

CNZ1002 (ON1002)

Photo Interrupter

For contactless SW, object detection

■ Overview

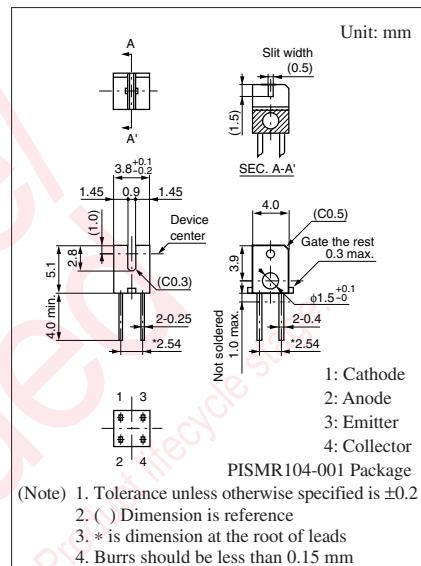
CNZ1002 is an ultraminiature, highly reliable transmissive photosensor in which a high efficiency GaAs infrared light emitting diode chip and a high sensitivity Si phototransistor chip are integrated in a double molded resin package.

■ Features

- Ultraminiature: 4.0 mm × 3.8 mm (height: 5.1 mm)
- Fast response: $t_r, t_f = 35 \mu\text{s}$ (typ.)
- Highly precise position detection: 0.25 mm
- Gap width: 0.9 mm

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

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Reverse voltage	V_R	6	V
	Forward current	I_F	50	mA
	Power dissipation ^{*1}	P_D	75	mW
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
Temperature	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. 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 0.15 mm

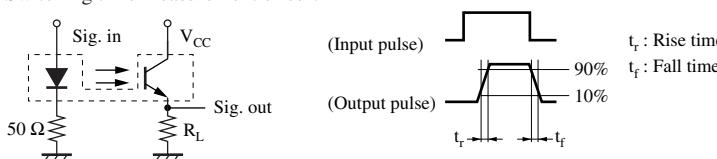
■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Forward voltage	V_F	$I_F = 20 \text{ mA}$		1.2	1.4	V
	Reverse current	I_R	$V_R = 3 \text{ V}$			10	μA
Output characteristics (Base open)	Collector-emitter cutoff current	I_{CEO}	$V_{CE} = 20 \text{ V}$			100	nA
	Collector current	I_C	$V_{CE} = 5 \text{ V}, I_F = 1.5 \text{ mA}$	65		480	μA
Transfer characteristics	Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_F = 3 \text{ mA}, I_C = 30 \text{ μA}$			0.4	V
	Rise time [*]	t_r	$V_{CC} = 5 \text{ V}, I_C = 0.1 \text{ mA}$		35		μs
	Fall time [*]	t_f	$R_L = 1000 \text{ Ω}$		35		μs

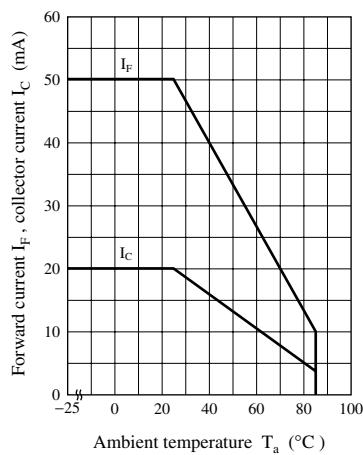
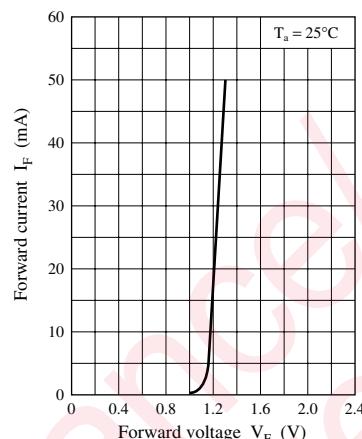
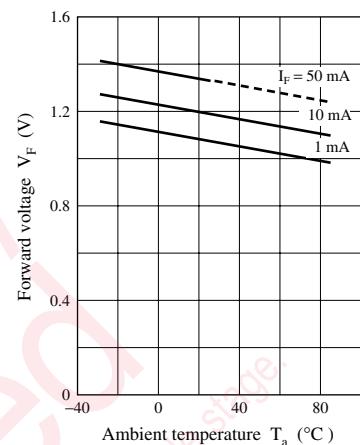
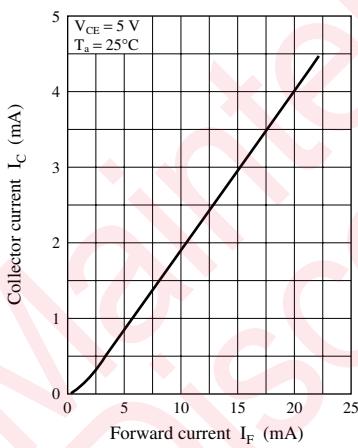
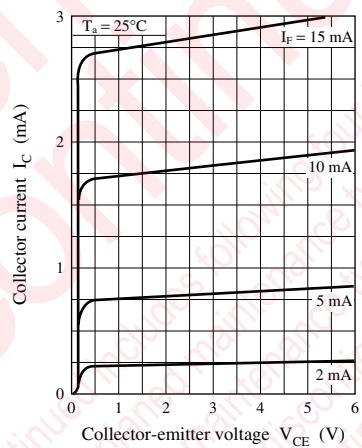
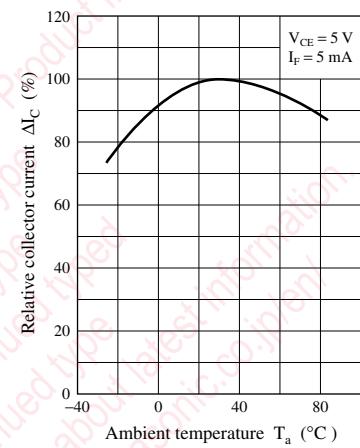
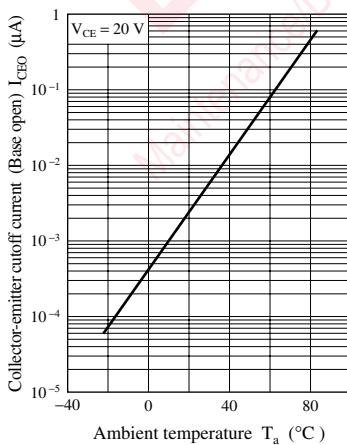
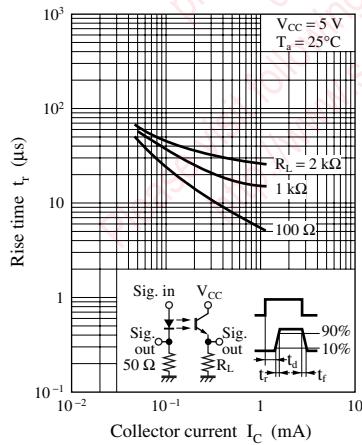
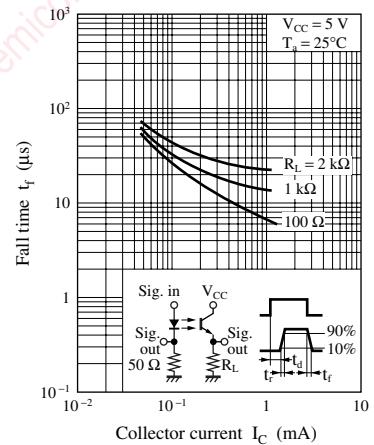
Note) 1. Input and output are practiced by electricity.

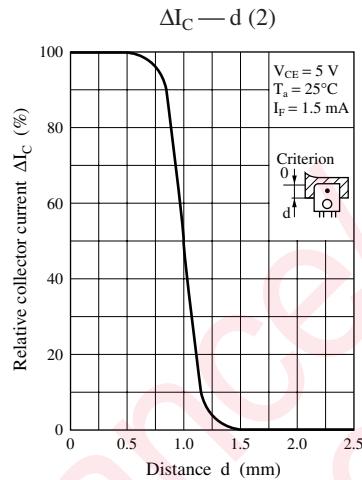
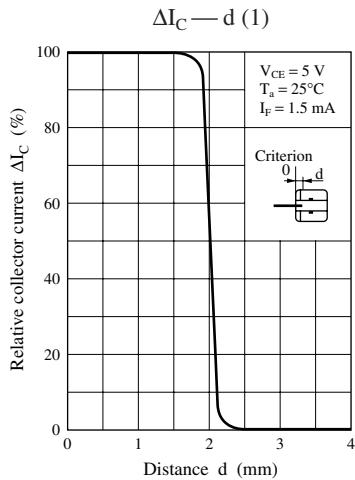
2. This device is designed be disregarded radiation.

3. *: Switching time measurement circuit



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

$I_F, I_C - T_a$  $I_F - V_F$  $V_F - T_a$  $I_C - I_F$  $I_C - V_{CE}$  $\Delta I_C - T_a$  $I_{CEO} - T_a$  $t_r - I_C$  $t_f - I_C$ 



Maintenance/Discontinued includes following four Product lifecycle stage.
planed maintenance type
planed discontinued type
discontinued type
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⚠ DANGER

■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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