

CNB1001, CNB1002

Reflective Photosensors

Overview

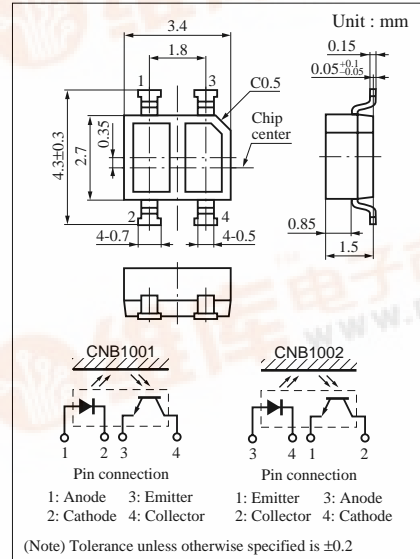
CNB1001 and CNB1002 are a small, thin SMD-compatible reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Si phototransistor in a single resin package.

Features

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

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	6 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}	35 V
	Emitter to collector voltage	V_{ECO}	6 V
	Collector power dissipation	P_C^{*2}	75 mW
Temperature	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.

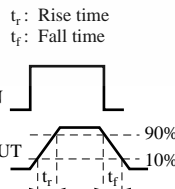
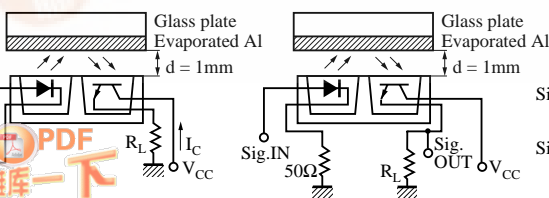
*2 Output power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F $I_F = 20mA$		1.2	1.4	V
	Reverse current (DC)	I_R $V_R = 3V$			10	μA
Output characteristics	Collector cutoff current	I_{CEO} $V_{CE} = 20V$			100	nA
Transfer characteristics	Collector current	I_C^{*1} $V_{CC} = 2V, I_F = 4mA, R_L = 100\Omega, d = 1mm$	23		160	μA
	Leakage current	I_D $V_{CC} = 2V, I_F = 4mA, R_L = 100\Omega$			100	nA
	Collector to emitter saturation voltage	$V_{CE(sat)}$ $I_F = 20mA, I_C = 0.1mA$			0.4	V
	Response time	t_r^{*2} $V_{CC} = 5V, I_C = 0.1mA,$ t_f^{*2} $R_L = 1000\Omega$		30	40	μs

*1 Output Current (IC) measurement method (see figure below.)

*2 Response time measurement circuit (see figure below.)



Color indication of classifications

Class	I_C (μA)	Color
Q	23 to 50	Orange
R	41 to 90	White
S	74 to 160	Light blue

Input and output are handled electrically.

This product is not designed to withstand radiation.

