

# CNA1302K (ON1004)

## Photo Interrupter

For contactless SW and object detection

### Overview

CNA1302K is an ultraminiature, highly reliable transmissive photosensor in which a high efficiency GaAs infrared light emitting diode chip and a high sensitivity Si phototransistor chip are integrated in a double molded resin package.

### Features

- Ultraminiature: 4.2 mm × 5.0 mm (height: 5.2 mm)
- Fast response:  $t_r, t_f = 35 \mu s$  (typ.)
- Highly precise position detection: 0.15 mm
- Gap width: 2.0 mm

### Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Power dissipation *1	$P_D$	75	mW
	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	6	V
Output (Photo transistor)	Collector-emitter voltage (Base open)	$V_{CEO}$	35	V
	Emitter-collector voltage (Base open)	$V_{ECO}$	6	V
	Collector current	$I_C$	20	mA
	Collector power dissipation *2	$P_C$	75	mW
Operating ambient temperature		$T_{opr}$	-25 to +85	$^\circ C$
Storage temperature		$T_{stg}$	-40 to +100	$^\circ C$

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

\*2: Output power derating ratio is 1.0 mW/ $^\circ C$  at  $T_a \geq 25^\circ C$

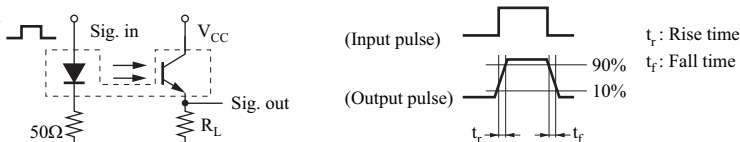
### Electrical-Optical Characteristics $T_a = 25^\circ C \pm 3^\circ C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	$I_R$	$V_R = 3 V$			10	$\mu A$
	Forward voltage	$V_F$	$I_F = 20 mA$		1.2	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 20 V$			100	nA
Transfer characteristics	Collector current	$I_C$	$V_{CE} = 5 V, I_F = 5 mA$	40		400	$\mu A$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 10 mA, I_C = 40 \mu A$			0.4	V
	Rise time *	$t_r$	$V_{CC} = 5 V, I_C = 0.1 mA,$		35		$\mu s$
	Fall time *	$t_f$	$R_L = 1000 \Omega$		35		$\mu s$

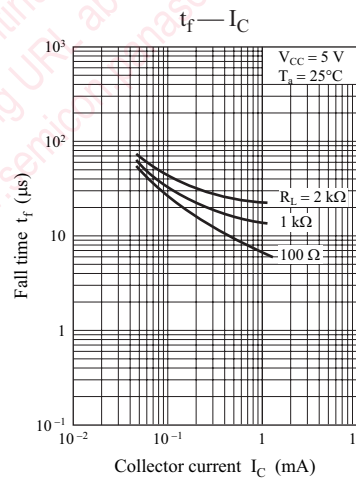
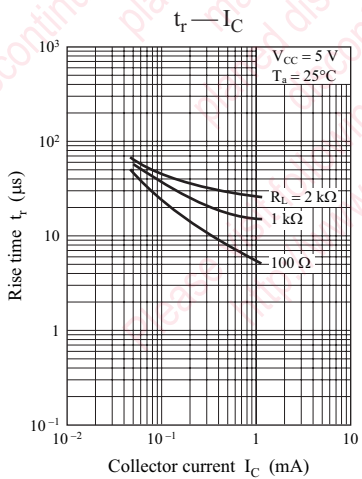
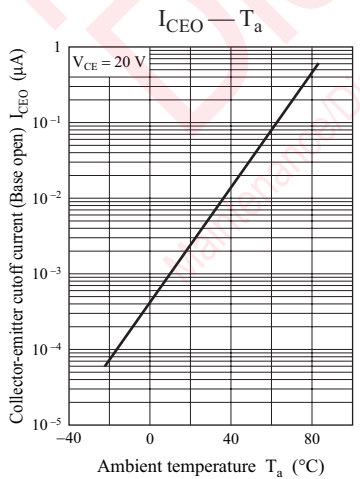
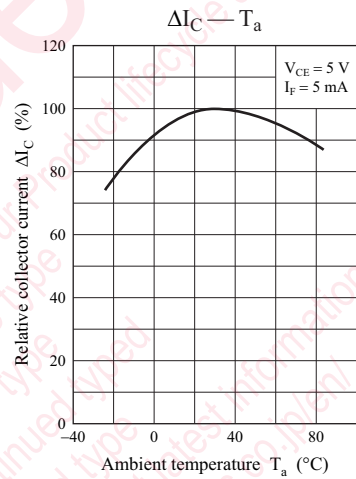
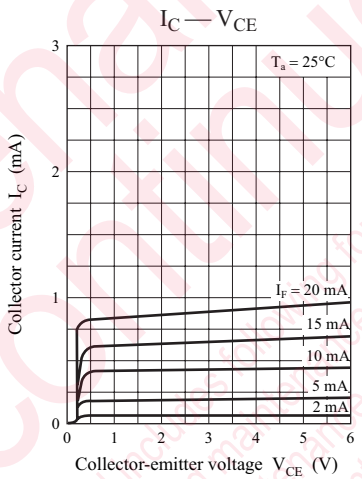
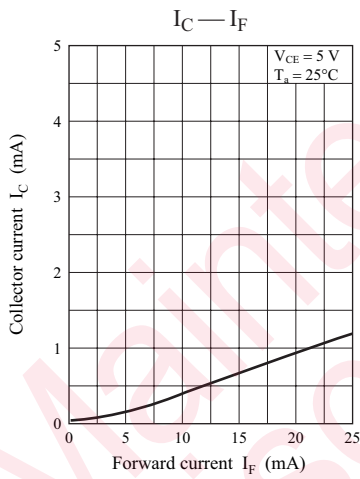
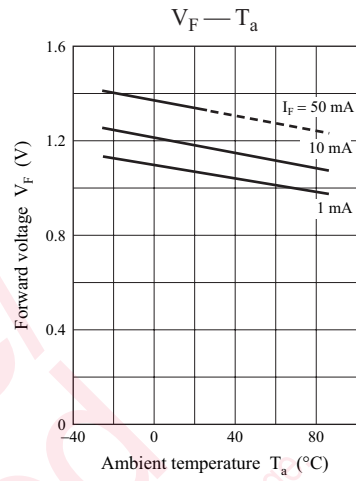
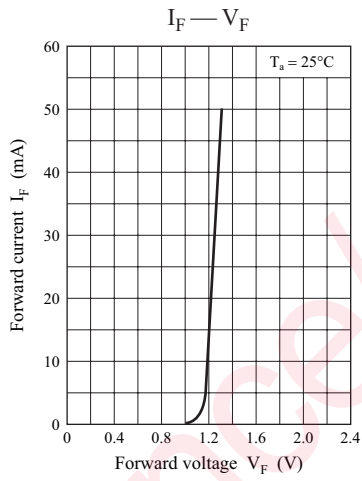
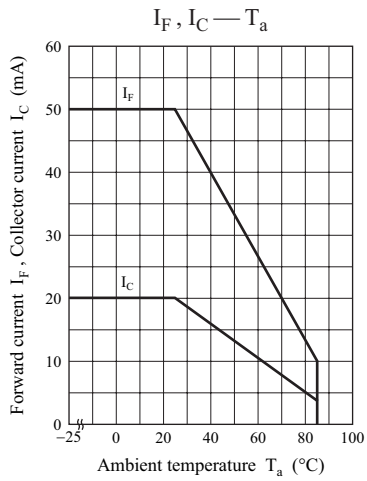
Note) 1. Input and output are practiced by electricity.

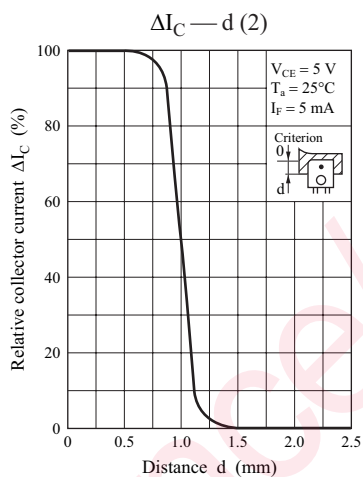
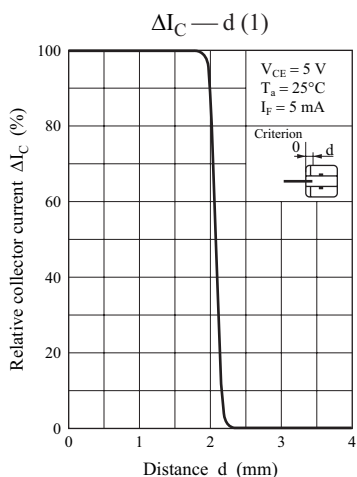
2. This device is designed by disregarding radiation.

3. \*: Switching time measurement circuit



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





Maintenance/Discontinued

Maintenance/Discontinued includes following four Product lifecycle stage.

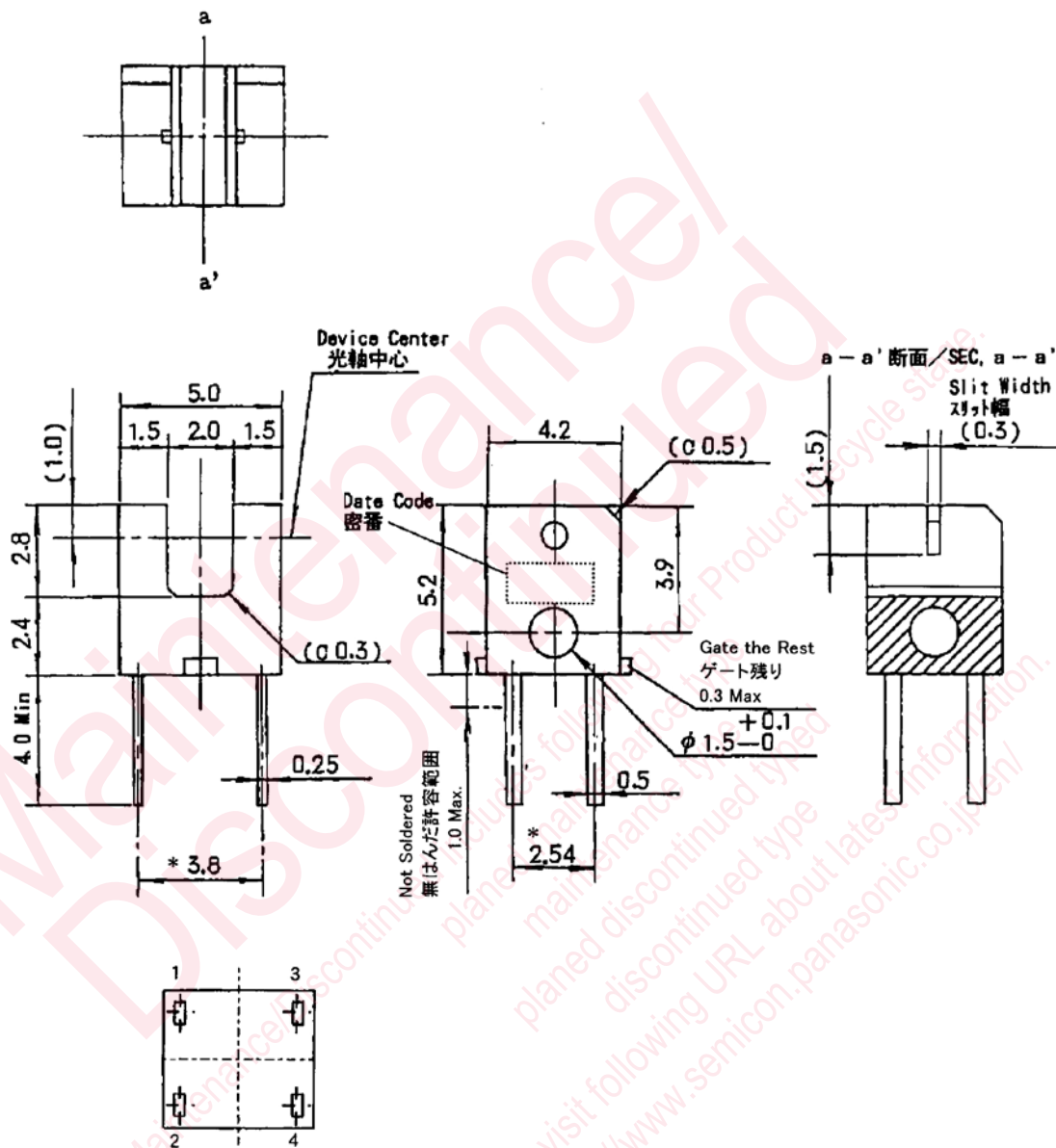
- planned maintenance type
- planned maintenance type
- planned discontinued type
- discontinued type

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■ Package (Unit: mm)

LSMSIN4S0005



- (注 1)(Note1) \*リード根元寸法とします / \* Indicates root dimensions of lead.
- (注 2)(Note2) 指示無き寸法公差は±0.2 / Not appointment tolerance : ±0.2
- (注 3)(Note3) バリ寸法は 0.15 Max. / Barri measure : 0.15 Max.
- (注 4) 上記寸法は、バリ・ゲート残り等を含んでおりません
- (Note4) An aforementioned dimension doesn't include projects and gate the rest remainder.
- (注 5) 密番は、目視又は顕微鏡に於いて解読できる事
- (Note5) What a date code sees an attention and can decode in a microscope.

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

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