

PNZ0111

Silicon NPN Phototransistor

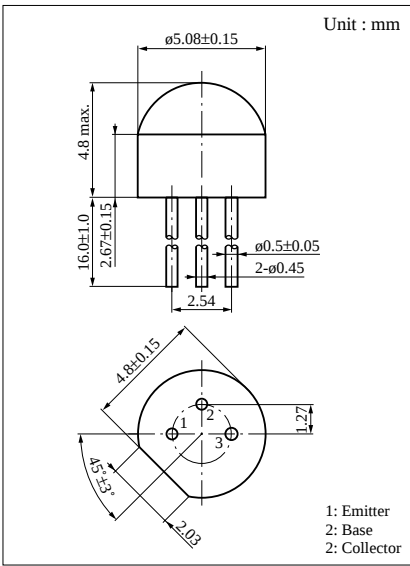
For optical control systems

■ Features

- High sensitivity
- Wide spectral sensitivity
- Base pin for easy circuit design
- Wide directional sensitivity : $\theta = 80$ deg. (typ.)

■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CEO}	20	V
Collector to base voltage	V_{CBO}	30	V
Emitter to collector voltage	V_{ECO}	3	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	10	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

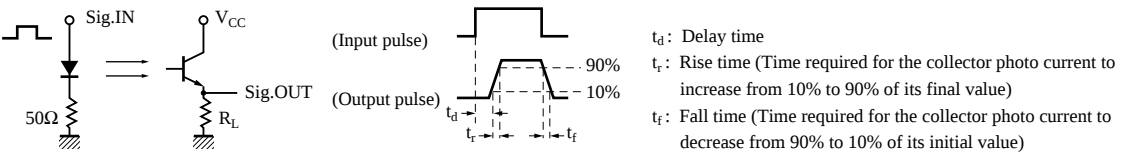


■ Electro-Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I_{CEO}	$V_{CE} = 10V$		0.05	2	μA
Collector photo current	$I_{CE(L)}$	$V_{CE} = 10V, L = 500 \text{ lx}^*1$	4.5	6		mA
Peak sensitivity wavelength	λ_P	$V_{CE} = 10V$		900		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		80		deg.
Rise time	t_r^{*2}	$V_{CC} = 10V, I_{CE(L)} = 5mA$		5	15	μs
Fall time	t_f^{*2}	$R_L = 100\Omega$		6	15	μs
Collector saturation voltage	$V_{CE(sat)}$	$I_{CE(L)} = 1mA, L = 1000 \text{ lx}^*1$		0.3	0.6	V

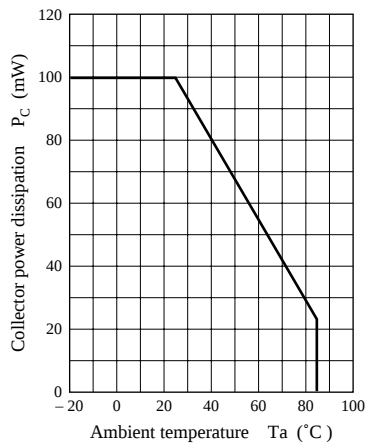
*1 Measurements were made using a tungsten lamp (color temperature T = 2856K) as a light source.

*2 Switching time measurement circuit

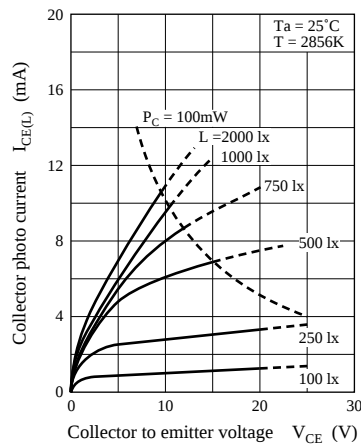


Note) Please make a thorough study of the specifications.

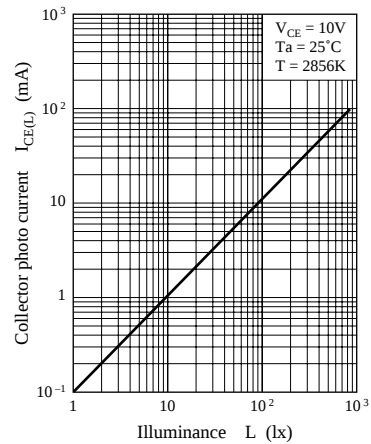
$P_C - T_a$



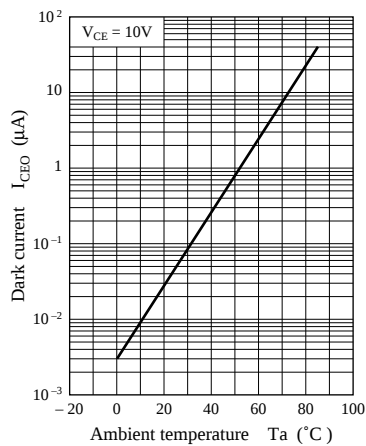
$I_{CE(L)} - V_{CE}$



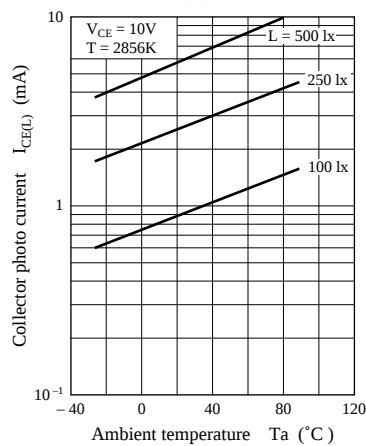
$I_{CE(L)} - L$



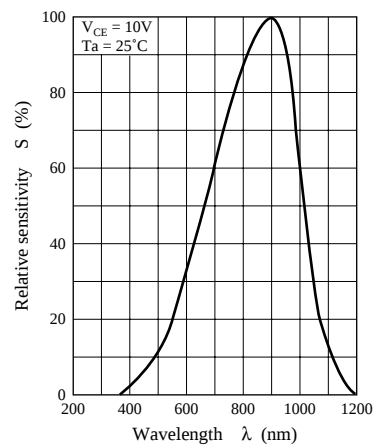
$I_{CEO} - T_a$



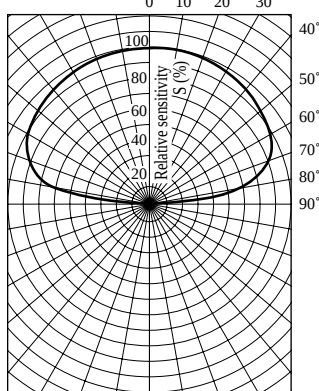
$I_{CE(L)} - T_a$



Spectral sensitivity characteristics



Directivity characteristics



$t_r - I_{CE(L)}$

