

Reflective Photosensors (Photo Reflectors)

CNB1001, CNB1002

Reflective Photosensors

Overview

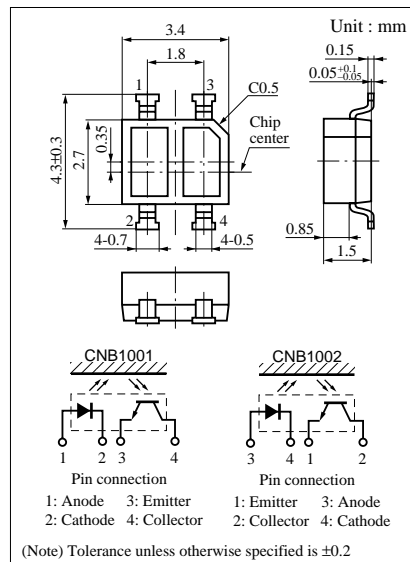
CNB1001 and CNB1002 are a small, thin SMD-compatible reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Si phototransistor in a single resin package.

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
Temperature	Collector power dissipation	P_C^{*2}	75	mW
	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.

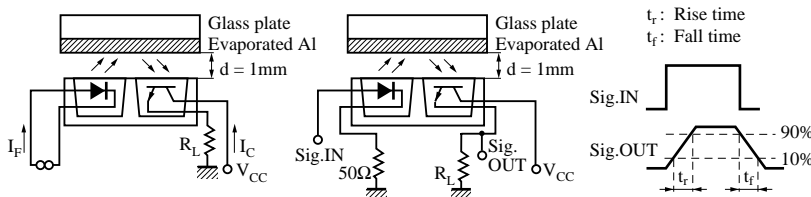
*2 Output power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

Electrical Characteristics (Ta = 25°C)

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

*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.

