# **CNB1301** (ON2171)

### Reflective photosensor

Non-contact point SW, object sensing

#### ■ Overview

CNB1301 is a reflective photosensor consisting of a small, thin reflective photosensor (CNB1302) to which a plastic lens is attached to increase the focal distance from 0.8 mm to 2.5 mm.

#### ■ Features

• Small size, light weight: 5 mm × 4.5 mm (height: 4.0 mm)

• Focal distance: 2.5 mm

• Visible light cutoff resin is used

#### Applications

• Copier

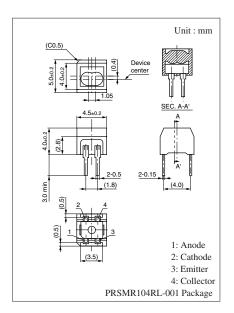
Printers

Facsimiles

· Cassette deck

### ■ Absolute Maximum Ratings $T_a = 25$ °C

1	Symbol	Rating	Unit	
Input (Light	Reverse voltage	V <sub>R</sub>	3	V
emitting diode)	Forward current	$I_F$	50	mA
	Power dissipation *1	$P_{\mathrm{D}}$	75	mW
Output (Photo	Collector-emitter voltage	V <sub>CEO</sub>	30	V
transistor)	(Base open)			
	Emitter-collector voltage	V <sub>ECO</sub>	5	V
	(Base open)			
	Collector current	$I_C$	20	mA
	Collector power dissipation *2	P <sub>C</sub>	50	mW
Temperature	Operating ambient temperature	Topr	-25 to +75	°C
	Storage temperature	T <sub>stg</sub>	-30 to +80	°C



Note) \*1: Input power derating ratio is  $1.36 \text{ mW/}^{\circ}\text{C}$  at  $T_a \ge 25^{\circ}\text{C}$ . \*2: Output power derating ratio is  $0.91 \text{ mW/}^{\circ}\text{C}$  at  $T_a \ge 25^{\circ}\text{C}$ .

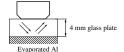
#### ■ Electrical-Optical Characteristics $T_a = 25$ °C $\pm 3$ °C

Parameter		Symbol	Conditions	Min	Тур	Max	Unit
Input	Forward voltage	V <sub>F</sub>	$I_F = 50 \text{ mA}$		1.3	1.5	V
characteristics	Reverse current	$I_R$	$V_R = 3 V$			10	μΑ
Output	Collector-emitter cutoff current	I <sub>CEO</sub>	$V_{CE} = 10 \text{ V}$			200	nA
characteristics	(Base open)						
Transfer	Collector current *	$I_C$	$V_{CC} = 5 \text{ V}, I_F = 10 \text{ mA}, R_L = 100 \Omega, d = 4 \text{ mm}$	0.8		5.2	mA
characteristics	Dark current	$I_D$	$V_{CC} = 5 \text{ V}, I_F = 10 \text{ mA}, R_L = 100 \Omega$			40	μΑ
	Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_F = 20 \text{ mA}, I_C = 0.1 \text{ mA}$			0.5	V
	Rise time	t <sub>r</sub>	$V_{CC} = 5 \text{ V}, I_{C} = 0.1 \text{ mA}, R_{L} = 100 \Omega$		20		μs
	Fall time	t <sub>f</sub>			20		μs

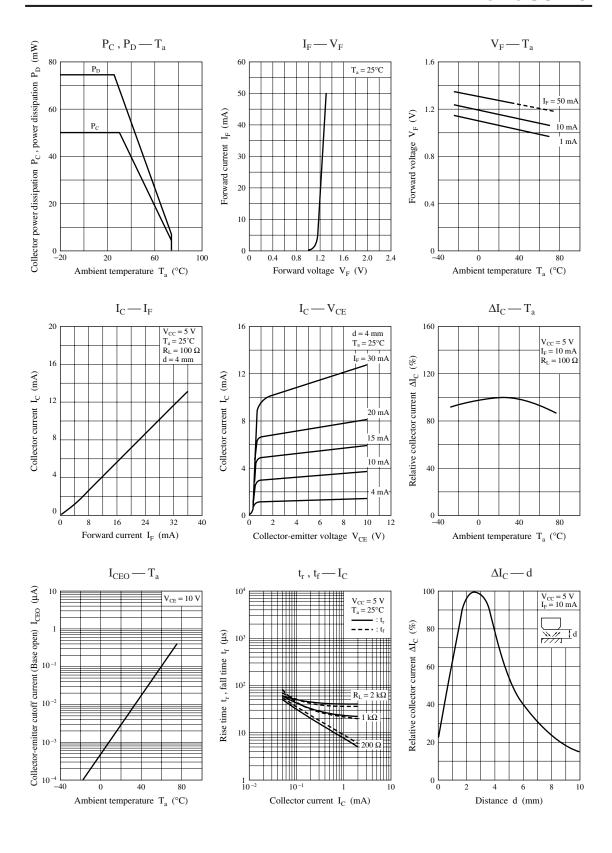
Note) 1. Input and output are handled electrically.

- 2. This product is not designed to withstand radiation
- 3. \*: Output current measurement circuit





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



# 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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