

CNA1009H (ON1024)

Photo Interrupter

For contactless SW and object detection

■ Overview

CNA1009H 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: 0.25 mm
- Gap width: 5 mm
- The type directly attached to PCB (with a positioning pins)

■ 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	5	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	$^\circ\text{C}$
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 1.33 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$

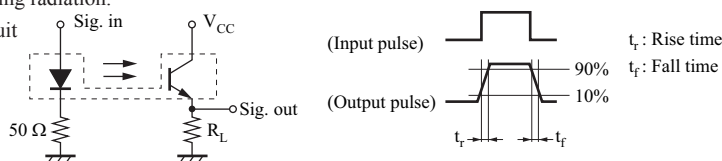
■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	$V_R = 3\text{ V}$			10	μA
	Forward voltage	V_F	$I_F = 20\text{ mA}$		1.25	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 10\text{ V}$		10	200	nA
Transfer characteristics	Collector current	I_C	$V_{CC} = 5\text{ V}, I_F = 20\text{ mA}, R_L = 100\ \Omega$	0.5		15.0	mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{ mA}, I_C = 1\text{ mA}$			0.4	V
	Rise time *	t_r	$V_{CC} = 5\text{ V}, I_C = 1\text{ mA}, R_L = 100\ \Omega$		5.0		μs
	Fall time *	t_f			5.0		μs

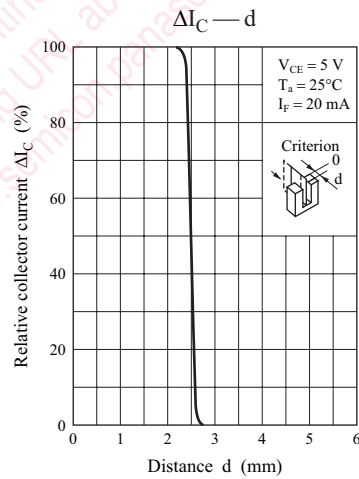
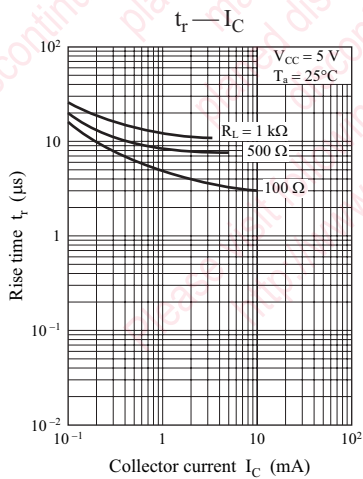
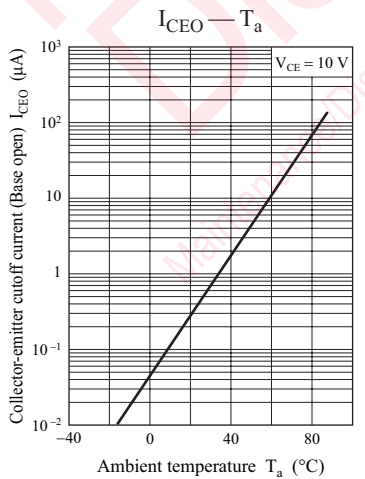
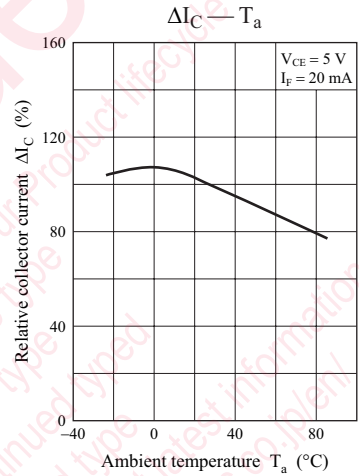
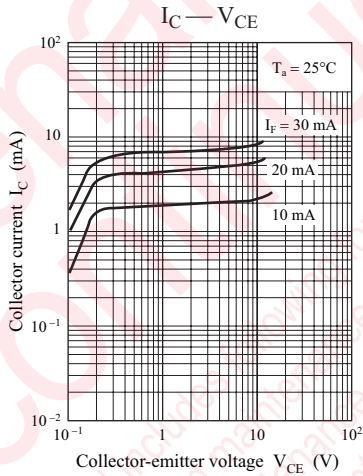
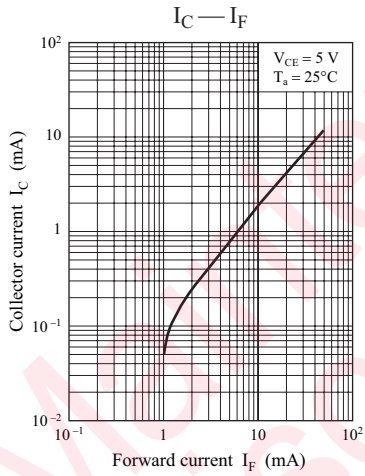
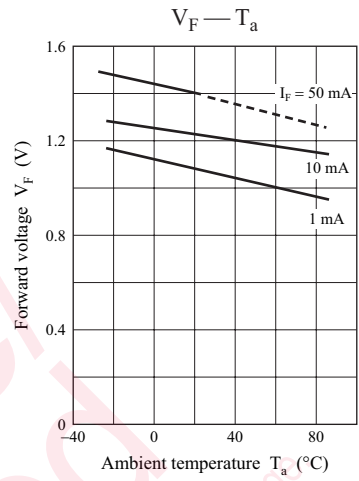
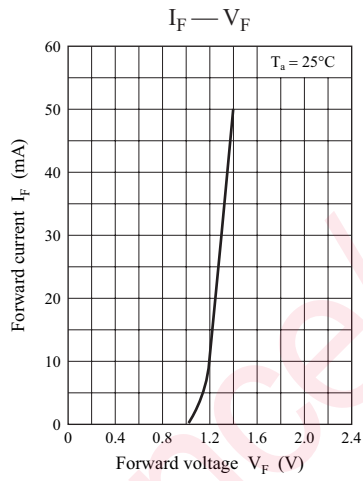
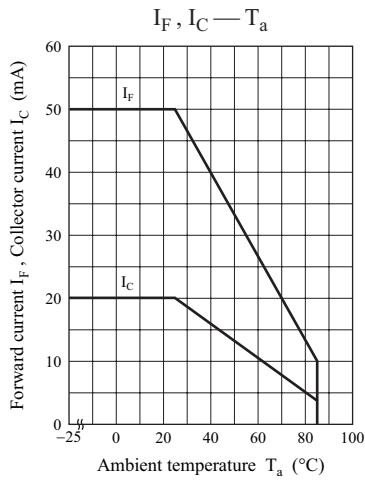
Note) 1. Input and output are practiced by electricity.

2. This device is designed by disregarding radiation.

3. *: Switching time measurement circuit



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



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