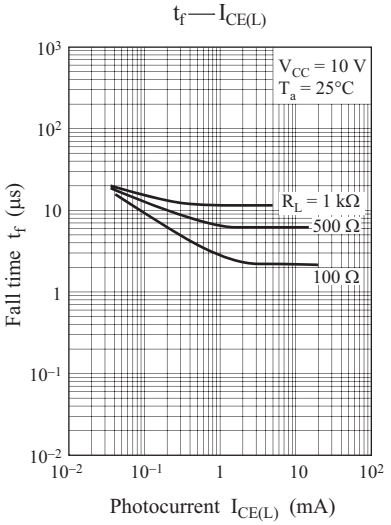
Directivity characteristics



t_r — $I_{CE(L)}$



t_f — $I_{CE(L)}$



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