

CNA1003H

Photo Interrupter

For contactless SW, object detection

Outline

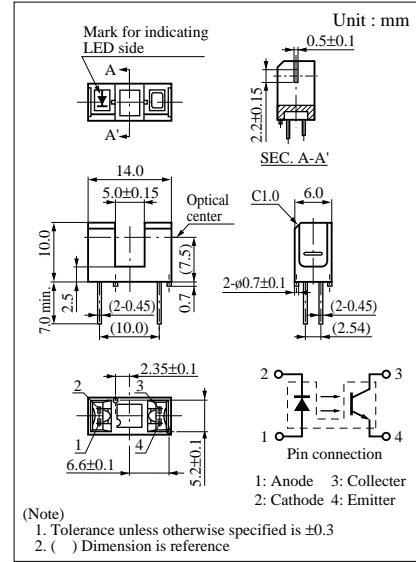
CNA1003H is a transmissive photosensor in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

Features

- Highly precise position detection : 0.3 mm
- Gap width : 5 mm
- With printed wiring board (PWB) positioning pins

Absolute Maximum Ratings (Ta = 25°C)

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3	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
	Collector power dissipation	P_C^{*2}	100	mW
Temperature	Operating ambient temperature	T_{opr}	-25 to +85	°C
	Storage temperature	T_{stg}	-40 to +100	°C



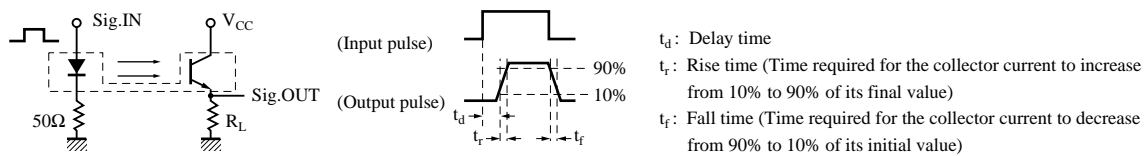
*1 Input power derating ratio is 1.0 mW/°C at $T_a \geq 25^\circ\text{C}$.

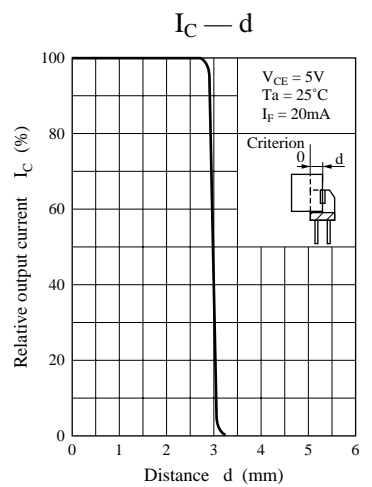
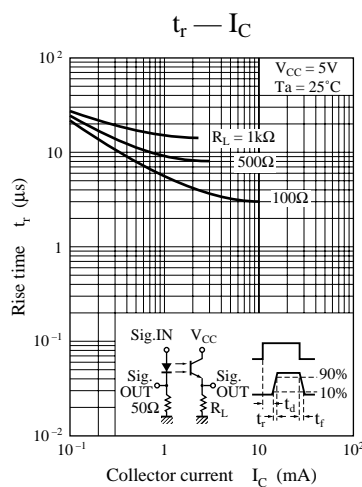
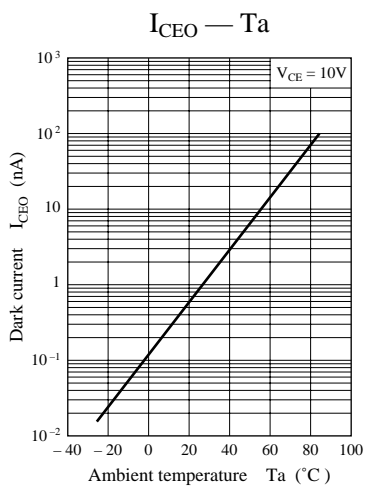
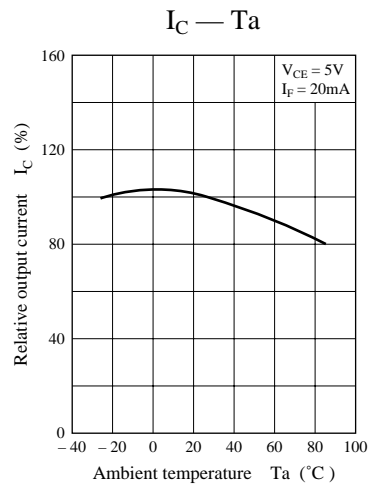
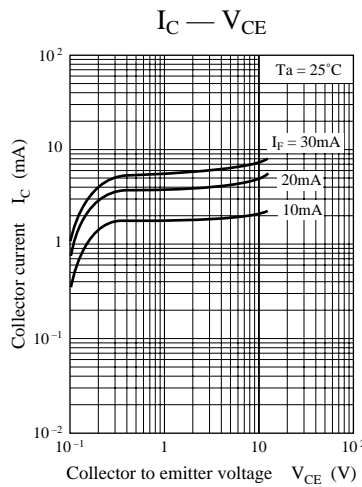
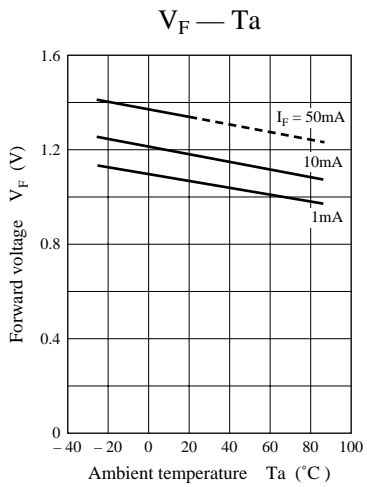
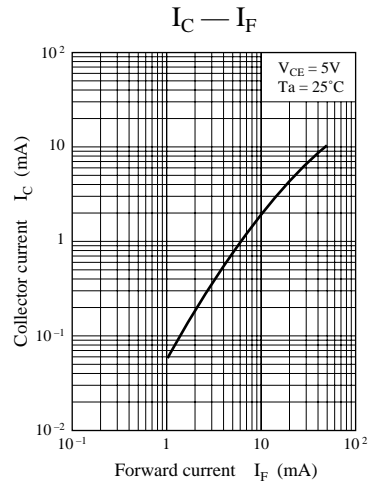
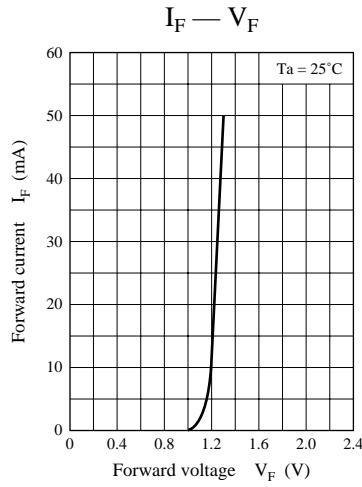
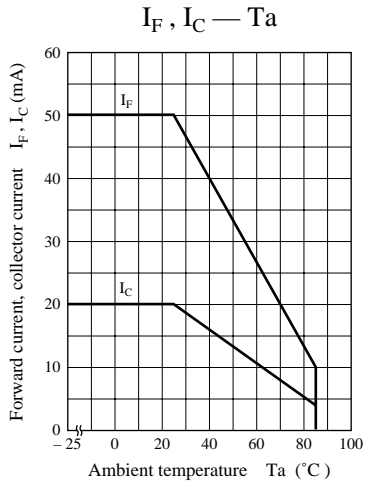
*2 Output power derating ratio is 1.33 mW/°C at $T_a \geq 25^\circ\text{C}$.

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}	$V_{CE} = 10\text{V}$		10	200	nA
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5		15	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





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.

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