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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
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CNA1006N

Photo Interrupter

For contactless SW and object detection

■ Overview

CNA1006N is a transmissive photosensor in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

■ Features

- Highly precise position detection: 0.3 mm
- Gap width: 3 mm
- The type directly attached to PCB (with a positioning pins)

■ Absolute Maximum Ratings $T_a = 25°C$

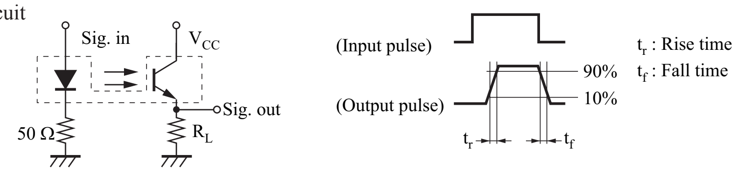
Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Power dissipation *1	P_D	75	mW
	Forward current	I_F	50	mA
	Reverse voltage	V_R	3	V
Output (Photo transistor)	Collector-emitter voltage (Base open)	V_{CEO}	30	V
	Emitter-collector voltage (Base open)	V_{ECO}	5	V
	Collector current	I_C	20	mA
	Collector power dissipation *2	P_C	100	mW
Operating ambient temperature		T_{opr}	–25 to +85	°C
Storage temperature		T_{stg}	–40 to +100	°C

Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a \geq 25°C$.
*2: Output power derating ratio is 1.33 mW/°C at $T_a \geq 25°C$.

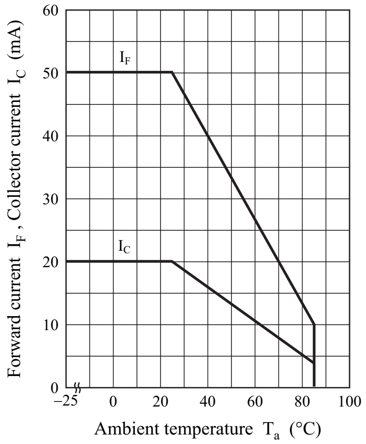
■ Electrical-Optical Characteristics $T_a = 25°C \pm 3°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	$V_R = 3$ V			10	μA
	Forward voltage	V_F	$I_F = 20$ mA		1.25	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 10$ V		10	200	nA
Transfer characteristics	Collector current	I_C	$V_{CE} = 5$ V, $I_F = 20$ mA	0.7		14.0	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40$ mA, $I_C = 1$ mA			0.4	V
	Rise time *	t_r	$V_{CC} = 5$ V, $I_C = 1$ mA, $R_L = 100\ \Omega$		5.0		μs
	Fall time *	t_f			5.0		μs

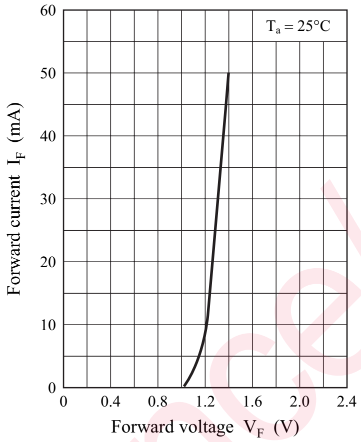
Note) 1. Input and output are practiced by electricity.
2. This device is designed by disregarding radiation.
3. *: Switching time measurement circuit



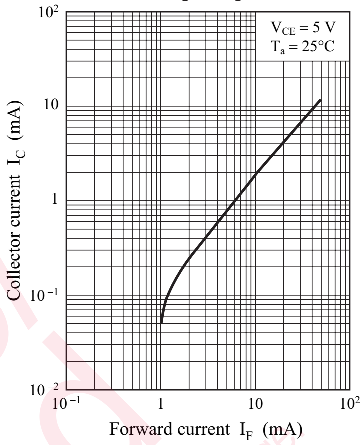
I_F , I_C — T_a



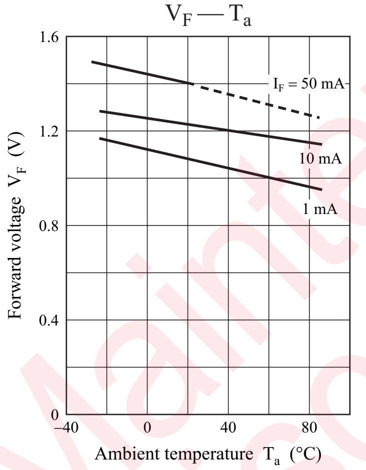
I_F — V_F



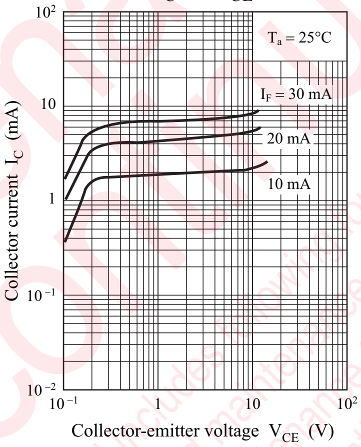
I_C — I_F



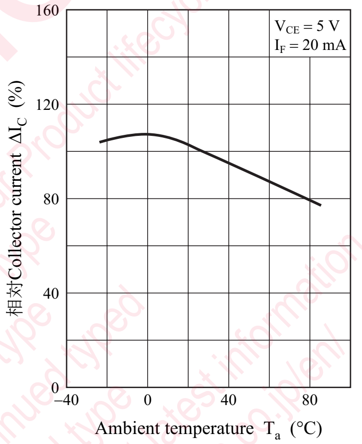
V_F — T_a



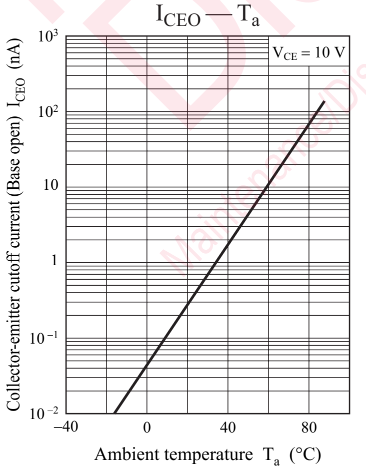
I_C — V_{CE}



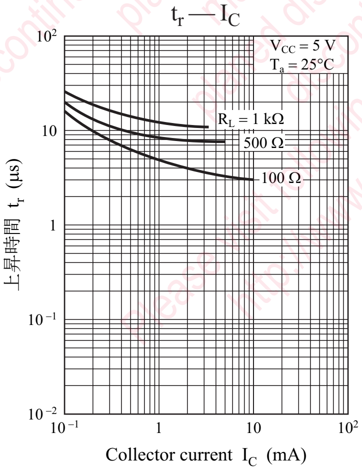
ΔI_C — T_a



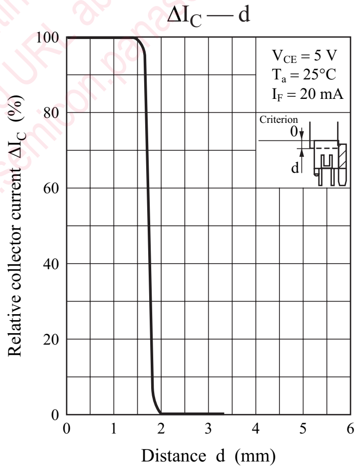
I_{CEO} — T_a



t_r — I_C

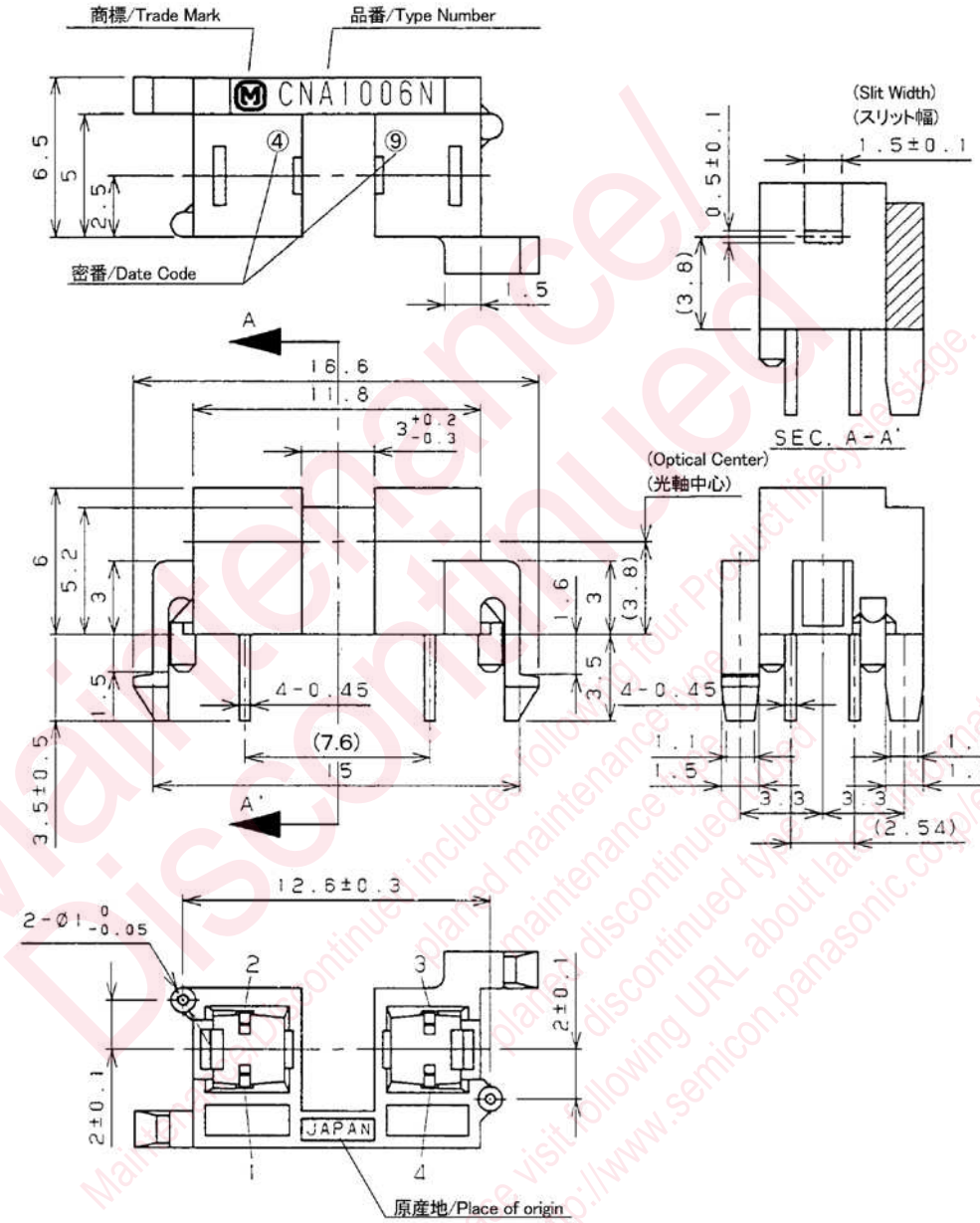


ΔI_C — d



■ Package (Unit: mm)

LSSSIR4S0006



(注 1)(Note1)指示無き寸法公差：±0.3／Not appointment tolerance : ±0.3
(注 2)(Note2)嵌合強度：2N 以上(静止荷重)／Fitting strength : 2 N Min. (Static load)
(注 3) マークは、目視又は顕微鏡に於いて解読できる事
(Note3)What a mark sees an attention and can decode in a microscope.

- Pin name
  1: Anode
  2: Cathode
  3: Collector
  4: Emitter

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