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CNB1001

Reflective photosensor

For contactless SW and object detection

■ Overview

CNB1001 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 Si 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

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

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Power dissipation *1	P_D	75	mW
	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
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	20	mA
	Collector power dissipation *2	P_C	75	mW
Operating ambient temperature		T_{opr}	-25 to +85	$^\circ\text{C}$
Storage temperature		T_{stg}	-40 to +100	$^\circ\text{C}$

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

*2: Output power derating ratio is 1.0 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$.

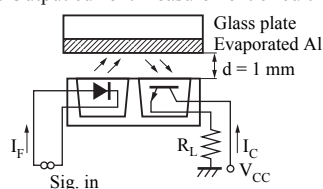
■ Electrical-Optical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	$V_R = 3\text{ V}$			10	μA
	Forward voltage	V_F	$I_F = 20\text{ mA}$		1.2	1.4	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 20\text{ V}$			100	nA
Transfer characteristics	Collector current *1	I_C	$V_{CC} = 2\text{ V}, I_F = 4\text{ mA}, R_L = 100\ \Omega, d = 1\text{ mm}$	23		160	μA
	Drain current	I_D	$V_{CC} = 2\text{ V}, I_F = 4\text{ mA}, R_L = 100\ \Omega$			100	nA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{ mA}, I_C = 0.1\text{ mA}$			0.4	V
	Rise time *2	t_r	$V_{CC} = 5\text{ V}, I_C = 0.1\text{ mA}, R_L = 1000\ \Omega$		30		μs
	Fall time *2	t_f	$R_L = 1000\ \Omega$		40		μs

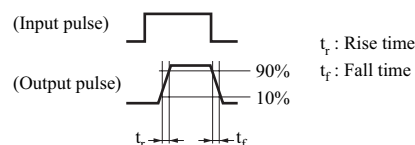
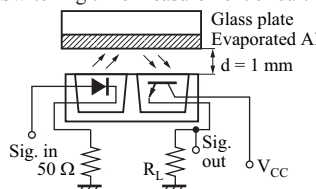
Note) 1. Input and output are handled electrically.

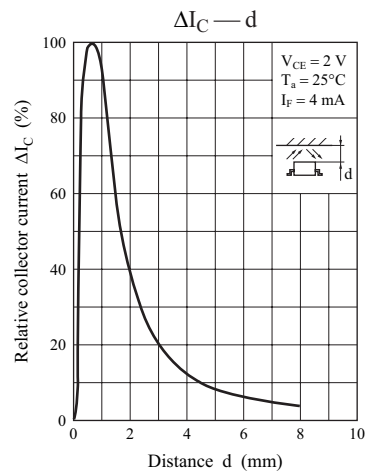
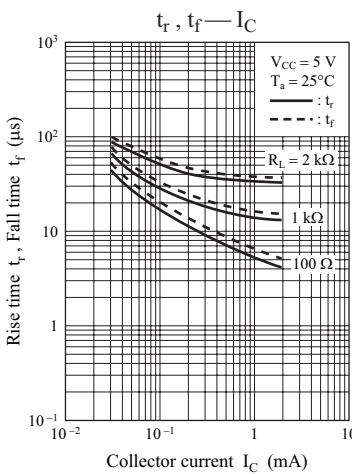
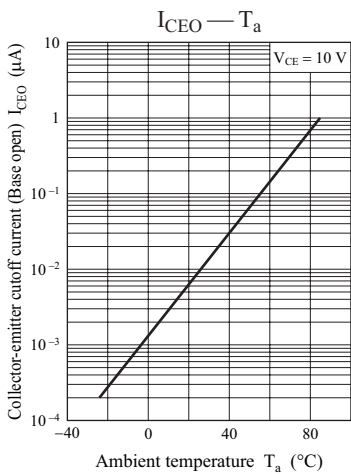
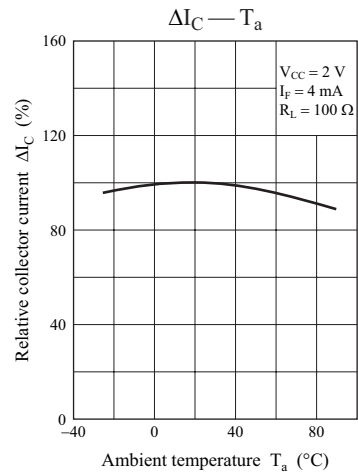
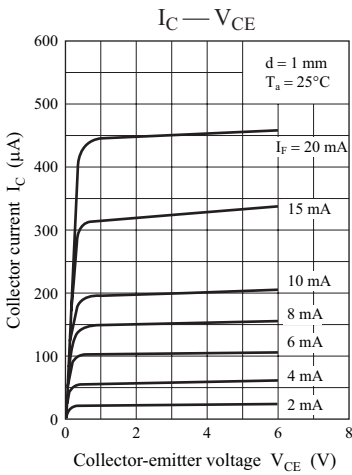
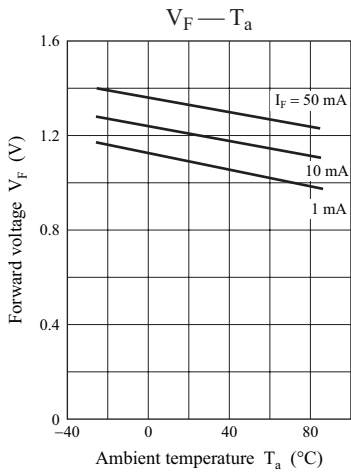
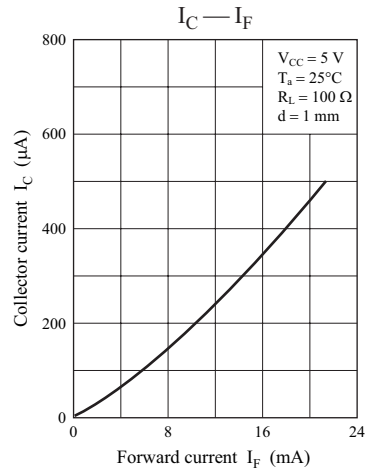
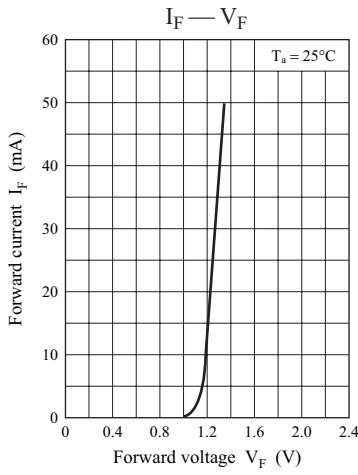
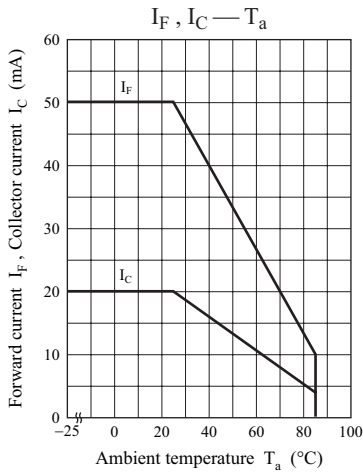
2. This device is designed by disregarding radiation.

3. *1: Output current measurement circuit



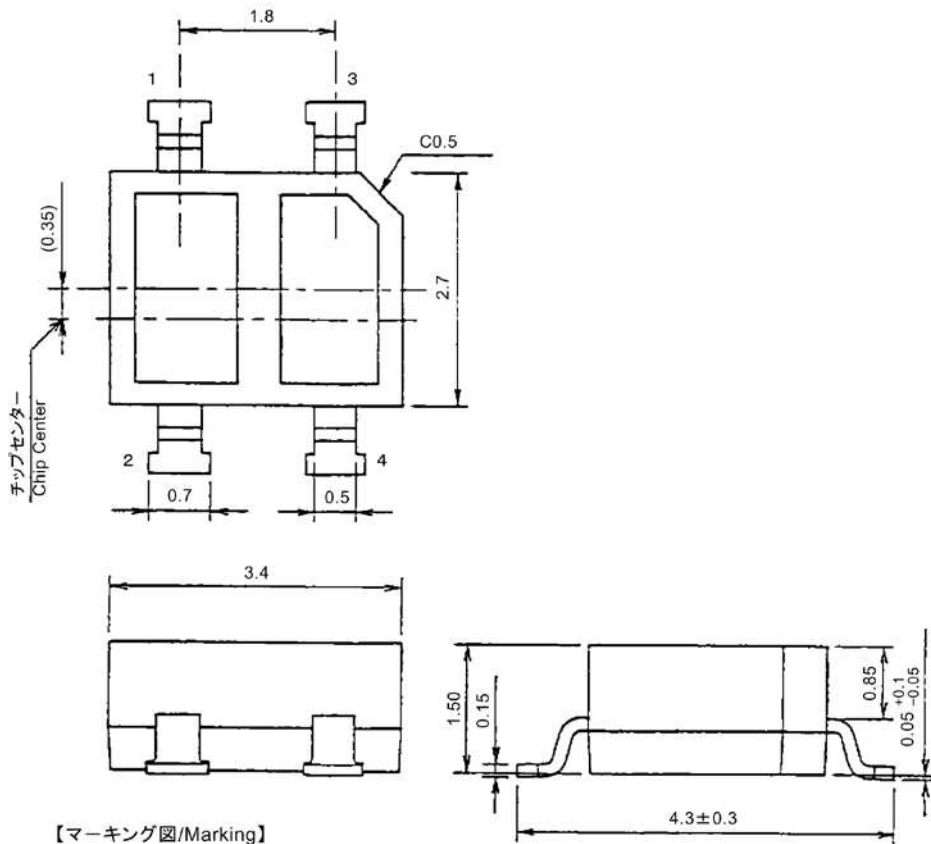
*2: Switching time measurement circuit



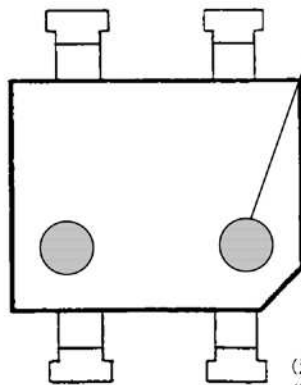


■ Package (Unit: mm)

LSMFRN4G0001



【マーキング図/Marking】



*ランク色表示/Color of rank

ランク/Rank	色表示/Rank color
Q	橙色/Orange
R	白色/White
S	水色/Light blue
L	橙色・白色/Orange or White
H	白色・水色/White or Light blue
W	橙色・白色・水色 Orange or White or Light blue

(注 1) 指示無き寸法公差は±0.2 mm

(Note1) No appointment tolerance : ±0.2 mm.

(注 2) マークは、目視又は顕微鏡に於いて解読できる事。

(Note2) The marks can be identified either with eyes or a microscope.

• Pin name

- 1: Anode
- 2: Cathode
- 3: Emitter
- 4: Collector

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