



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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PNZ109F (PN109F)

Silicon planar type

For optical control systems

■ Features

- Flat window design which is suited to optical systems
- Built-in filter to cutoff visible light for reducing ambient light noise
- Peak sensitivity wavelength matched with infrared light emitting devices: $\lambda_p = 900$ nm (typ.)
- Fast response: $t_r = 8$ μ s (typ.)
- Long lifetime, high reliability

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

Parameter	Symbol	Rating	Unit
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Collector-base voltage (Emitter open)	V_{CBO}	30	V
Emitter-collector voltage (Base open)	V_{ECO}	3	V
Emitter-base voltage (Collector open)	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	$^\circ\text{C}$
Storage temperature	T_{stg}	-30 to +100	$^\circ\text{C}$

■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1	$I_{CE(L)}$	$V_{CE} = 10$ V, $L = 100$ lx	0.3			mA
Dark current	I_{CEO}	$V_{CE} = 10$ V		0.05	2.00	μ A
Peak emission wavelength	λ_p	$V_{CE} = 10$ V		900		nm
Half-power angle	θ	The angle from which photocurrent becomes 50%		40		$^\circ$
Rise time *2	t_r	$V_{CC} = 10$ V, $I_{CE(L)} = 1$ mA, $R_L = 100$ Ω		8		μ s
Fall time *2	t_f			9		μ s
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_{CE(L)} = 1$ mA, $L = 1000$ lx		0.3	0.6	V

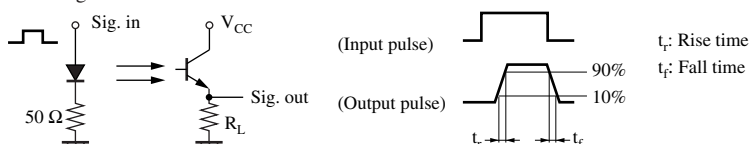
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. Spectral sensitivity characteristics: Sensitivity for wave length over 400 nm maximum sensitivity ratio is 100%.

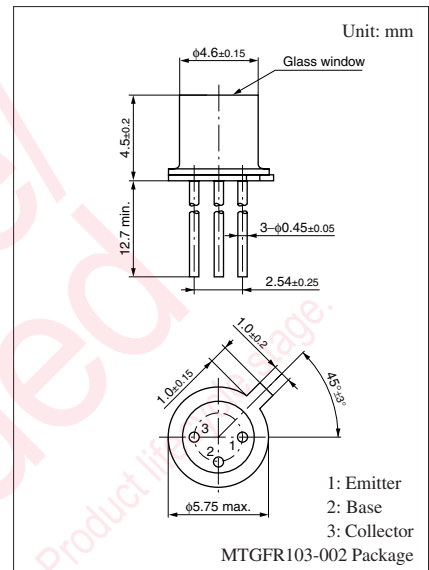
3. This device is designed be disregarded radiation.

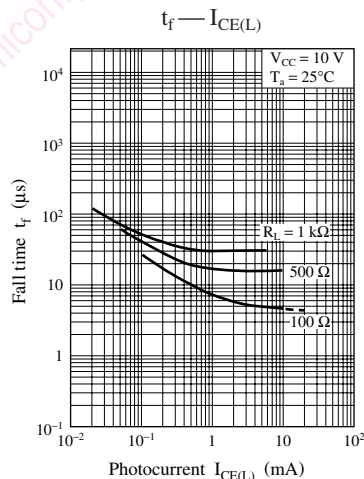
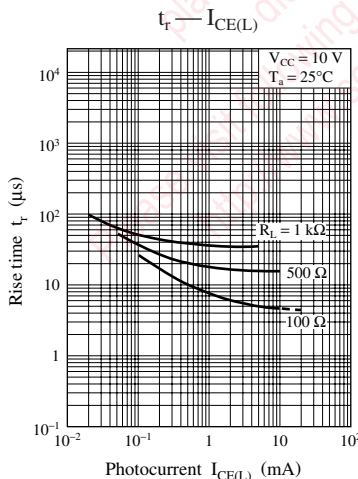
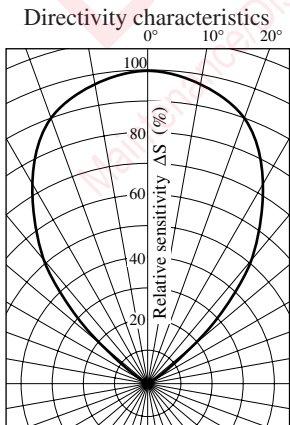
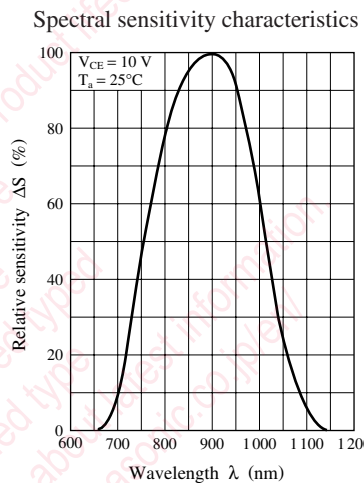
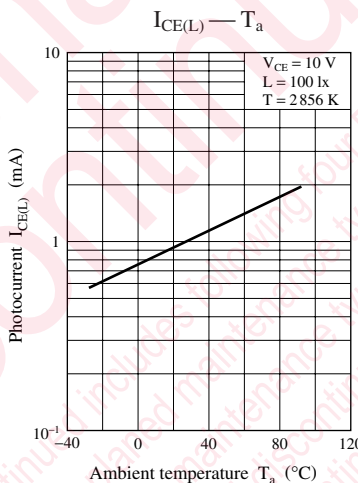
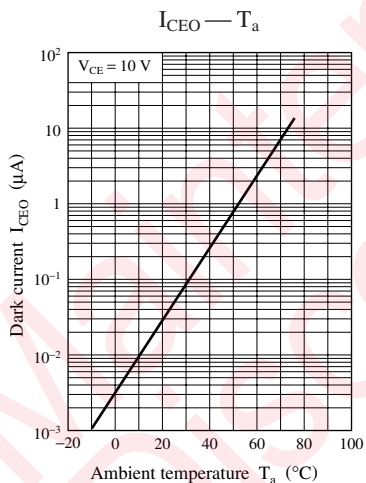
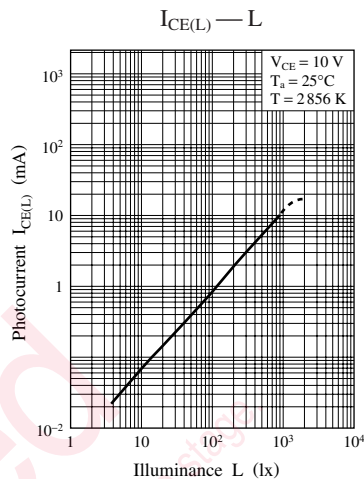
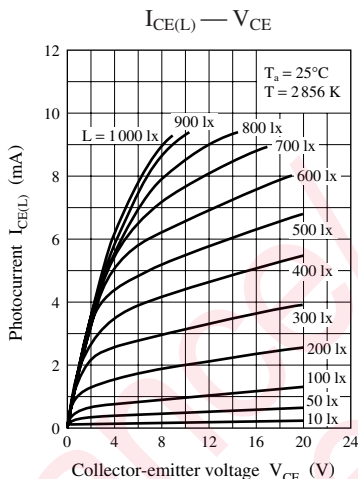
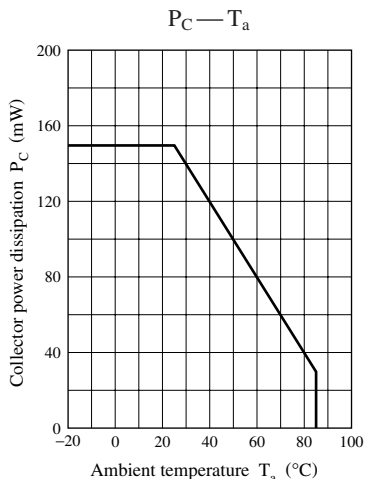
4. *1: Source: Tungsten (color temperature 2856 K)

*2: Switching time measurement circuit



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





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