

CNA1011K (ON1113)

Photo Interrupter

For contactless SW and object detection

■ Overview

CNA1011K is a small size photocoupler package consisting of a high efficiency GaAs infrared light emitting diode used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element.

■ Features

- Highly precise position detection: 0.3 mm
- Wide gap between emitting and detecting elements, suitable for thick plate detection
- Fast response: $t_r, t_f = 6.0 \mu\text{s}$ (typ.)
- Small output current variation against change in temperature

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

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}	-30 to +100	°C

Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a \geq 25^\circ\text{C}$

*2: Output power derating ratio is 1.34 mW/°C at $T_a \geq 25^\circ\text{C}$

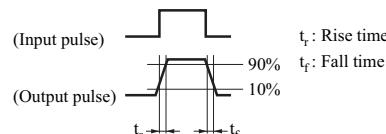
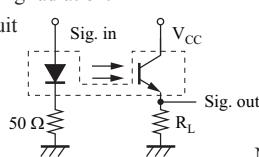
■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I _R $V_R = 3 \text{ V}$			10	μA
	Forward voltage	V _F $I_F = 50 \text{ mA}$		1.2	1.5	V
	Terminal capacitance	C _t $V_R = 0 \text{ V}, f = 1 \text{ MHz}$		35		pF
Output characteristics	Collector-emitter cutoff current (Base open)	I _{CEO} $V_{CE} = 10 \text{ V}$			200	nA
	Collector-emitter capacitance	C _C $V_{CE} = 10 \text{ V}, f = 1 \text{ MHz}$		5		pF
Transfer characteristics	Collector current	I _C $V_{CC} = 10 \text{ V}, I_F = 20 \text{ mA}, R_L = 100 \Omega$	0.3			mA
	Collector-emitter saturation voltage	V _{CE(sat)} $I_F = 50 \text{ mA}, I_C = 0.1 \text{ mA}$			0.5	V
	Rise time [*]	t _r $V_{CC} = 10 \text{ V}, I_C = 1 \text{ mA}, R_L = 100 \Omega$		6.0		μs
	Fall time [*]	t _f $R_L = 100 \Omega$		6.0		μs

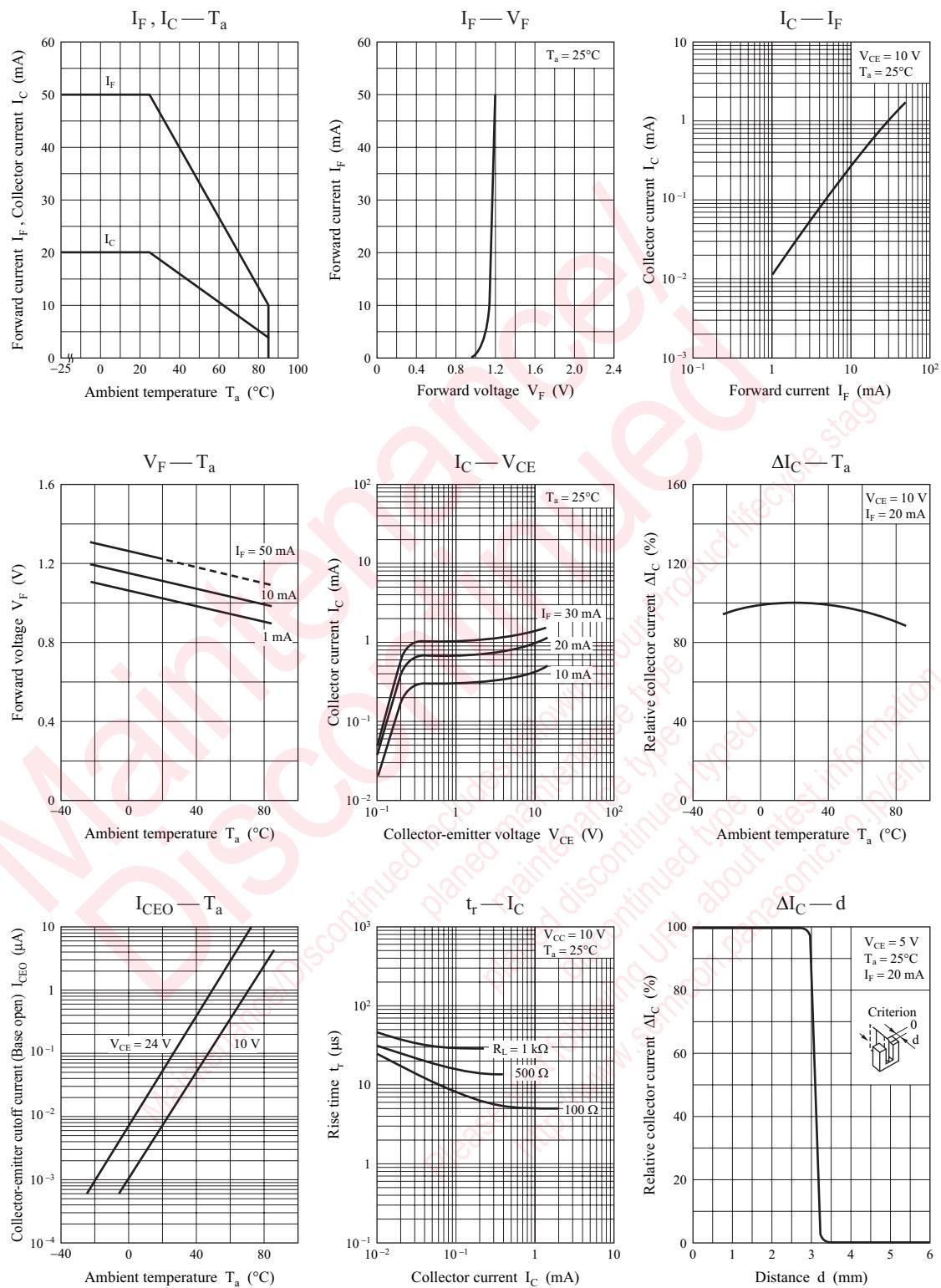
Note) 1. Input and output are practiced by electricity.

2. This device is designed by disregarding radiation.

3. *: Switching time measurement circuit

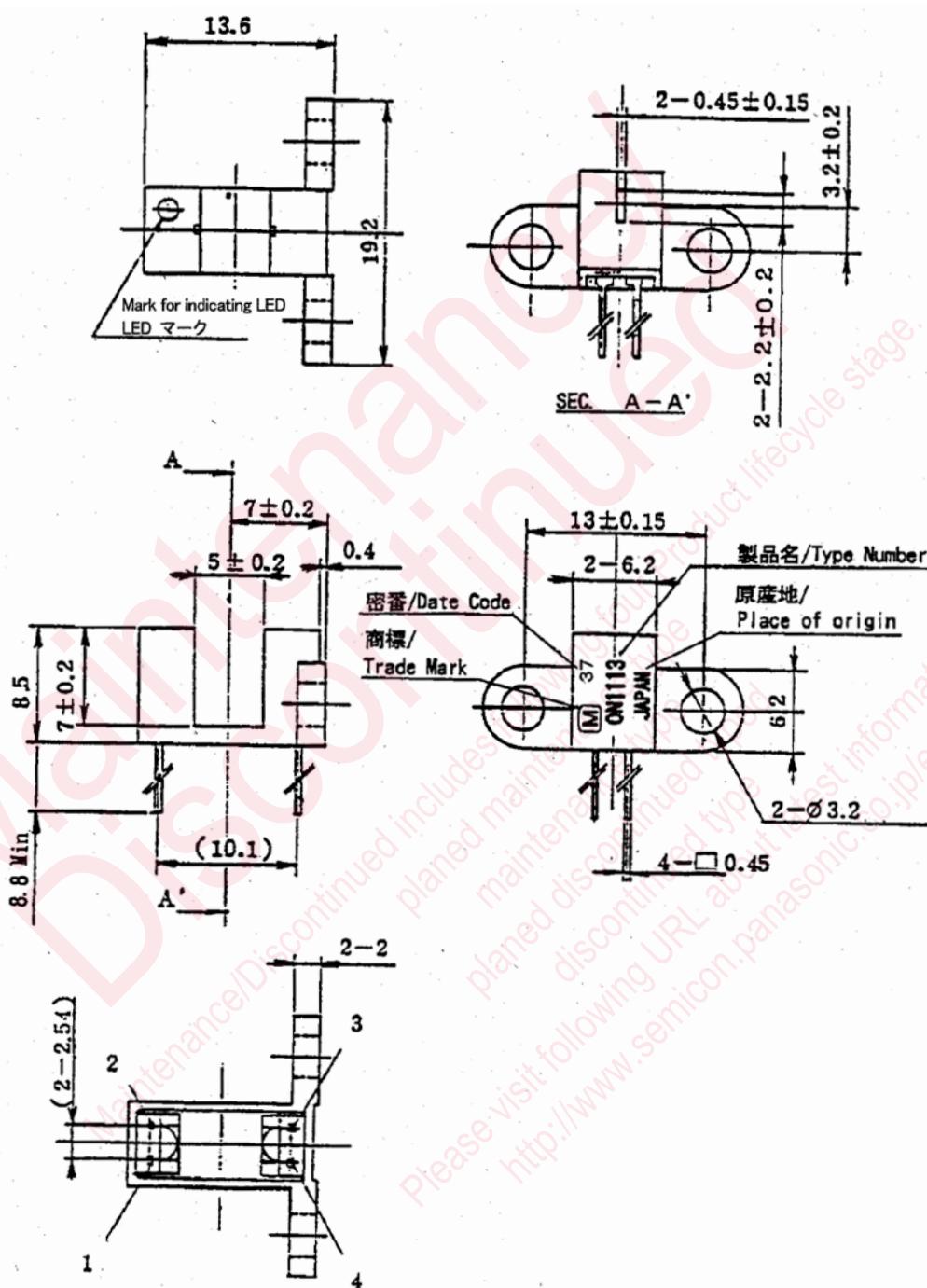


Note) The part number in the parenthesis shows conventional part number.



■ Package (Unit: mm)

LSSSIR4S0004



(注 1) 指示なき寸法公差: ±0.3 / (Note1)No appointment tolerance : ±0.3

(注 2) マークは、目視又は顕微鏡に於いて解読できる事。

(Note2)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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