

CNA1007H

Photo Interrupter

For contactless SW, object detection

Overview

CNA1007H 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

- Position detection accuracy : 0.3 mm
- Gap width : 5 mm
- Horizontal slit type
- The type directly attached to PCB (with a positioning pins)

Absolute Maximum Ratings (Ta = 25°C)

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

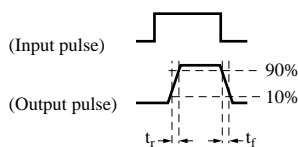
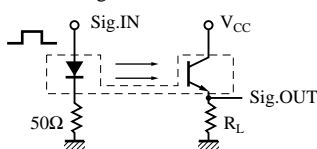
*1 Input power derating ratio is 1.0 mW/°C at Ta = 25°C.

*2 Output power derating ratio is 1.33 mW/°C at Ta = 25°C.

Electrical Characteristics (Ta = 25°C)

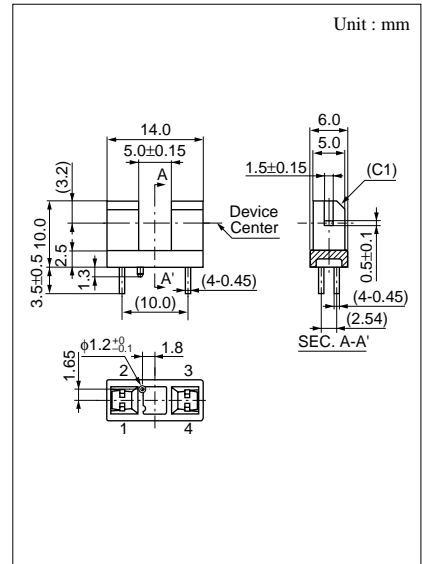
	Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F	$I_F = 20\text{mA}$		1.25	1.4	V
	Reverse current (DC)	I_R	$V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	I_{CEO}	$V_{CE} = 10\text{V}$			200	nA
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5		14	mA
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 1\text{mA}$			0.4	V
	Response time	t_r, t_f^*	$V_{CC} = 5\text{V}, I_C = 1\text{mA}, R_L = 100\Omega$		5		μs

* Switching time measurement circuit

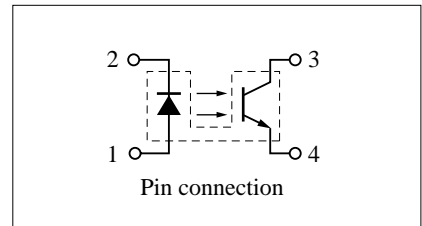


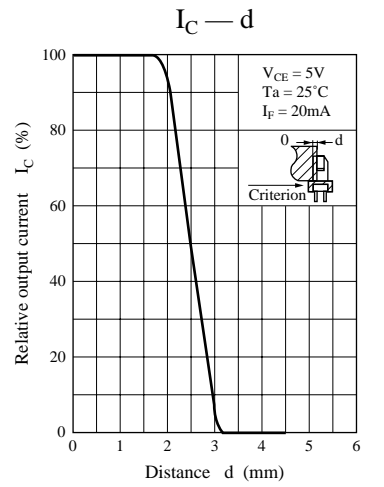
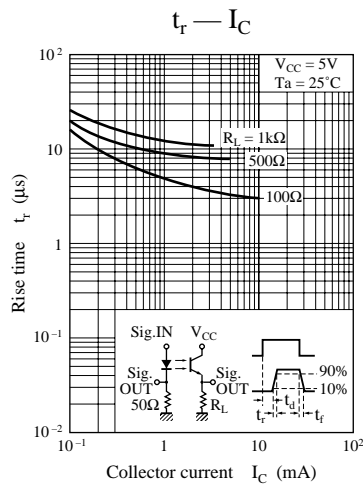
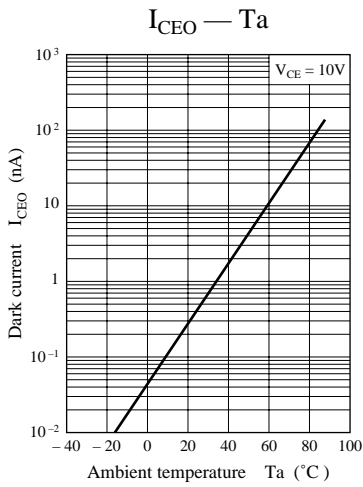
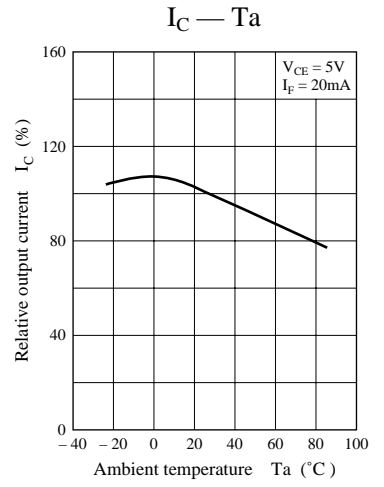
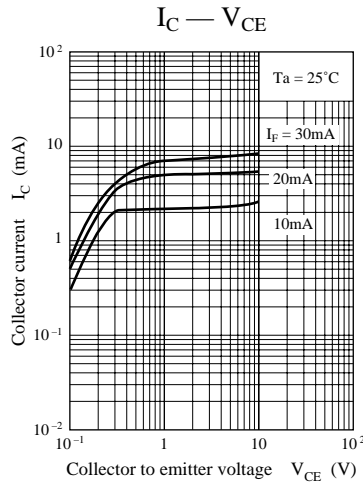
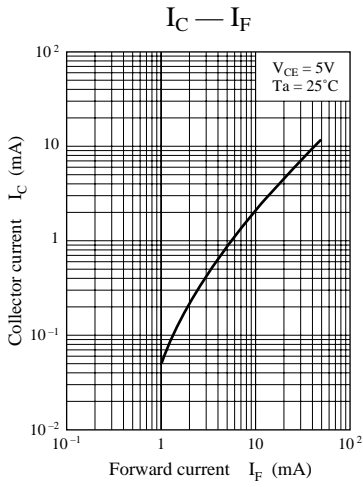
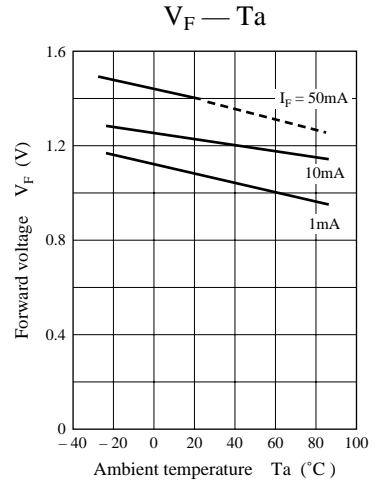
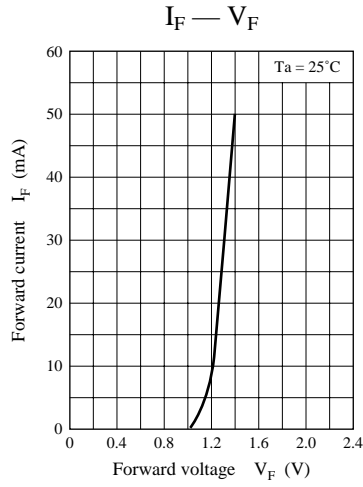
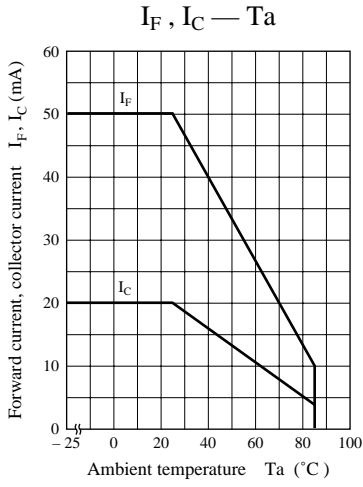
t_r : Rise time (Time required for the collector current to increase from 10% to 90% of its final value)

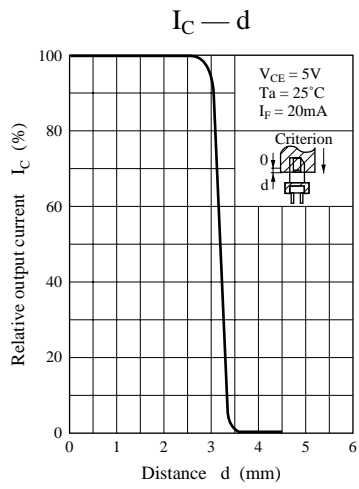
t_f : Fall time (Time required for the collector current to decrease from 90% to 10% of its initial value)



Internal connector







Caution for Safety

 **DANGER**

Gallium arsenide material (GaAs) is used in this product.

Therefore, do not burn, destroy, cut, crush, or chemically decompose the product, since gallium arsenide material in powder or vapor form is harmful to human health.

Observe the relevant laws and regulations when disposing of the products. Do not mix them with ordinary industrial waste or household refuse when disposing of GaAs-containing products.

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