CNA1303K (ON1003)

Photo Interrupter

For contactless SW and object detection

■ Overview

CNA1302K 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 mm × 4.2 mm (height: 5.2 mm)
- Fast response: t_r , t_f = 35 μs (typ.)
- Highly precise position detection: 0.15 mm
- Gap width: 1.2 mm

■ Absolute Maximum Ratings T_a = 25°C

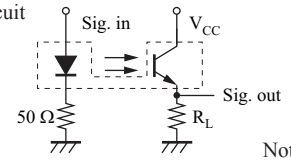
Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Power dissipation *1	P_D	75	mW
	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
Output (Photo transistor)	Collector-emitter voltage (Base open)	V_{CEO}	35	V
	Emitter-collector voltage (Base open)	V_{ECO}	6	V
	Collector current	I_C	20	mA
	Collector power dissipation *2	P_C	75	mW
Operating ambient temperature		T_{opr}	–25 to +85	°C
Storage temperature		T_{stg}	–40 to +100	°C

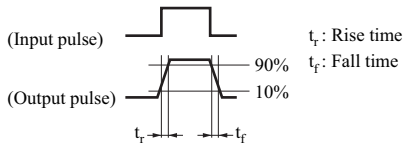
Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a \geq 25°C$
*2: Output power derating ratio is 1.0 mW/°C at $T_a \geq 25°C$

■ Electrical-Optical Characteristics T_a = 25°C±3°C

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	V_R = 3 V			10	μA
	Forward voltage	V_F	I_F = 20 mA		1.2	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	V_{CE} = 20 V			100	nA
Transfer characteristics	Collector current	I_C	V_{CE} = 5 V, I_F = 5 mA	100		1 300	μA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	I_F = 10 mA, I_C = 40 μA			0.4	V
	Rise time *	t_r	V_{CC} = 5 V, I_C = 0.1 mA, R_L = 1 000 Ω		35		μs
	Fall time *	t_f			35		μs

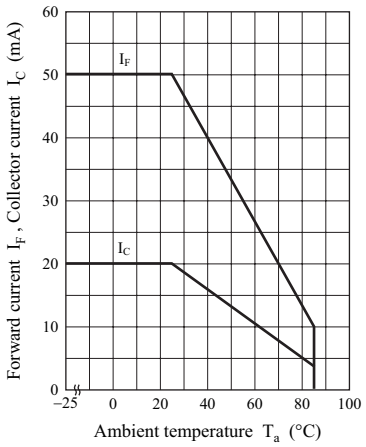
Note) 1. Input and output are practiced by electricity.
2. This device is designed by disregarding radiation.
3. *: Switching time measurement circuit



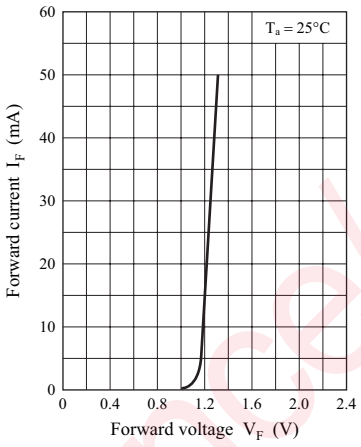


Note) The part number in the parenthesis shows conventional part number.

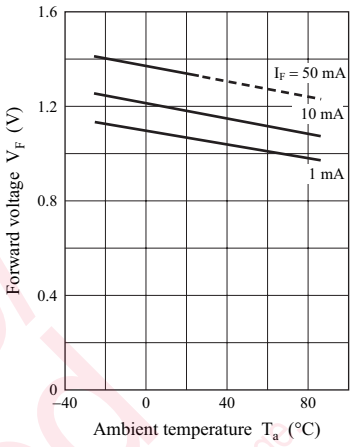
I_F , I_C — T_a



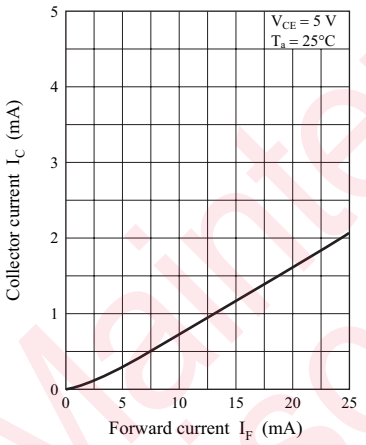
I_F — V_F



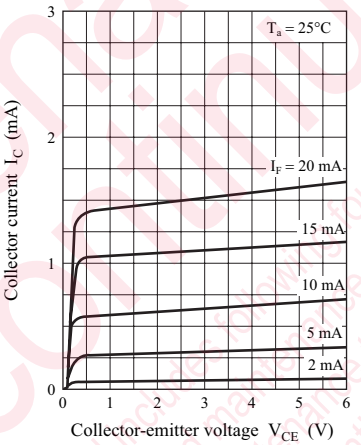
V_F — T_a



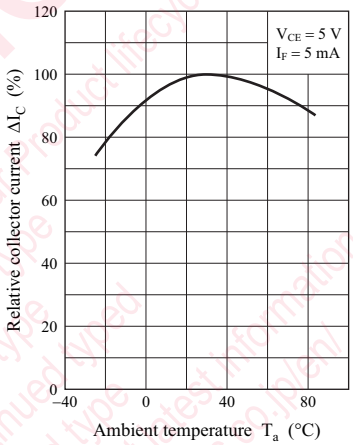
I_C — I_F



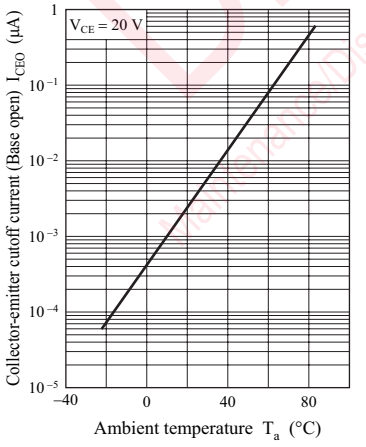
I_C — V_{CE}



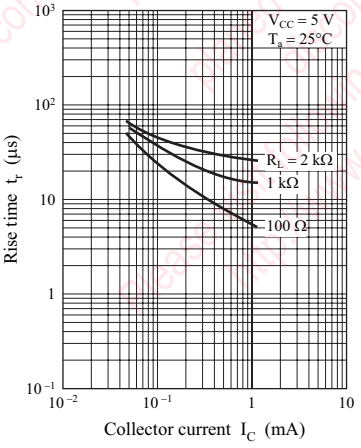
ΔI_C — T_a



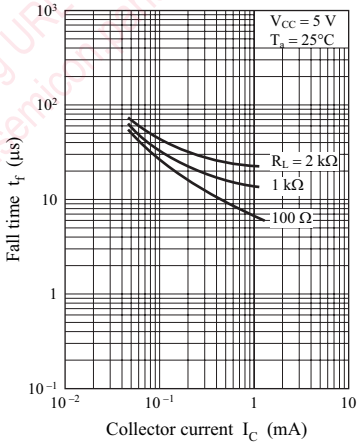
I_{CEO} — T_a



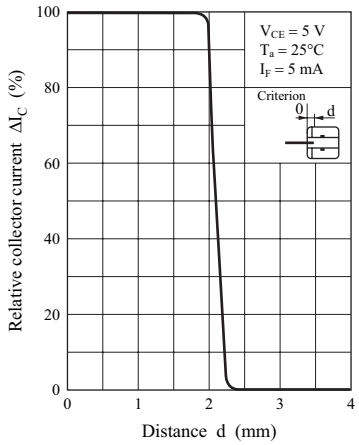
t_r — I_C



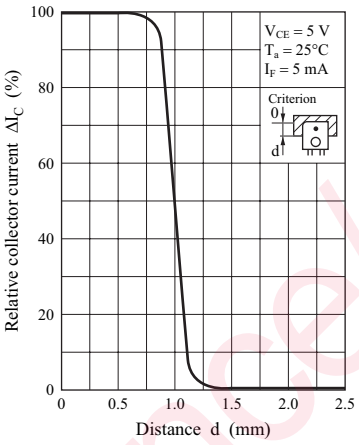
t_f — I_C



ΔI_C — d (1)

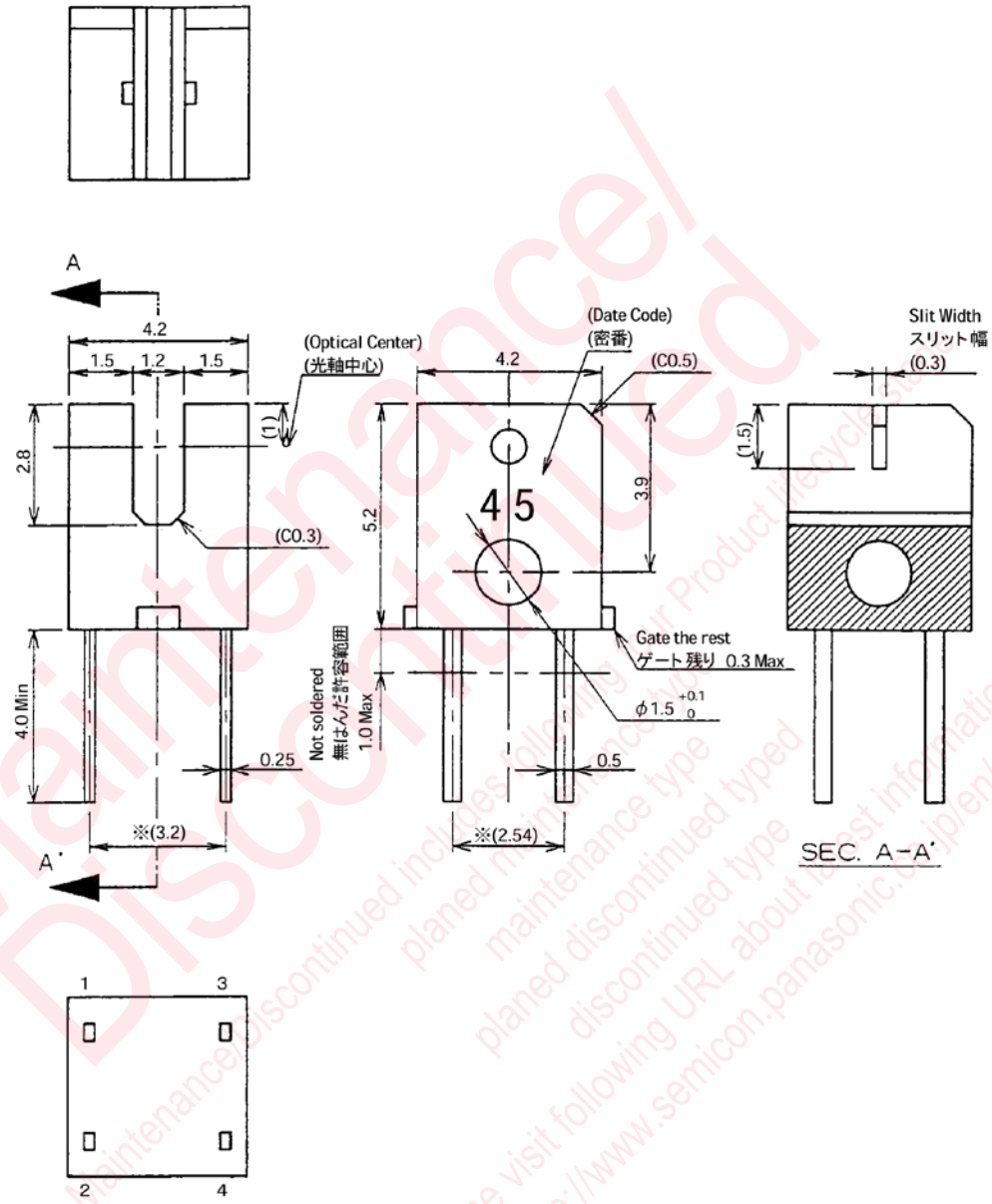


ΔI_C — d (2)



■ Package (Unit: mm)

LSMSIN4S0004



(注 1)(Note1)※リード根元寸法とします。／※Indicates root dimensions of lead.
(注 2)(Note2)指示無き寸法公差は±0.2。／Not appointment tolerance :±0.2
(注 3)(Note3)バリ寸法は 0.15 Max./Barri measure : 0.15 Max.
(注 4) 上記寸法は、バリ・ゲート残り等を含んでおりません。
(Note4)An aforementioned dimension doesn't include projects and gate the rest remainder.
(注 5) 密番は、目視又は顕微鏡に於いて解読できる事。
(Note5)What a date code sees an attention and can decode in a microscope.

- Pin name
  1: Anode
  2: Cathode
  3: Collector
  4: Emitter

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