

CNA1311K

Photo Interrupter

For contactless SW and object detection

■ Overview

CNA1311K 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: 2.6 mm × 4.0 mm (height: 3.3 mm)
- Highly precise position detection: 0.05 mm
- Gap width: 1.0 mm

■ 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	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	$^\circ\text{C}$
Storage temperature		T_{stg}	-40 to +100	$^\circ\text{C}$

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

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

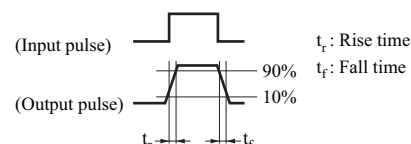
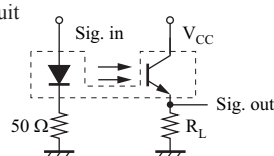
■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

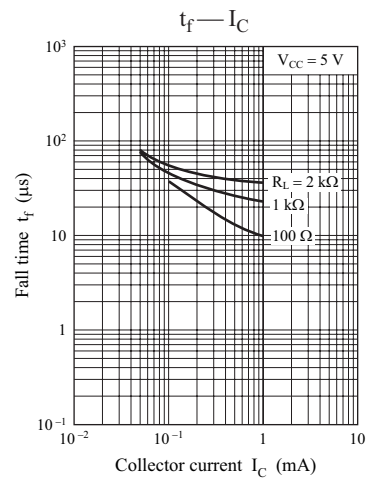
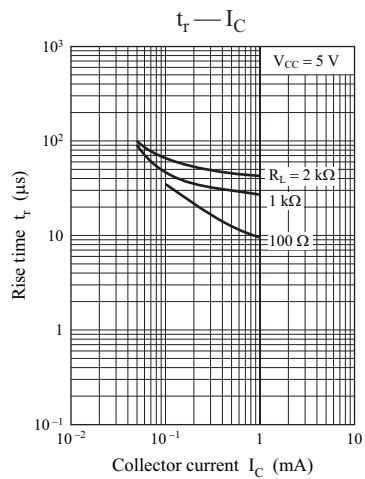
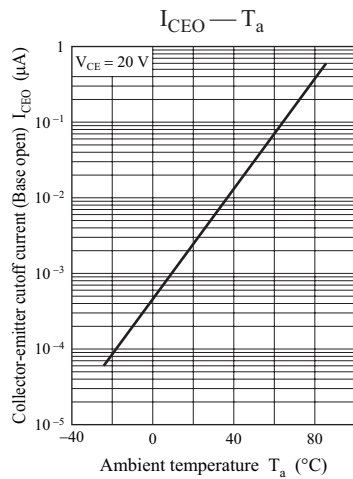
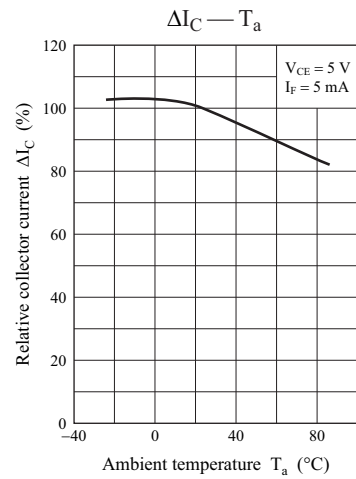
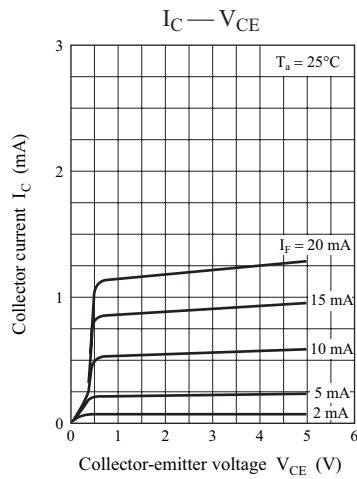
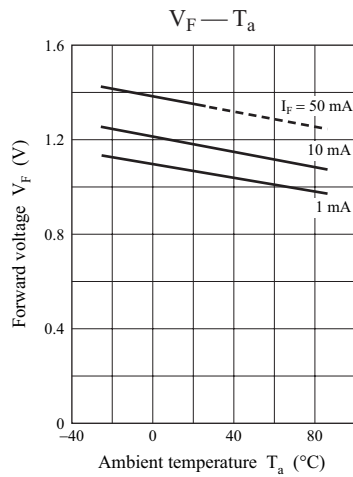
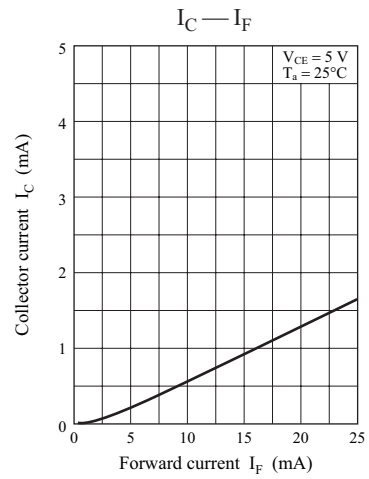
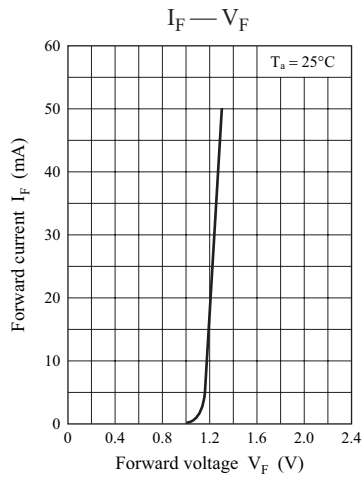
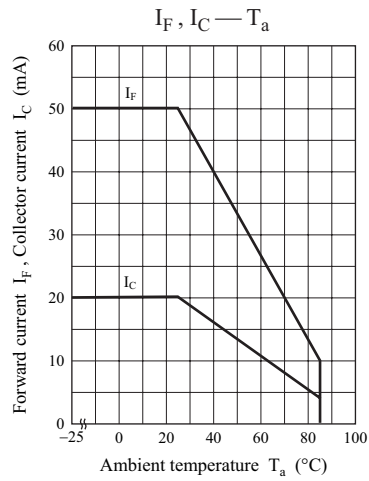
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	$V_R = 3\text{ V}$			10	μA
	Forward voltage	V_F	$I_F = 20\text{ mA}$		1.2	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 20\text{ V}$			100	nA
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{ V}, I_F = 5\text{ mA}$	50		600	μA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 10\text{ mA}, I_C = 50\text{ }\mu\text{A}$			0.4	V
	Rise time *	t_r	$V_{CC} = 5\text{ V}, I_C = 0.1\text{ mA},$ $R_L = 1\text{ }000\text{ }\Omega$		50		μs
	Fall time *	t_f			50		μs

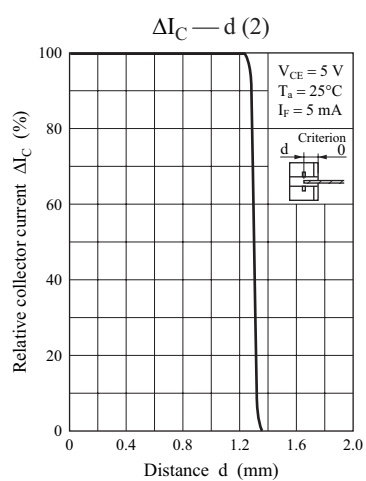
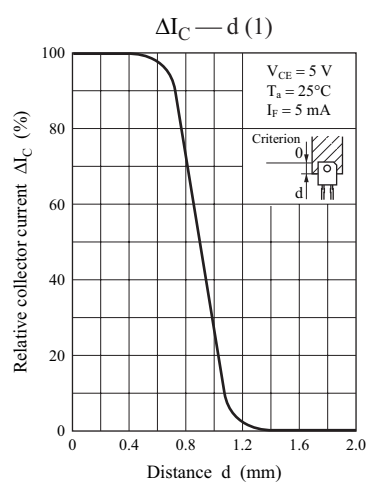
Note) 1. Input and output are practiced by electricity.

2. This device is designed by disregarding radiation.

3. *: Switching time measurement circuit







b面/b side

(0.15)

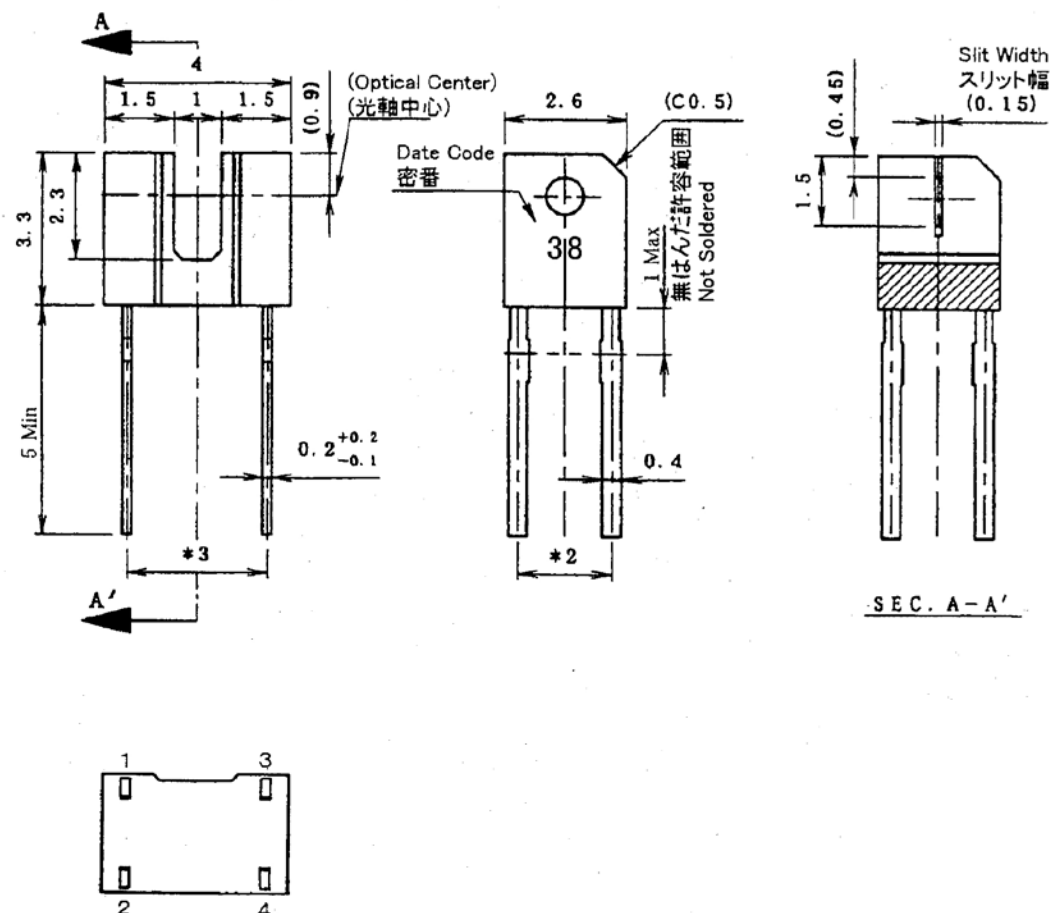
a面/a side

(1.5)

(1.8)

a面又はb面側にゲート盗み有り

With a side or b side



(Note3)What a date code sees an attention and can decode in a microscope.

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

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