

PN101

Silicon NPN Phototransistor

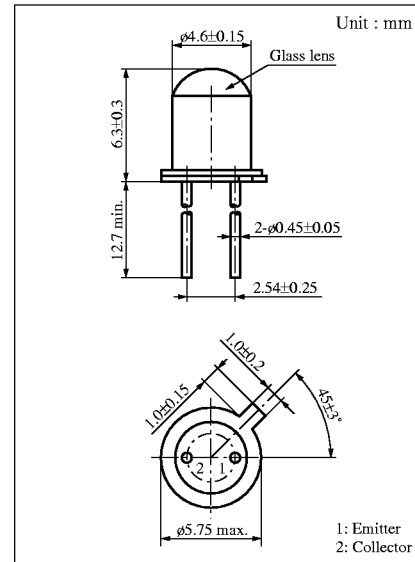
For optical control systems

■ Features

- High sensitivity
- Wide spectral responsivity, suited for detecting GaAs LED's
- Low dark current : $I_{CEO} = 5 \text{ nA}$ (typ.)
- Fast response : $t_r, t_f = 3 \mu\text{s}$ (typ.)
- TO-18 standard type package

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

Parameter	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CEO}	30	V
Emitter to collector voltage	V_{ECO}	5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Operating ambient temperature	T_{opr}	-25 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}	-30 to +100	$^\circ\text{C}$



■ Electro-Optical Characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10\text{V}$		5	300	nA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10\text{V}, L = 100 \text{ lx}^{*1}$	1.5	3.5		mA
Peak sensitivity wavelength	λ_p	$V_{CE} = 10\text{V}$		800		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		10		deg.
Response time	t_r, t_f^{*2}	$V_{CC} = 10\text{V}, I_{CE(L)} = 5\text{mA}, R_L = 100\Omega$		3		μs
Collector saturation voltage	$V_{CE(sat)}$	$I_{CE(L)} = 1\text{mA}, L = 500 \text{ lx}^{*1}$		0.2	0.4	V

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

*2 Switching time measurement circuit

