

CNA1014H (ON1387)

Photo Interrupters

■ Outline

CNA1014H is a transmissive photosensor series 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
- With attachment positioning boss
- Fast response: $t_r, t_f = 5 \mu s$ (typ.)

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

Parameter	Symbol	Rating	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3 V
	Forward current (DC)	I_F	50 mA
	Power dissipation *1	P_D	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 *2	P_C	100 mW
Temperature	Operating ambient temperature	T_{opr}	-25 to +85 °C
	Storage temperature	T_{stg}	-40 to +100 °C

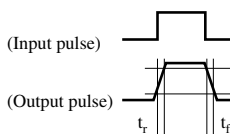
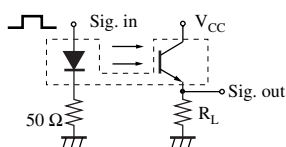
Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a = 25^\circ C$.

*2: Output power derating ratio is 1.33 mW/°C at $T_a = 25^\circ C$.

■ Electrical Characteristics $T_a = 25^\circ C \pm 3^\circ C$

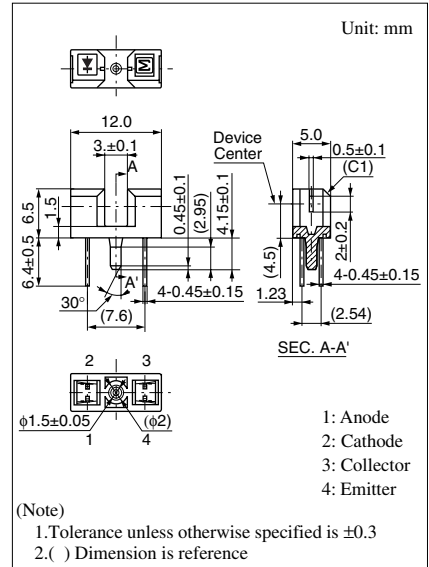
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Forward voltage (DC)	V_F $I_F = 20mA$		1.25	1.4	V
	Reverse current (DC)	I_R $V_R = 3V$			10	μA
Output characteristics	Collector cutoff current	I_{CEO} $V_{CE} = 10V$		10	200	nA
Transfer characteristics	Collector current	I_C $V_{CE} = 5V, I_F = 20mA, R_L = 100\Omega$	1.5		15	mA
	Collector to emitter saturation voltage	$V_{CE(sat)}$ $I_F = 40mA, I_C = 1mA$			0.4	V
	Response time *	t_r, t_f $V_{CC} = 5V, I_C = 1mA, R_L = 100\Omega$		5		μs

Note) *: Switching time measurement circuit

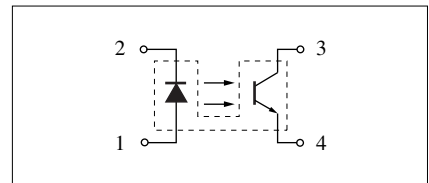


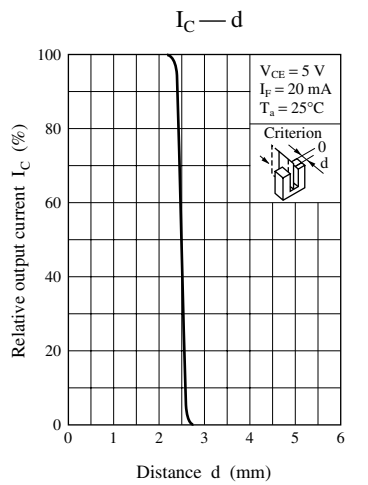
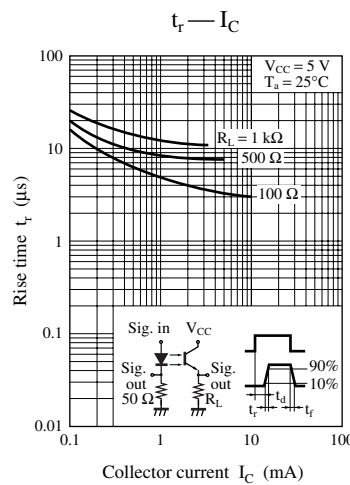
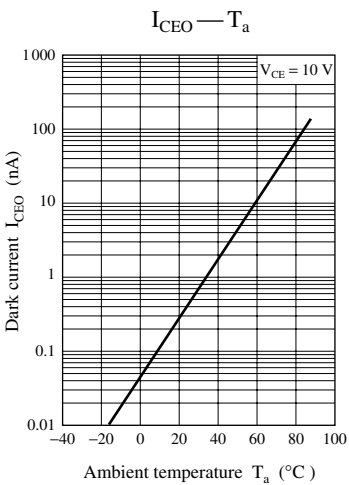
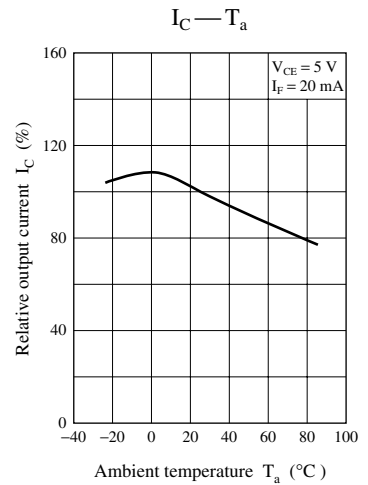
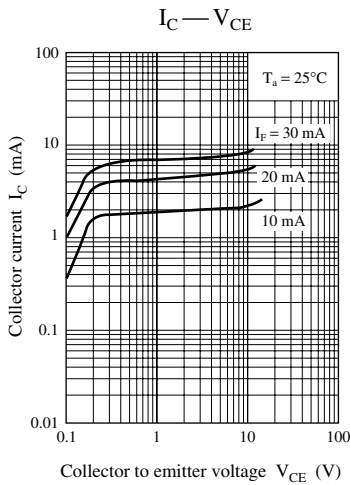
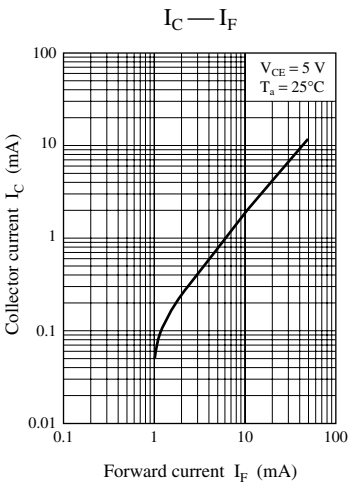
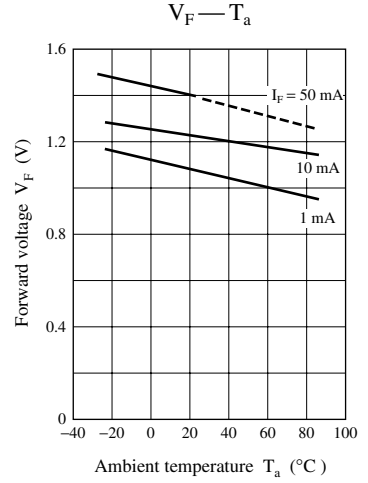
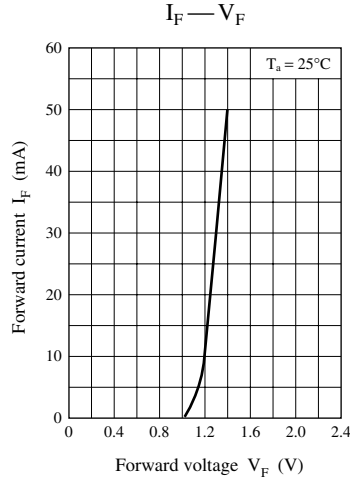
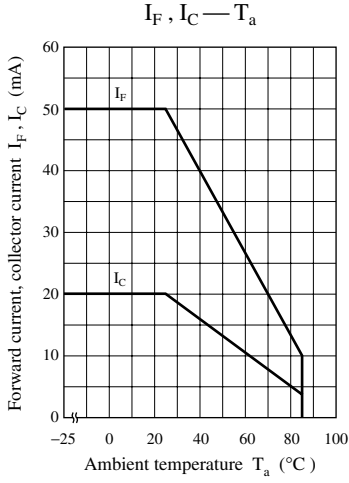
t_r : Rise time (Time required for the collector current to increase from 10% to 90% of its final value)
 t_f : Fall time (Time required for the collector current to decrease from 90% to 10% of its initial value)

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



Internal connection





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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