

CNB2001

Reflective Photosensor

Overview

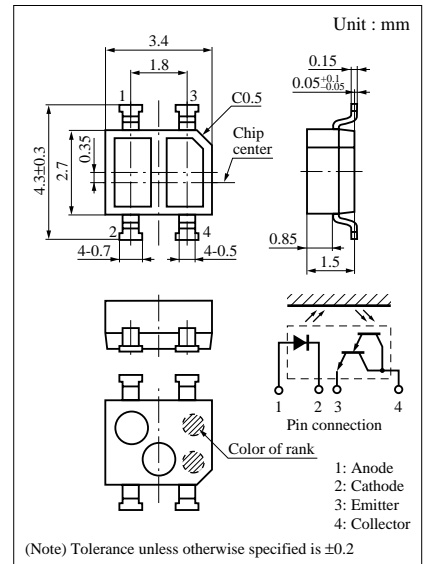
CNB2001 is a small, thin SMD-compatible reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Darlington phototransistor in a single resin package.

Features

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

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	30 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.

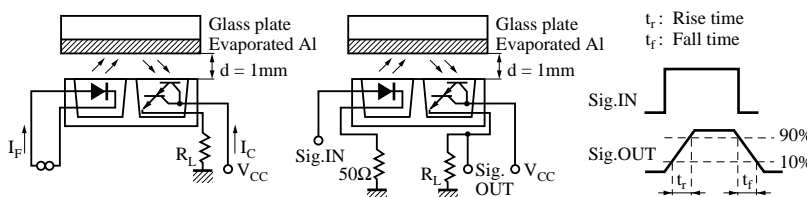
^{*2} Output power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F $I_F = 20\text{mA}$		1.2	1.4	V
	Reverse current (DC)	I_R $V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	I_{CEO} $V_{CE} = 10\text{V}$			1.0	μA
Transfer characteristics	Collector current	I_C^{*1} $V_{CC} = 2\text{V}, I_F = 4\text{mA}, R_L = 100\Omega, d = 1\text{mm}$	0.52		15.0	mA
	Leakage current	I_D $V_{CC} = 2\text{V}, I_F = 4\text{mA}, R_L = 100\Omega$			5.0	μA
	Collector to emitter saturation voltage	$V_{CE(sat)}$ $I_F = 4\text{mA}, I_C = 0.5\text{mA}$			1.2	V
	Response time	t_r^{*2}	$V_{CC} = 2\text{V}, I_C = 10\text{mA}, R_L = 100\Omega$		120	
t_f^{*2}				115		

^{*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	0.52 to 1.94	Orange
R	1.45 to 5.4	White
S	4.0 to 15.0	Light blue

Input and output are handled electrically.

This product is not designed to withstand radiation.

