

# CNZ1021, CNZ1022, CNZ1023, CNA1009H (ON1021, ON1022, ON1023, ON1024)

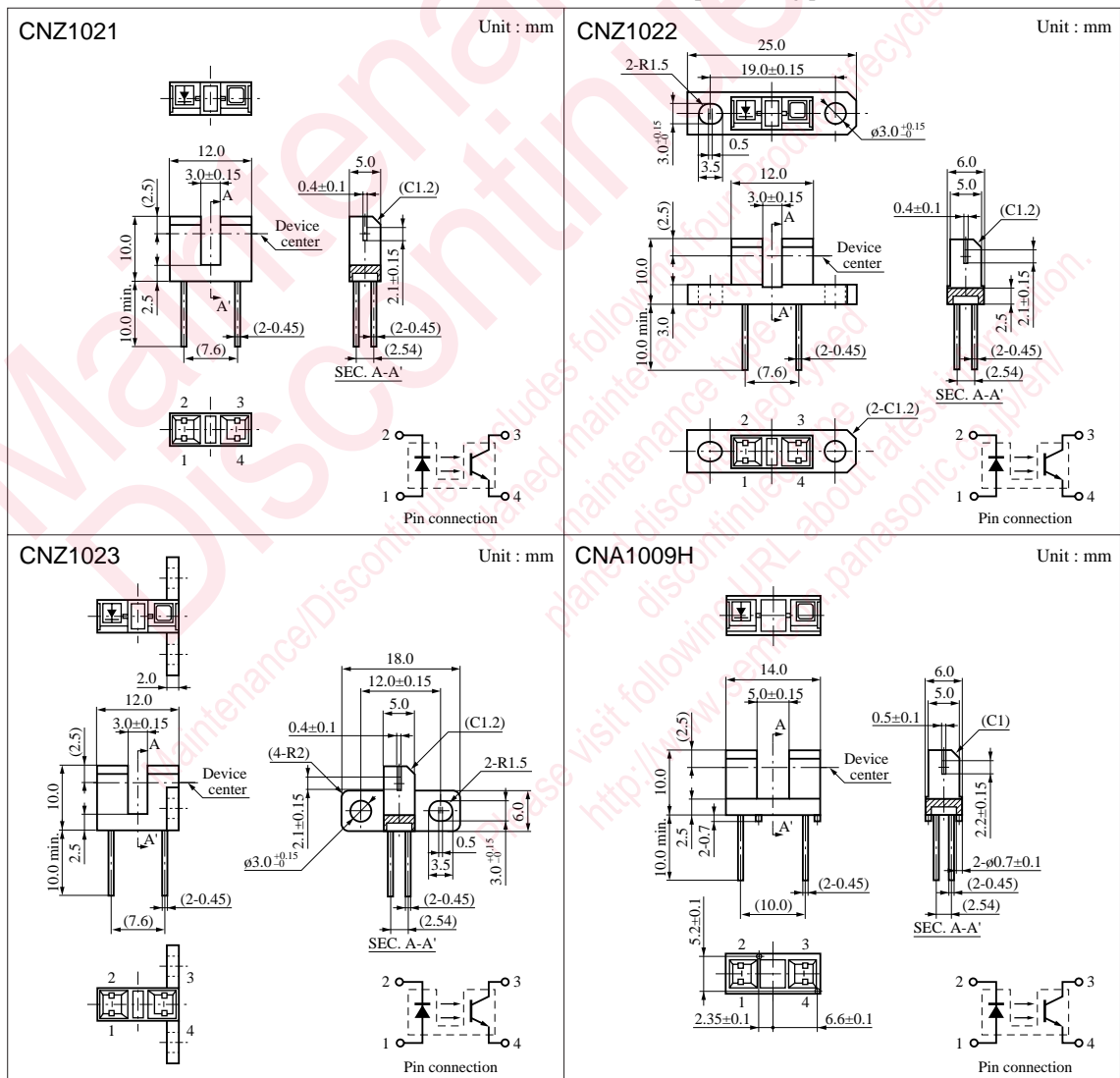
## Photo Interrupters

### Overview

CNZ1021 series 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 : 0.25 mm
- Gap width : 3 mm (CNZ1021, CNZ1022, CNZ1023)  
5 mm (CNA1009H)
- The type directly attached to PCB ..... CNZ1021  
Screw-fastened type (both sides) ..... CNZ1022  
Screw-fastened type (one side) ..... CNZ1023  
The type directly attached to PCB ..... CNA1009H  
(with a positioning pins)



(Note) 1. Tolerance unless otherwise specified is  $\pm 0.3$ .

2. ( ) Dimension is reference.

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

■ Absolute Maximum Ratings (Ta = 25°C)

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	$V_R$	5	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	$V_{CEO}$	30	V
	Emitter to collector voltage	$V_{ECO}$	5	V
Temperature	Collector power dissipation	$P_C^{*2}$	100	mW
	Operating ambient temperature	$T_{opr}$	-25 to +85	°C
	Storage temperature	$T_{stg}$	-40 to +100	°C

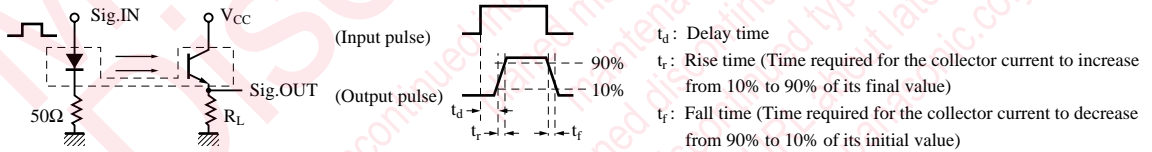
\*1 Input power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

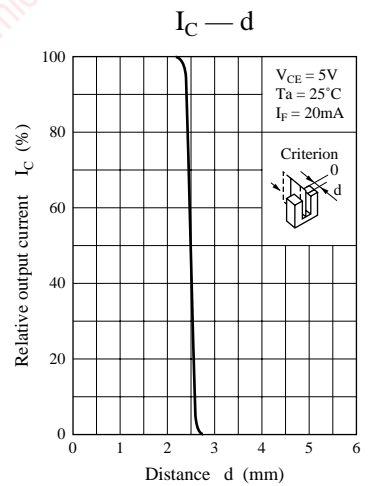
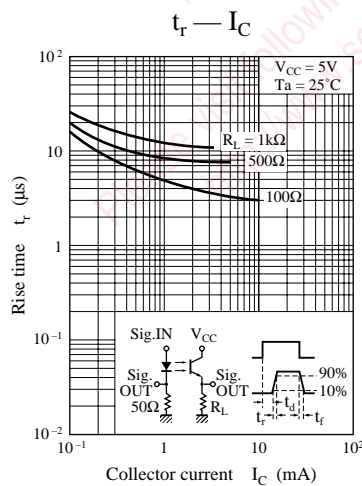
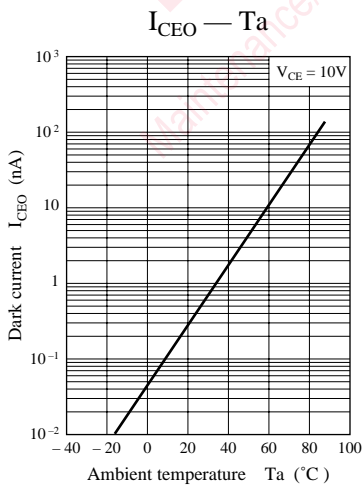
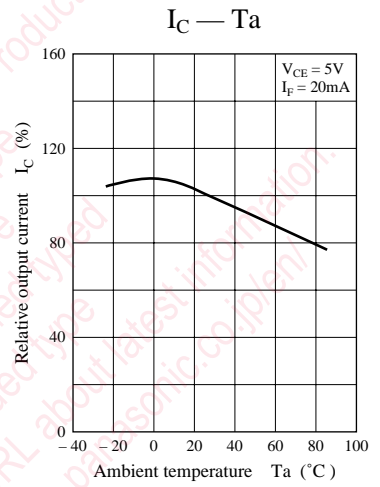
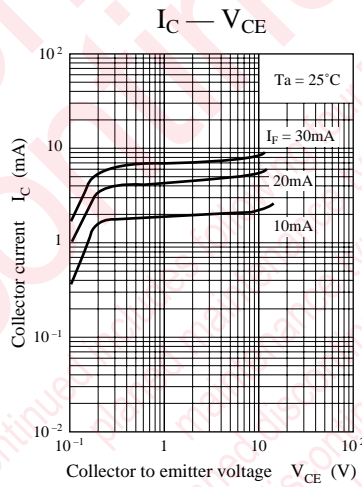
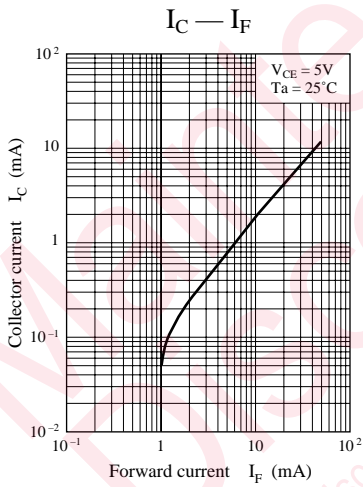
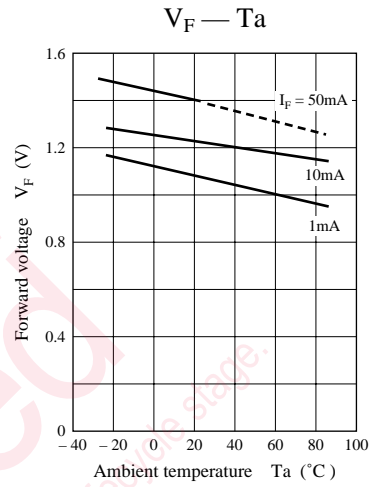
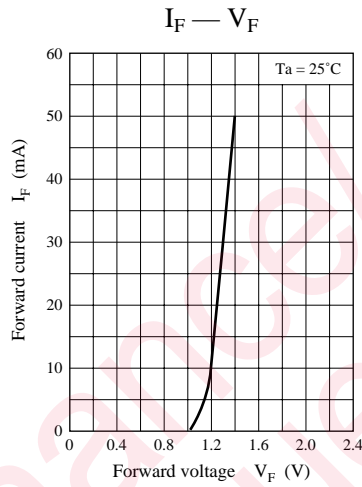
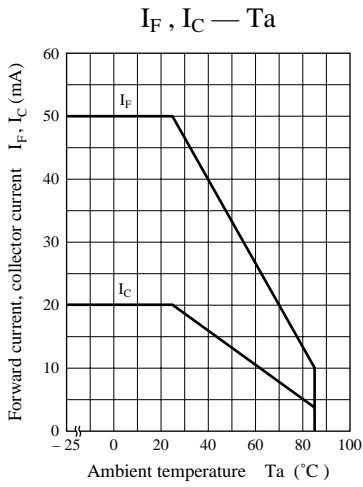
\*2 Output power derating ratio is 1.33 mW/°C at Ta ≥ 25°C.

■ Electrical Characteristics (Ta = 25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	$V_F$	$I_F = 20\text{mA}$		1.25	1.4	V
	Reverse current (DC)	$I_R$	$V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	$I_{CEO}$	$V_{CE} = 10\text{V}$		10	200	nA
Transfer characteristics	Collector current	$I_C$	$V_{CC} = 5\text{V}, I_F = 20\text{mA}, R_L = 100\Omega$	0.5		15	mA
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 1\text{mA}$			0.4	V
	Response time	$t_r, t_f^*$	$V_{CC} = 5\text{V}, I_C = 1\text{mA}, R_L = 100\Omega$		5		μs

\* 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 from general industrial waste or household garbage.

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