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.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

PNZ109L (PN109L)

Silicon planar type

For optical control systems

■ Features

- High sensitivity: I_L = 3.5 mA (min.)
- Built-in filter to cutoff visible light for reducing ambient light noise
- Peak sensitivity wavelength matched with infrared light emitting devices: λ_P = 900 nm (typ.)
- Fast response: t_r = 5 μs (typ.)
- Long lifetime, high reliability

■ Absolute Maximum Ratings T_a = 25°C

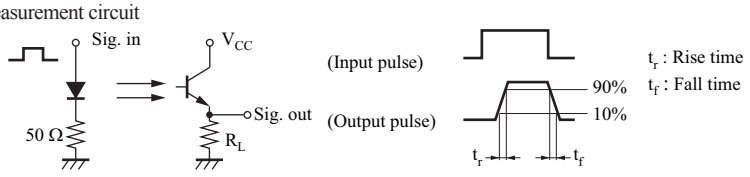
Parameter	Symbol	Rating	Unit
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Collector-base voltage (Emitter open)	V_{CBO}	30	V
Emitter-collector voltage (Base open)	V_{ECO}	3	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	30	mA
Collector power dissipation *	P_C	150	mW
Operating ambient temperature	T_{opr}	–25 to +85	°C
Storage temperature	T_{stg}	–30 to +100	°C

Note) *: The rate of electric power reduction is 1.5 mW/°C above T_a = 25°C.

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

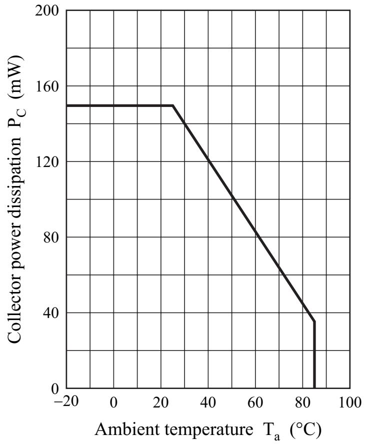
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Photocurrent *1	I_L	V_{CE} = 10 V, L = 100 lx	3.5			mA
Collector-emitter cutoff current (Base open)	I_{CEO}	V_{CE} = 10 V		0.05	2.0	μA
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	I_L = 1 mA, L = 500 lx		0.3	0.6	V
Peak sensitivity wavelength	λ_{PD}	V_{CE} = 10 V		900		nm
Half-power angle	θ	The angle when the photocurrent is halved		10		°
Rise time *2	t_r	V_{CC} = 10 V, I_L = 5 mA, R_L = 100 Ω		5		μs
Fall time *2	t_f			6		μs

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 by disregarding radiation.
4. *1:Source: Tungsten lamp (color temperature 2 856K)
*2: Switching time measurement circuit

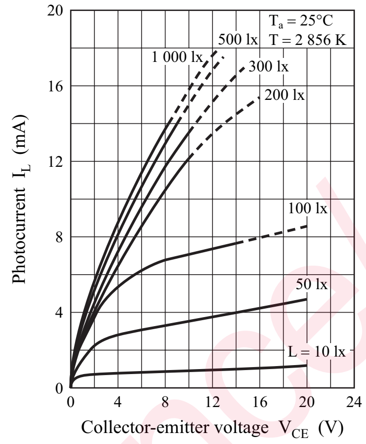


Note) The part number in the parenthesis shows conventional part number.

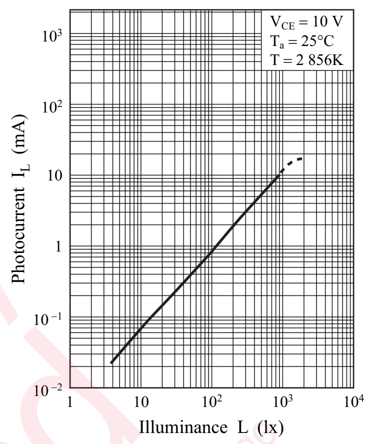
P_C — T_a



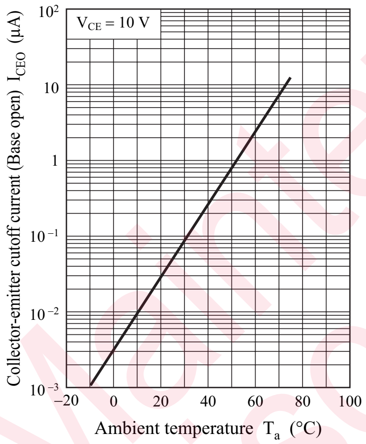
I_L — V_{CE}



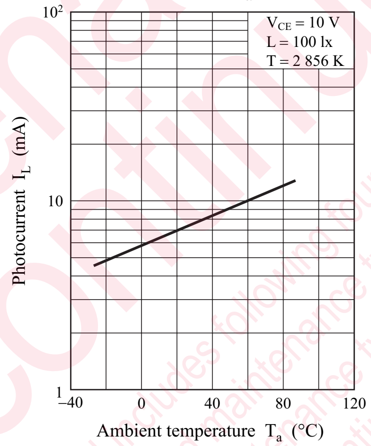
I_L — L



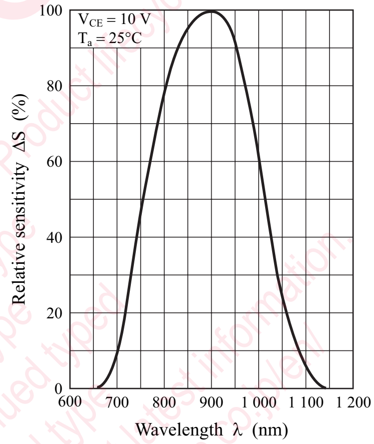
I_{CEO} — T_a



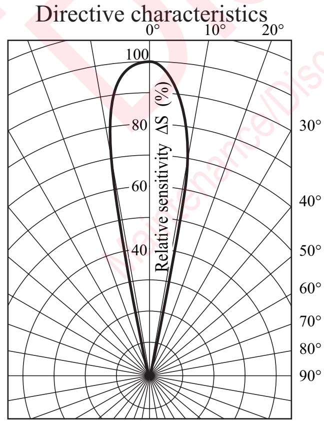
I_L — T_a



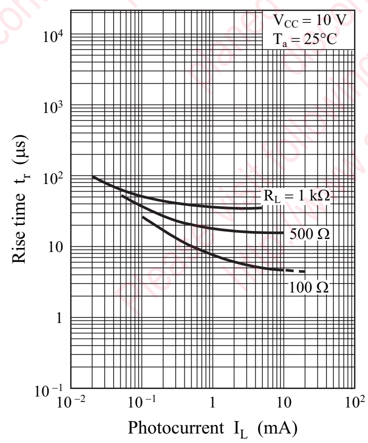
ΔS — λ



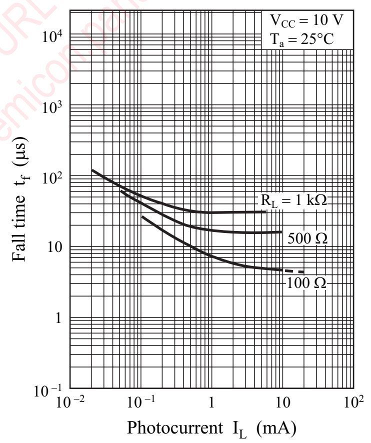
Directive characteristics



t_r — I_L

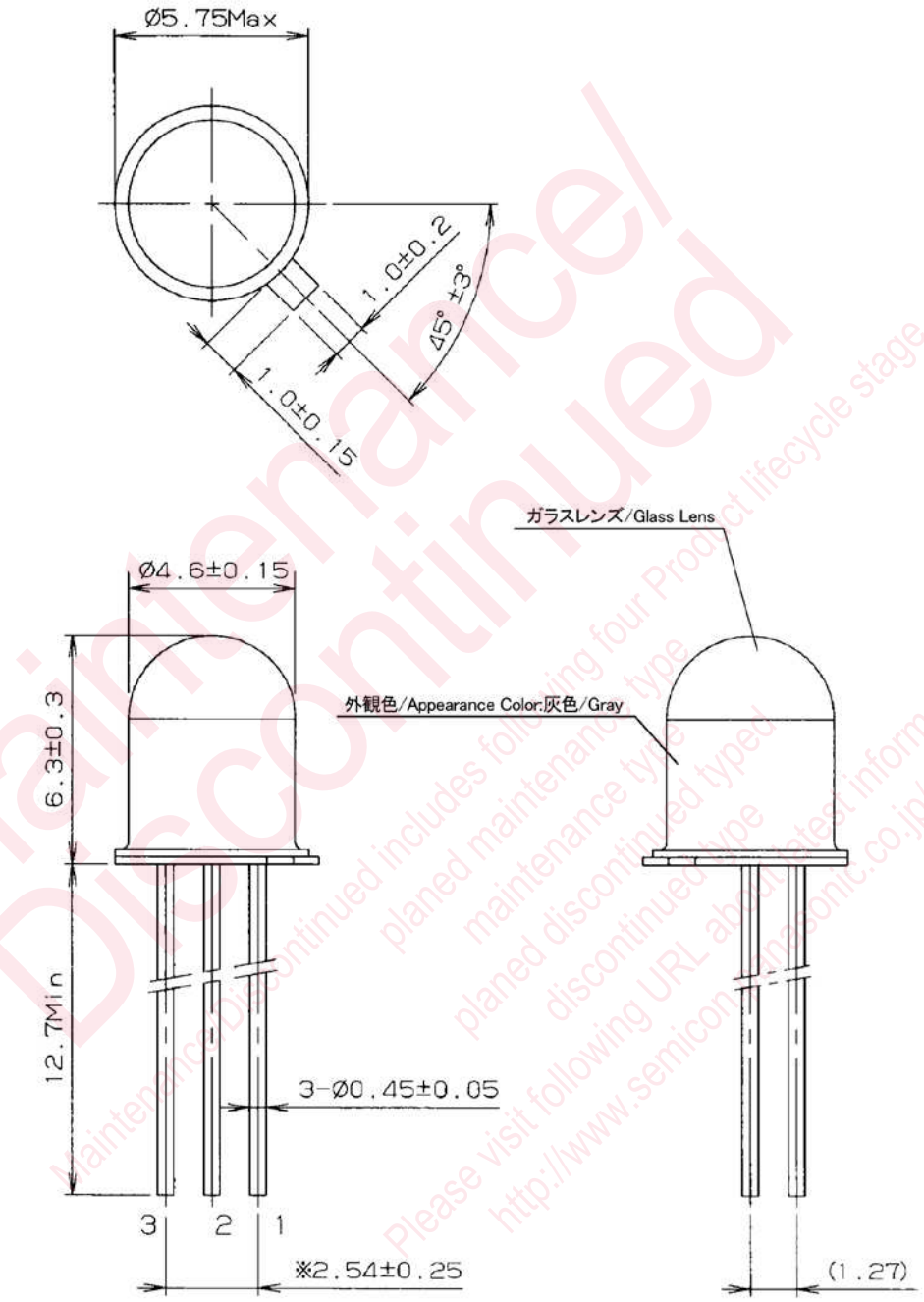


t_f — I_L



■ Package (Unit: mm)

MPCLTN3S0001



(注 1)※リード根元寸法とする。/(Note1)※Indicates root dimensions of lead.

- Pin name
  1: Emitter
  2: Base
  3: Collector

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