

# 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

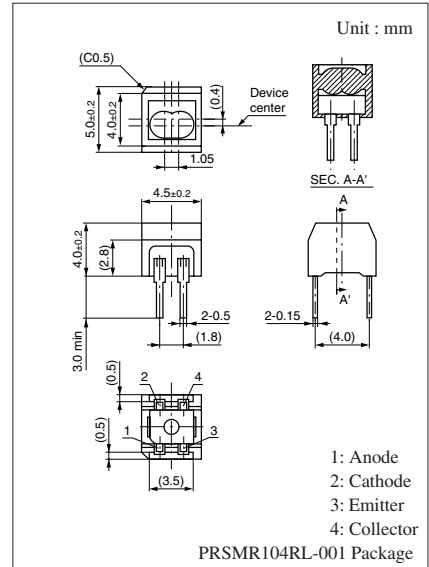
- Small size, light weight: 5 mm × 4.5 mm (height: 4.0 mm)
- Focal distance: 2.5 mm
- Visible light cutoff resin is used

### Applications

- Copier
- Printers
- Facsimiles
- Cassette deck

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

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Reverse voltage	$V_R$	3	V
	Forward current	$I_F$	50	mA
	Power dissipation *1	$P_D$	75	mW
Output (Photo transistor)	Collector-emitter voltage (Base open)	$V_{CEO}$	30	V
	Emitter-collector voltage (Base open)	$V_{ECO}$	5	V
	Collector current	$I_C$	20	mA
	Collector power dissipation *2	$P_C$	50	mW
Temperature	Operating ambient temperature	$T_{opr}$	-25 to +75	$^\circ\text{C}$
	Storage temperature	$T_{stg}$	-30 to +80	$^\circ\text{C}$



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

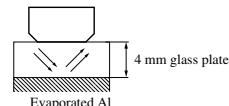
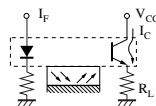
### Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Forward voltage	$V_F$	$I_F = 50 \text{ mA}$		1.3	1.5	V
	Reverse current	$I_R$	$V_R = 3 \text{ V}$			10	$\mu\text{A}$
Output characteristics	Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 10 \text{ V}$			200	nA
Transfer characteristics	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
	Dark current	$I_D$	$V_{CC} = 5 \text{ V}, I_F = 10 \text{ mA}, R_L = 100 \Omega$			40	$\mu\text{A}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20 \text{ mA}, I_C = 0.1 \text{ mA}$			0.5	V
	Rise time	$t_r$	$V_{CC} = 5 \text{ V}, I_C = 0.1 \text{ mA}, R_L = 100 \Omega$		20		$\mu\text{s}$
	Fall time	$t_f$			20		$\mu\text{s}$

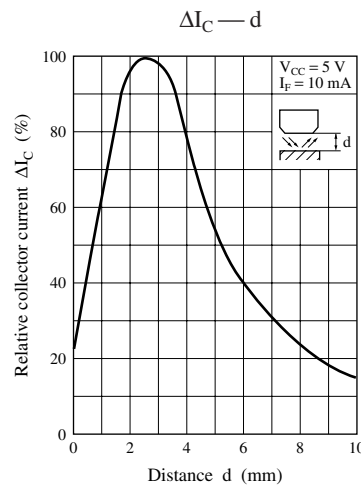
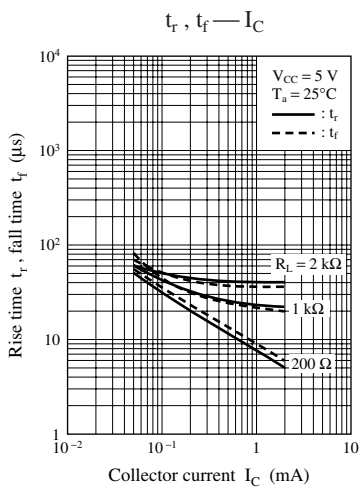
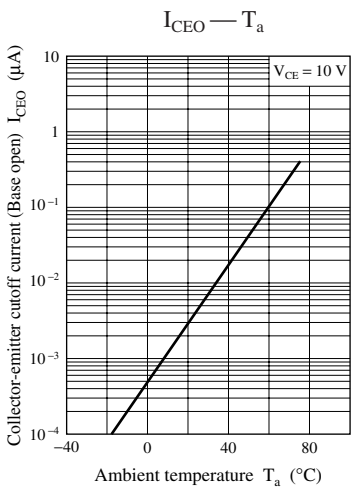
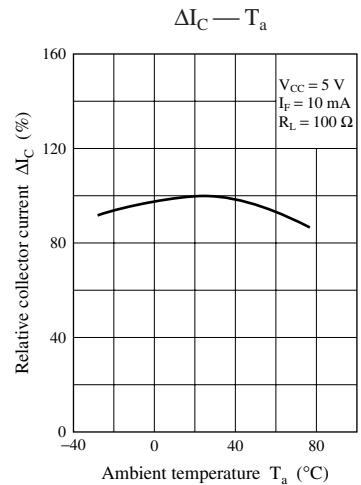
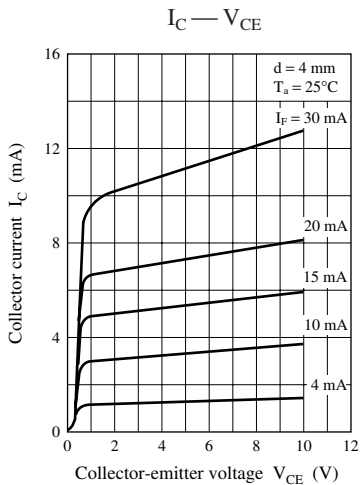
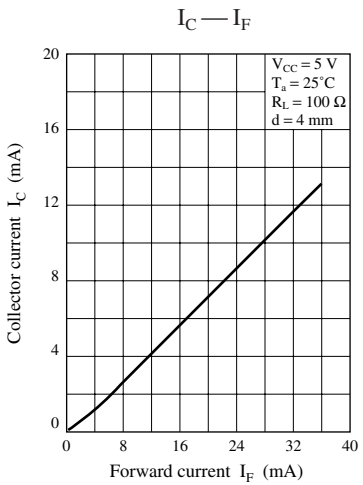
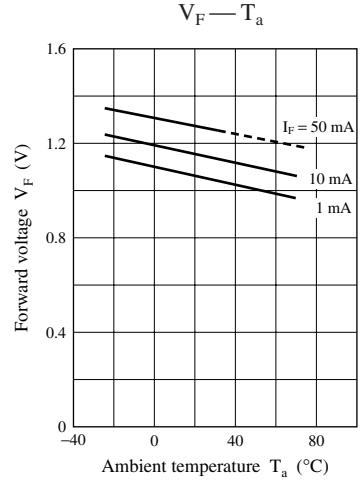
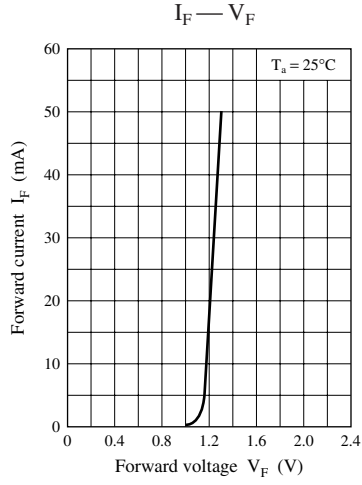
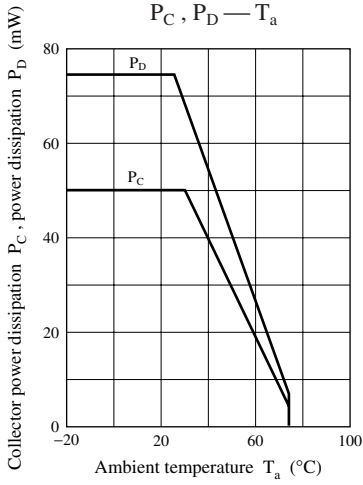
Note) 1. Input and output are handled electrically.

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 from general industrial waste or household garbage.

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