

CNB1301 (ON2171)

Reflective Photosensor

Overview

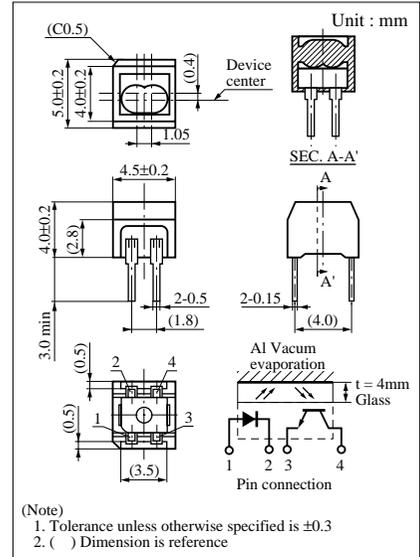
CNB1301 is a reflective photosensor consisting of a small, thin reflective photosensor (CNB1302) to which a plastic lens is attached to increase the focal distance from 0.8 mm to 2.5 mm.

Features

- Small size, light weight : 5 × 4.5 mm (height : 4.0 mm)
- Focal distance : 2.5 mm
- Visible light cutoff resin is used

Applications

- Copier
- Printers
- Facsimiles
- Cassette deck



Absolute Maximum Ratings (Ta = 25°C)

Parameter		Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3	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}	30	V
	Emitter to collector voltage	V_{ECO}	5	V
	Collector power dissipation	P_C^{*2}	50	mW
Temperature	Operating ambient temperature	T_{opr}	-25 to +75	°C
	Storage temperature	T_{stg}	-30 to +80	°C

*1 Input power derating ratio is 1.36 mW/°C at Ta ≥ 25°C.

*2 Output power derating ratio is 0.91 mW/°C at Ta ≥ 25°C.

Electrical Characteristics (Ta = 25°C)

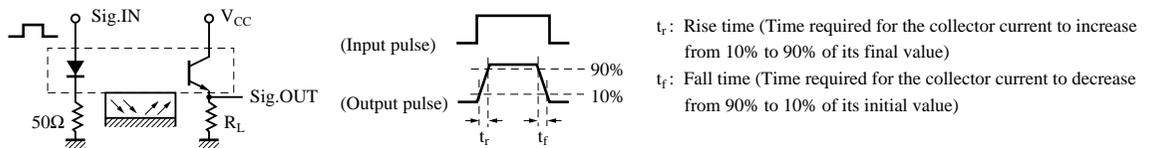
Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F	$I_F = 50\text{mA}$		1.3	1.5	V
	Reverse current (DC)	I_R	$V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	I_{CEO}	$V_{CE} = 10\text{V}$			200	nA
Transfer characteristics	Collector current	I_C^{*1}	$V_{CC} = 5\text{V}, I_F = 10\text{mA}, R_L = 100\Omega$ $d = 4\text{mm}$	0.8		5.2	mA
	Leakage current	I_D^{*4}	$V_{CC} = 5\text{V}, I_F = 10\text{mA}, R_L = 100\Omega$			40	μA
	Response time	t_r, t_f^{*2}	$V_{CC} = 5\text{V}, I_C = 0.1\text{mA}, R_L = 100\Omega$		20		μs
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 0.1\text{mA}$			0.5	V

Note) The part number in the parenthesis shows conventional part number.

*1 Output current measurement circuit



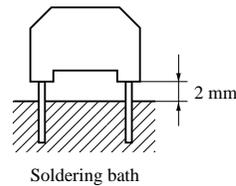
*2 Switching time measurement circuit



*3 Guaranteed conditions of heat withstanding at soldering

- Solder temperature : 260°C or less
- Immersion time : within 5 seconds
- Immersion position : At least 2 mm away from the body bottom

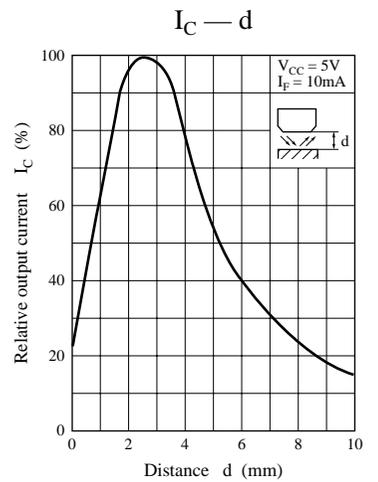
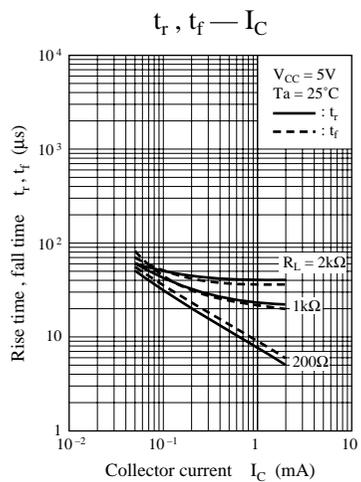
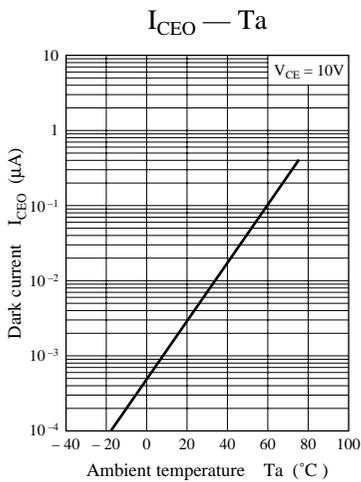
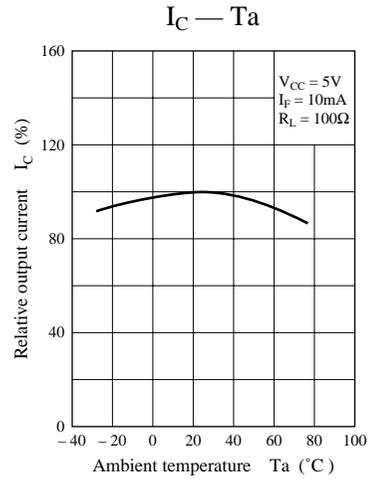
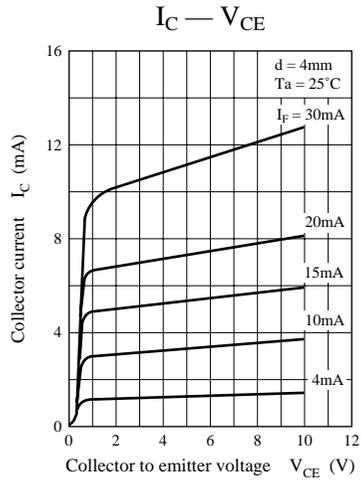
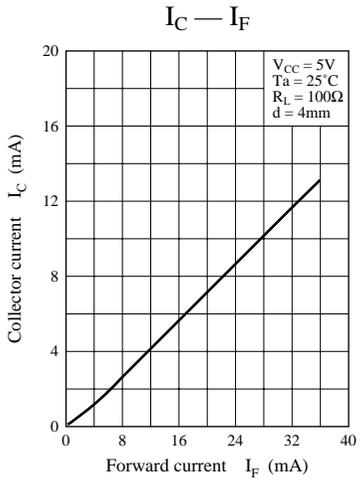
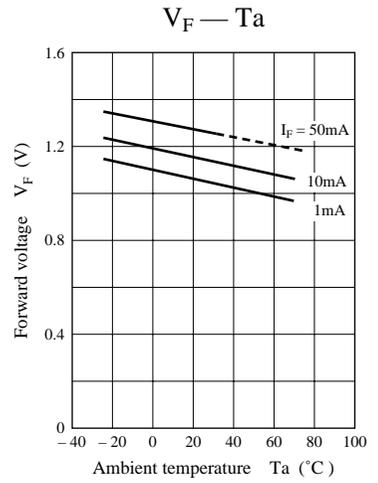
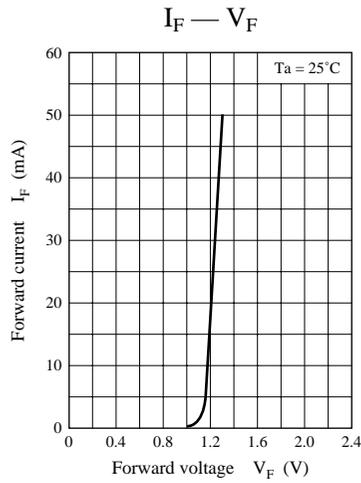
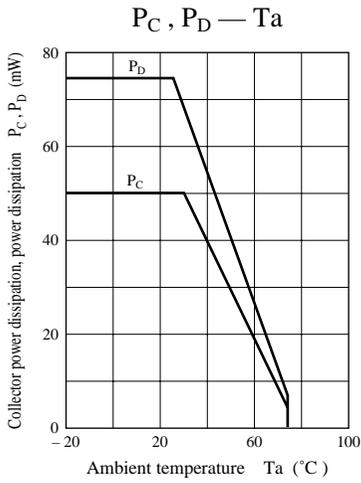
Note) Avoid using dip soldering methods.



*4 Leakage current : When there are no reflective objects

■ Usage notes

- (1) The lens consists of polycarbonate which may be damaged by some chemicals. Therefore care should be taken to prevent chemicals from touching the lens surface.
- (2) This reflective photosensor should not be cleaned with detergents since the lens is an optical component made with polycarbonate resin.
Dust and debris should be wiped off using an air blower or soft cloth, taking care not to scratch the lens.
- (3) Do not apply mechanical stress (e.g., pulling, bending, twisting, spreading) to the lead bases.



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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