

CNB2001

Reflective Photosensor

Overview

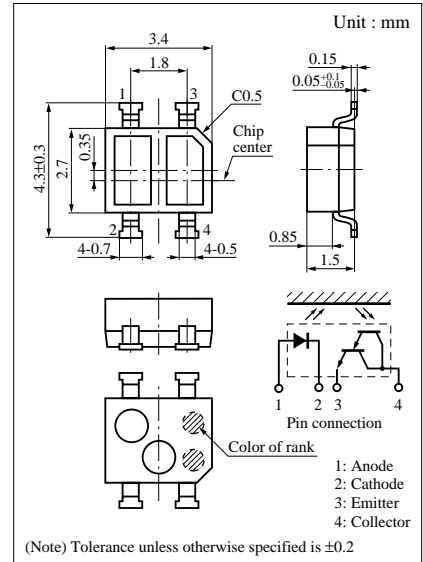
CNB2001 is a small, thin SMD-compatible reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Darlington phototransistor in a single resin package.

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.

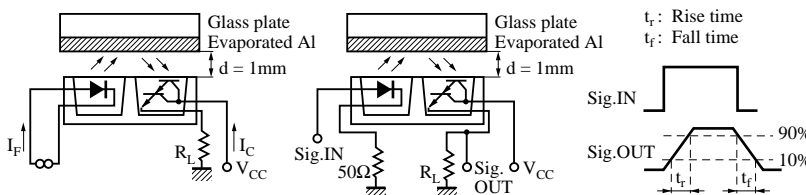
*2 Output power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

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.)

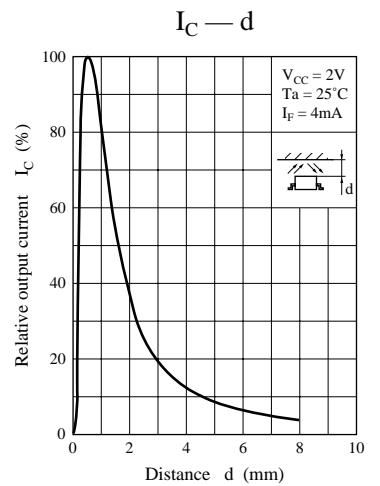
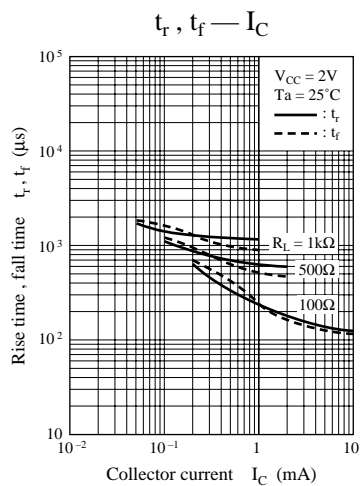
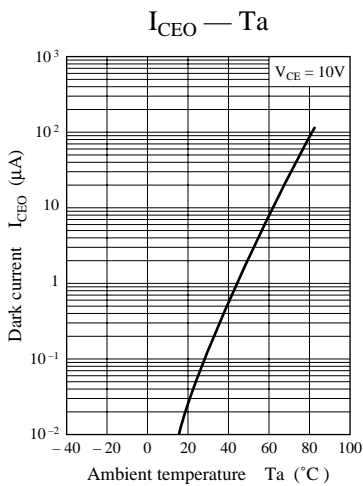
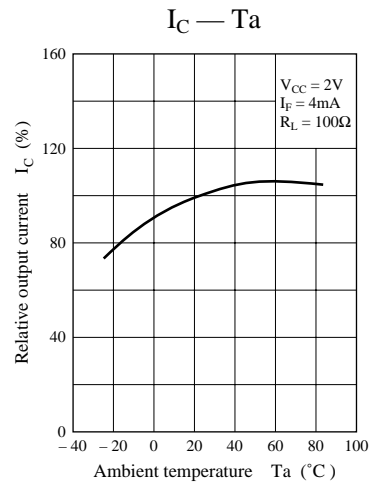
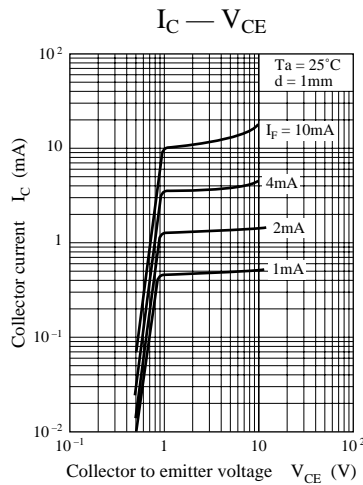
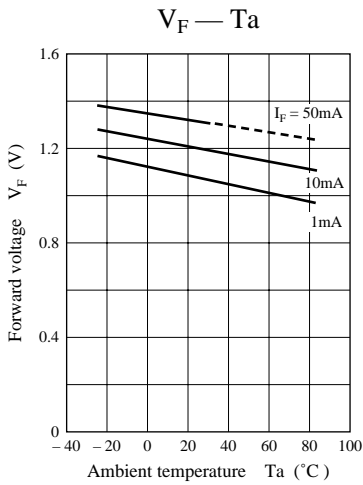
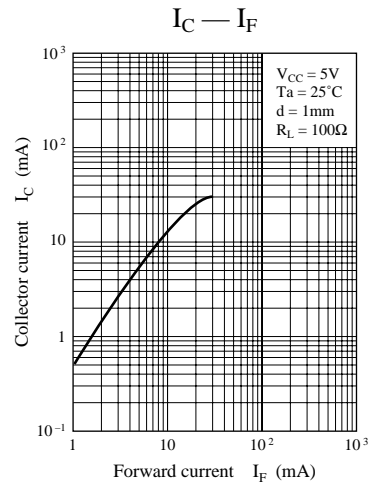
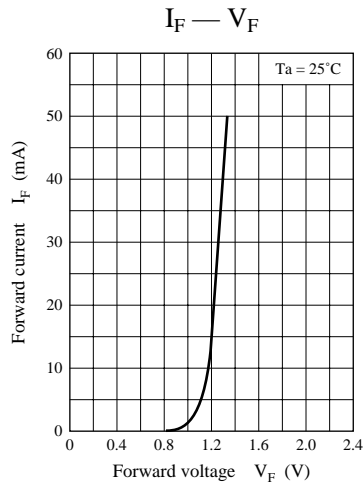
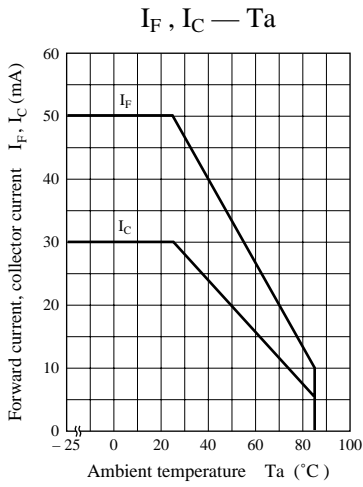


Input and output are handled electrically.

This product is not designed to withstand radiation.

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



Caution for Safety

 **DANGER**

Gallium arsenide material (GaAs) is used in this product.

Therefore, do not burn, destroy, cut, crush, or chemically decompose the product, since gallium arsenide material in powder or vapor form is harmful to human health.

Observe the relevant laws and regulations when disposing of the products. Do not mix them with ordinary industrial waste or household refuse when disposing of GaAs-containing products.

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