

CNB2001

Reflective photosensor

Non-contact point SW, object sensing

Overview

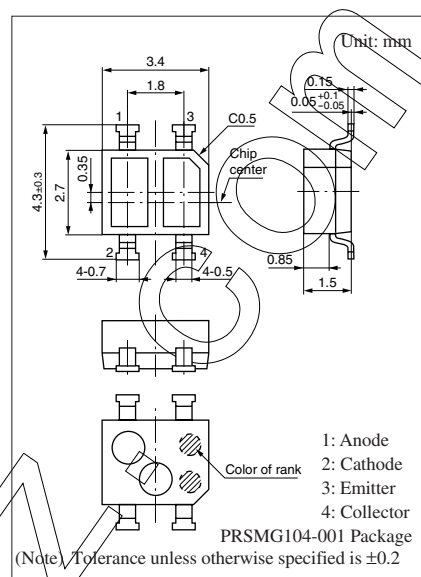
CNB2001 is a small, thin SMD-compatible reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Darlington phototransistor in a single resin package.

Features

- Reflow-compatible reflective photosensor
- Ultraminiature, thin type: 2.7 mm × 3.4 mm (height: 1.5 mm)
- Visible light cutoff resin is used
- High current-transfer ratio

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	30 mA
	Collector power dissipation *2	P_C	75 mW
	Operating ambient temperature	T_{opr}	-25 to +85 °C
Temperature	Storage temperature	T_{stg}	-40 to +100 °C



Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a \geq 25^\circ\text{C}$.

*2: Output power derating ratio is 1.0 mW/°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 $I_F = 20 \text{ mA}$		1.2	1.4	V
	Reverse current	I_R $V_R = 3 \text{ V}$			10	μA
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO} $V_{CE} = 10 \text{ V}$			1.0	μA
Transfer characteristics	Collector current *1, *3	I_C $V_{CC} = 2 \text{ V}, I_F = 4 \text{ mA}, R_L = 100 \Omega, d = 1 \text{ mm}$	0.52		15.00	mA
	Dark current	I_D $V_{CC} = 2 \text{ V}, I_F = 4 \text{ mA}, R_L = 100 \Omega$			5.0	μA
	Collector-emitter saturation voltage	$V_{CE(sat)}$ $I_F = 4 \text{ mA}, I_C = 0.5 \text{ mA}$			1.2	V
	Rise time *2	t_r $V_{CC} = 2 \text{ V}, I_C = 10 \text{ mA}$		120		μs
	Fall time *2	t_f $R_L = 100 \Omega$		115		μs

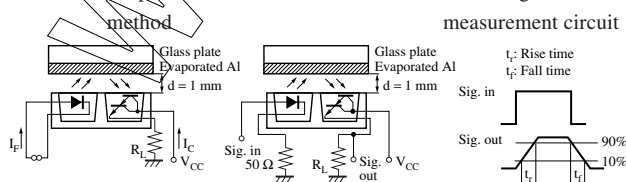
Note) 1. Input and output are handled electrically.

2. This product is not designed to withstand radiation

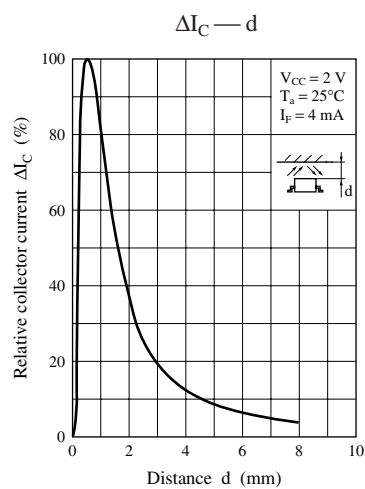
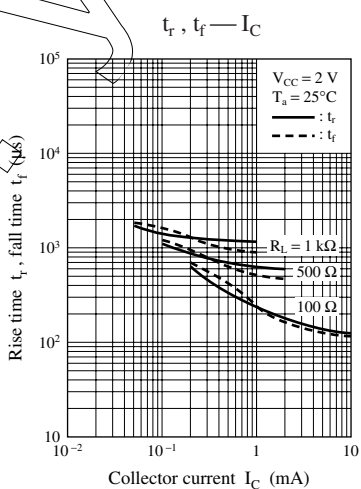
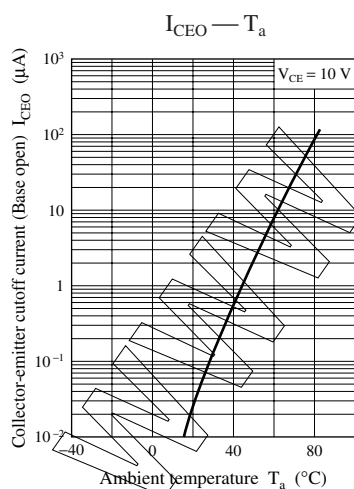
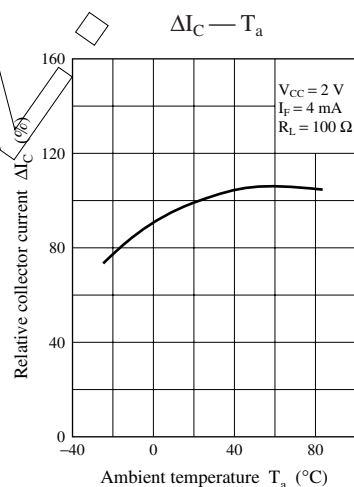
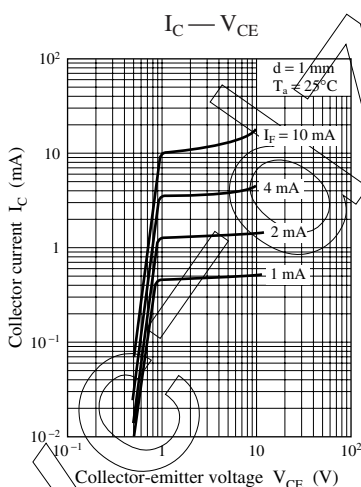
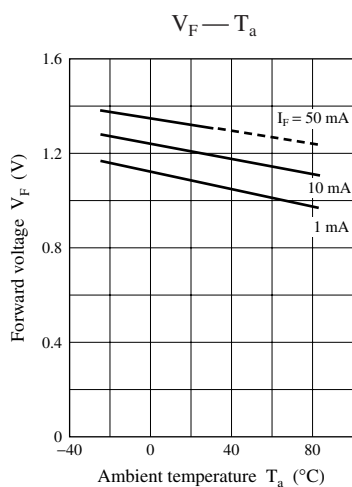
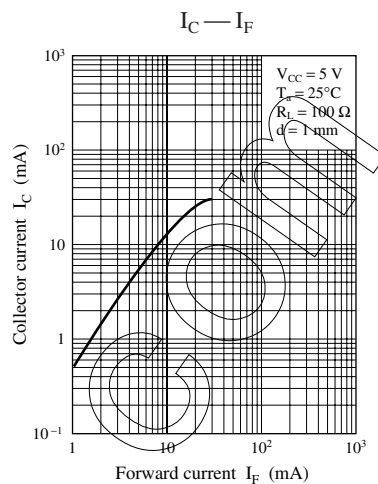
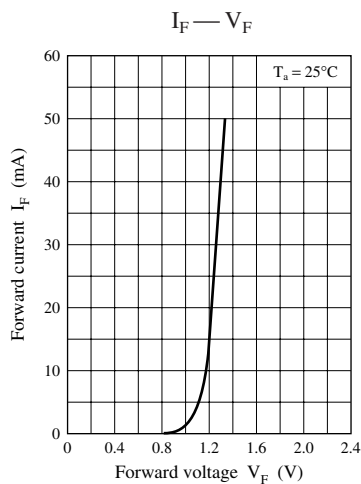
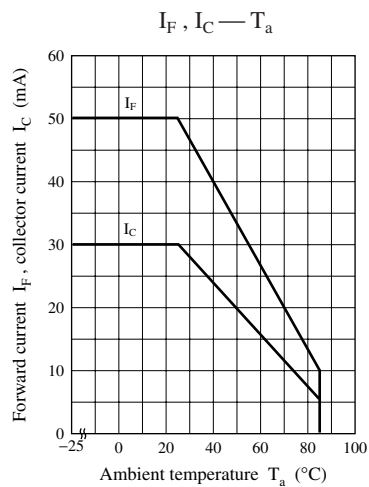
3. *1: Output current measurement

*2: Switching time measurement circuit

*3: Rank classification



Rank	Q	R	S
I_C (mA)	0.52 to 1.94	1.45 to 5.40	4.00 to 15.00
Color	Orange	White	Light blue



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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