

CNA1303K (ON1003)

Photo Interrupter

For contactless SW, object detection

■ Overview

CNA1303K 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 : $4.2 \times 4.2 \text{ mm}$ (height : 5.2 mm)
- Fast response : $t_r, t_f = 35 \mu\text{s}$ (typ.)
- Highly precise position detection : 0.15 mm
- Gap width : 1.2 mm

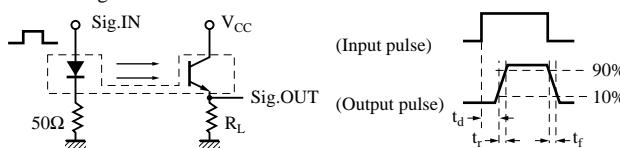
Absolute Maximum Ratings (Ta = 25°C)

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V _R	6	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}	35	V
	Emitter to collector voltage	V _{ECO}	6	V
	Collector power dissipation	P _C * ²	75	mW
Temperature	Operating ambient temperature	T _{opr}	-25 to +85	°C
	Storage temperature	T _{stg}	-40 to +100	°C
	Soldering temperature	T _{sol} * ³	260	°C

■ Electrical Characteristics (Ta = 25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F	$I_F = 20\text{mA}$		1.2	1.4	V
	Reverse current (DC)	I_R	$V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	I_{CEO}	$V_{CE} = 20\text{V}$			100	nA
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 5\text{mA}$	100		1300	μA
	Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	$I_F = 10\text{mA}, I_C = 50\mu\text{A}$			0.4	V
	Response time	t_r, t_f^*	$V_{CC} = 5\text{V}, I_C = 0.1\text{mA}, R_L = 1000\Omega$		35		μs

* Switching time measurement circuit



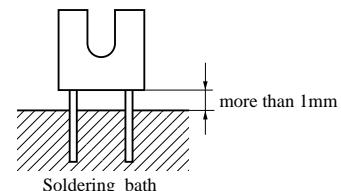
(Note)

1. Tolerance unless otherwise specified is ± 0.2
2. () Dimension is reference
3. * is dimension at the root of leads
4. Burrs should be less than 0.15mm

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

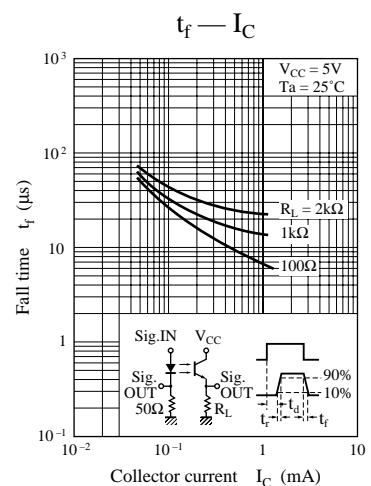
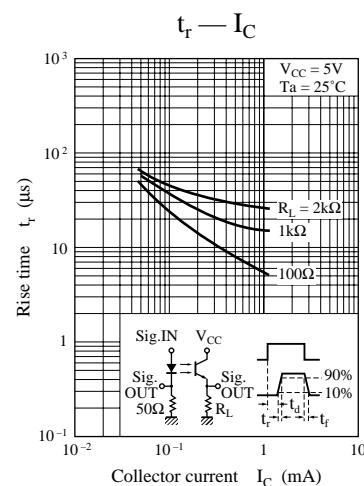
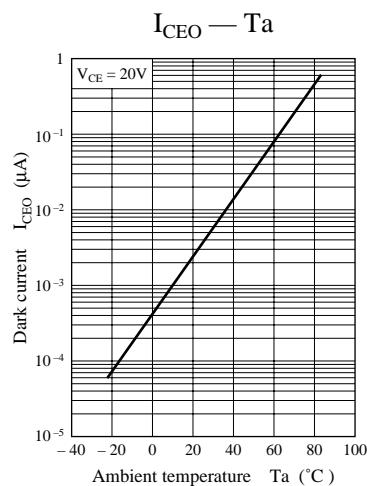
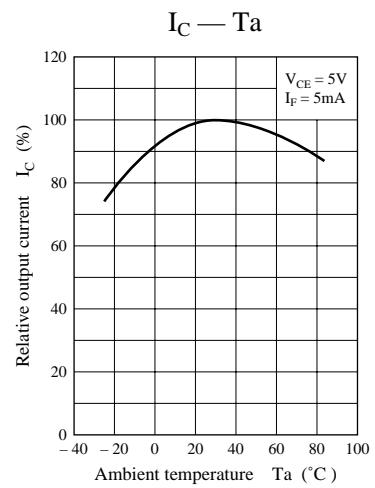
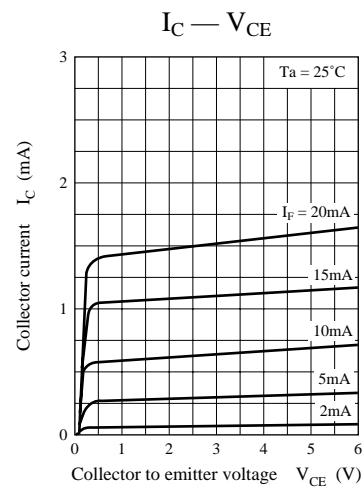
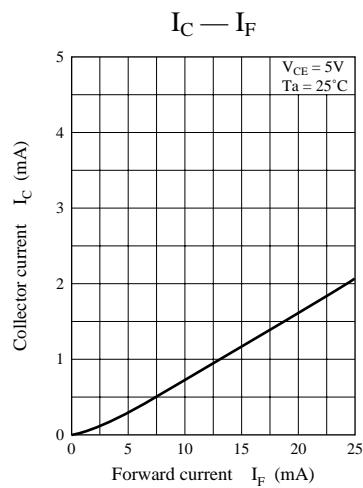
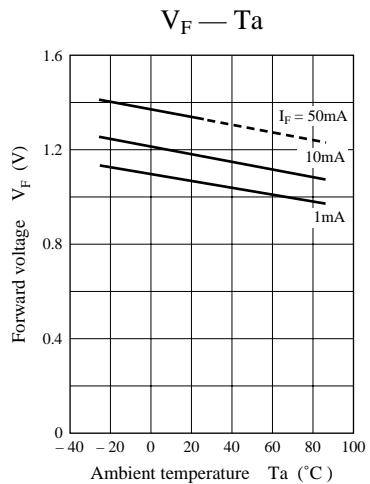
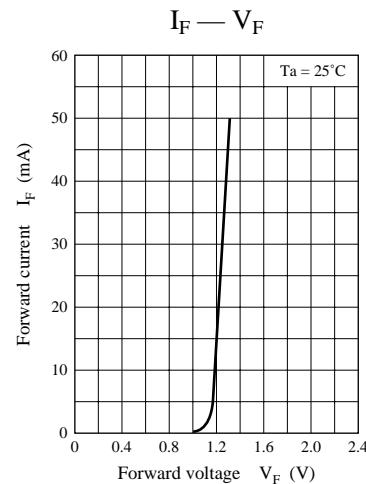
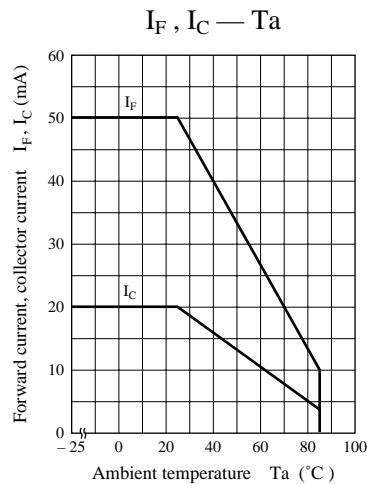
*2 Output power derating ratio is 1.0mW/°C at $T_a \geq 25^{\circ}\text{C}$.

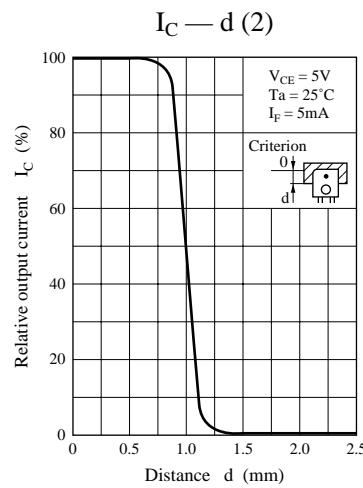
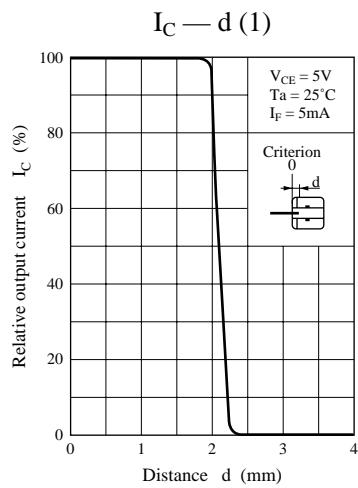
^{*3} Soldering time is within 5 seconds.



- t_d : Delay time
- 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.





⚠ Caution for Safety

⚠ DANGER

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