

PNZ107F, PNZ108F (PN107F, PN108F)

Silicon NPN Phototransistors

For optical control systems

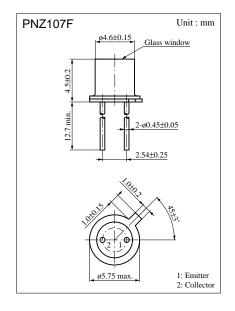
Features

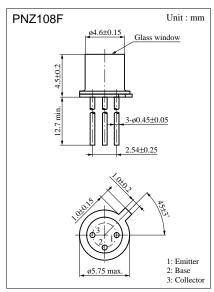
- Flat window design which is suited to optical systems
- Wide directional sensitivity for easy use
- Fast response : $t_r = 8 \mu s$ (typ.)
- Signal mixing capability using base pin (PNZ108F)
- TO-18 standard type package

■ 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}	30	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

^{*} PNZ108F only





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

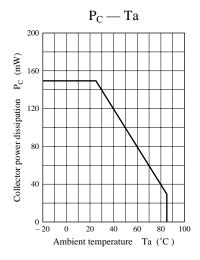
Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	I _{CEO}	$V_{CE} = 10V$		0.05	2	μΑ
Collector photo current	I _{CE(L)}	$V_{CE} = 10V, L = 100 lx^{*1}$	0.4		4	mA
Peak sensitivity wavelength	λ_{P}	$V_{CE} = 10V$		900		nm
Acceptance half angle	θ	Measured from the optical axis to the half power point		40		deg.
Rise time	t _r *2	$V_{CC} = 10V$, $I_{CE(L)} = 5mA$		8		μs
Fall time	t_f^{*2}	$R_L = 100\Omega$		9		μs
Collector saturation voltage	V _{CE(sat)}	$I_{CE(L)} = 1 \text{mA}, L = 1000 \text{ lx}^{*1}$		0.3	0.6	V

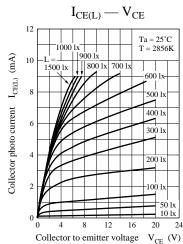
 $^{^{*1}}$ Measurements were made using a tungsten lamp (color temperature T = 2856K) as a light source.

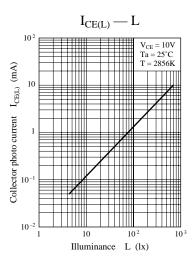
^{*2} Switching time measurement circuit

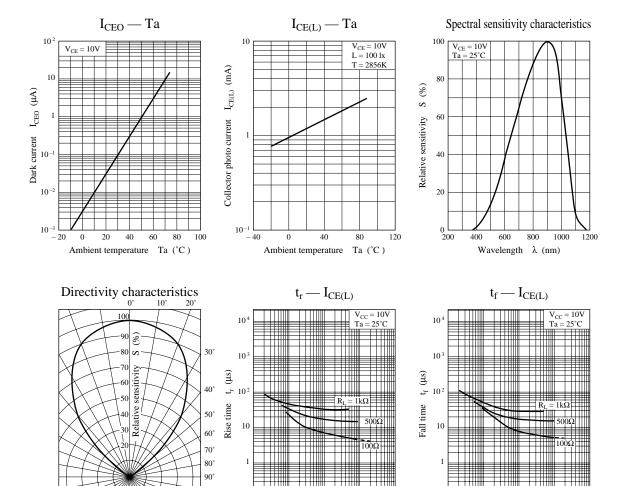


- t_d: Delay time
- ${\rm t_r}$: Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)
- t_f: Fall time (Time required for the collector photo current to decrease from 90% to 10% of its initial value)









 10^{-2}

10

Collector photo current

 10^{2}

 $I_{CE(L)}$ (mA)

10

 $Collector\ photo\ current \quad \ I_{CE(L)}\ \ (mA)$

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