CNZ1021 (ON1021), **CNZ1023** (ON1023), **CNA1009H** (ON1024)

Photo Interrupter

For contactless SW, object detection

Overview

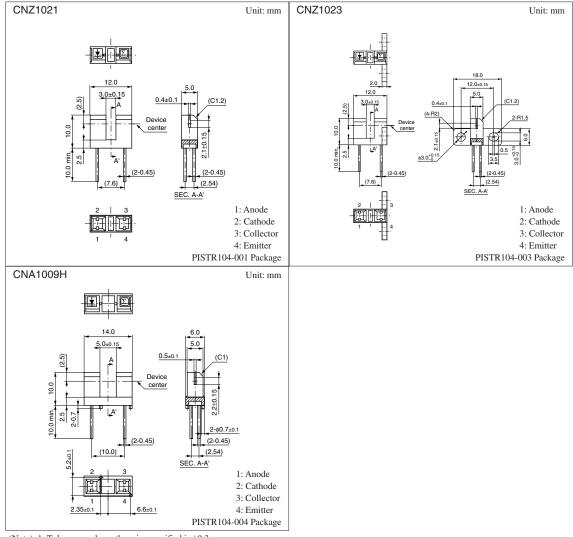
CNZ1021, CNZ1023 and CNA1009H are a transmissive photosensor in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

Features

- Highly precise position detection: 0.25 mm
- Gap width: 3 mm (CNZ1021, CNZ1023)

5 mm (CNA1009H)

• The type directly attached to PCB CNZ1021 Screw-fastened type (one side) CNZ1023 The type directly attached to PCB CNA1009H (with a positioning pins)



(Note) 1. Tolerance unless otherwise specified is ± 0.3 2. () Dimension is reference

Note) The part numbers in the parenthesis show conventional part number.

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

	Symbol	Rating	Unit		
Input (Light	Reverse CNZ1021		V _R	3	V
emitting diode)	voltage	CNZ1023		3	
		CNA1009H		5	
	Forward current Power dissipation *1		I_F	50	mA
			P _D	75	mW
Output (Photo transistor)	Collector-emitter voltage (Base open)		V _{CEO}	30	V
,	Emitter-collector voltage (Base open) Collector current		V _{ECO}	5	V
			I _C	20	mA
	Collector pow	er dissipation *2	P _C	100	mW
Temperature	Operating ambient temperature		T _{opr}	-25 to +85	°C
	Storage tem	perature	T _{stg}	-40 to +100	°C

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

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

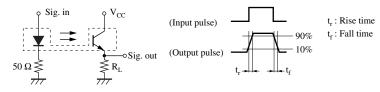
Electrical-Optical Characteristics $T_a = 25^{\circ}C \pm 3^{\circ}C$

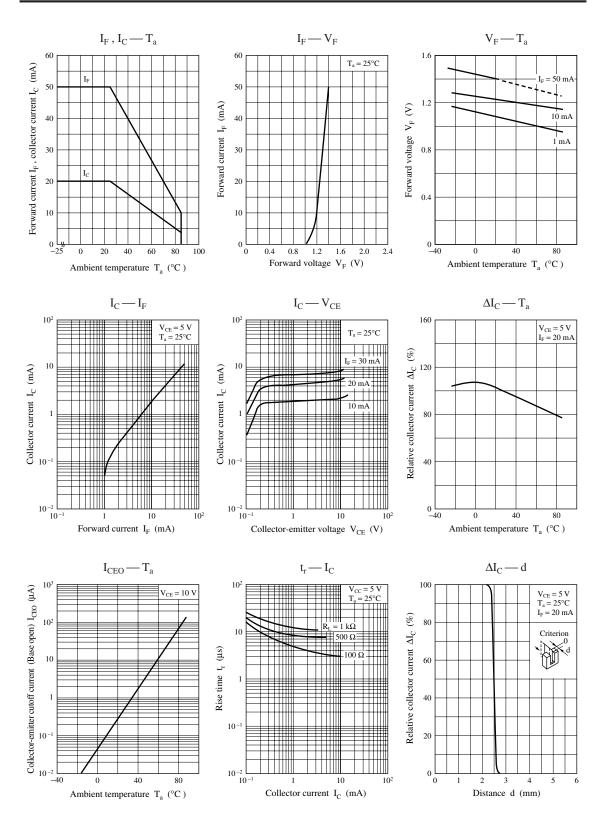
Parameter		Symbol	Conditions	Min	Тур	Max	Unit
Input characteristics	Forward voltage	V _F	$I_F = 20 \text{ mA}$		1.25	1.40	V
	Reverse current	I _R	$V_R = 3 V$			10	μΑ
Output	Collector-emitter cutoff current	I _{CEO}	$V_{CE} = 10 V$		10	200	nA
characteristics	(Base open)						
characteristics	Collector current	I _C	V_{CC} = 5 V, I_F = 20 mA, R_L = 100 Ω	0.5		15.0	mA
	Collector-emitter saturation voltage	V _{CE(sat)}	$I_F = 40 \text{ mA}, I_C = 1 \text{ mA}$			0.4	V
	Rise time *	t _r	$V_{CC} = 5 V, I_C = 1 mA$		5		μs
	Fall time *	t _f	$R_L = 100 \ \Omega$		5		μs

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

2. This device is designed be disregarded radiation.

3. *: Switching time measurement circuit





▲ Caution for Safety

⚠ 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 form general industrial waste or household garbage.

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