

# CNB1011

## Reflective photosensor

### ■ Features

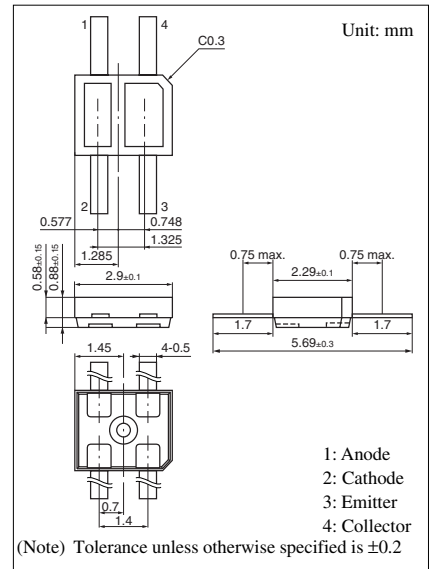
- Ultraminiature, thin type: 2.29 mm × 2.9 mm (height: 0.88 mm)

### ■ Applications

- Non-contact point SW, object sensing

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Reverse voltage (DC)	$V_R$	6	V
	Forward current (DC)	$I_F$	30	mA
	Power dissipation *1	$P_D$	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 *2	$P_C$	75	mW
Temperature	Operating ambient temperature	$T_{opr}$	-25 to +85	°C
	Storage temperature	$T_{stg}$	-40 to +100	°C



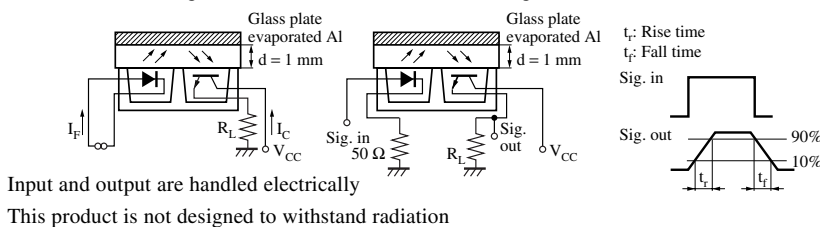
Note) \*1: Input power derating ratio is 1.0 mW/°C at  $T_a \geq 25^\circ\text{C}$ .

\*2: Output power derating ratio is 1.0 mW/°C at  $T_a \geq 25^\circ\text{C}$ .

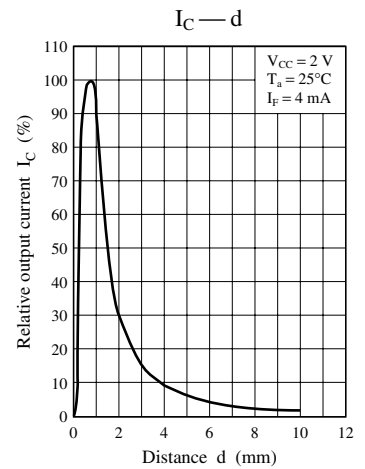
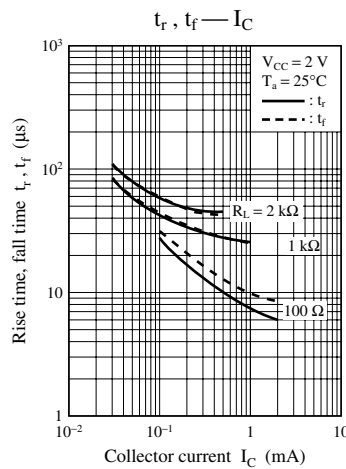
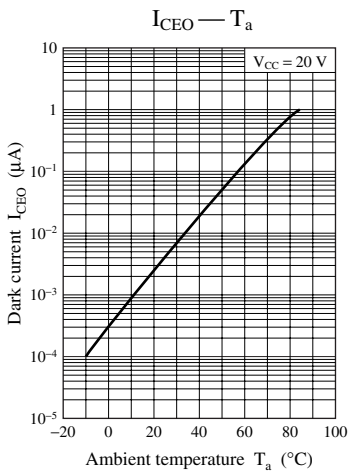
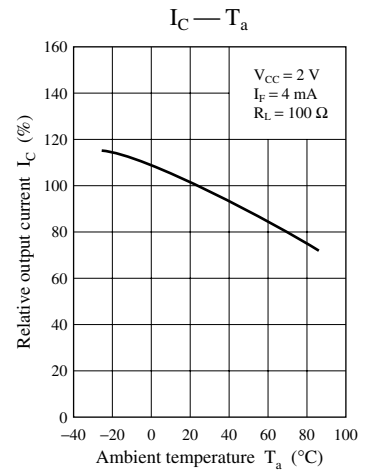
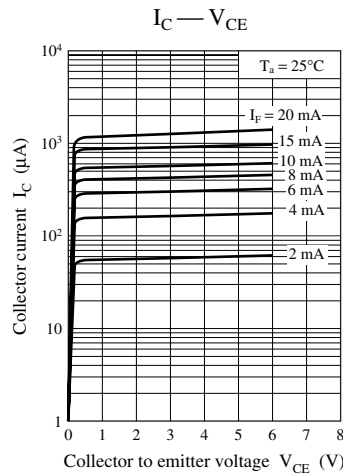
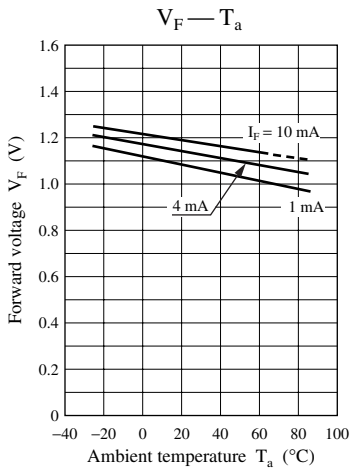
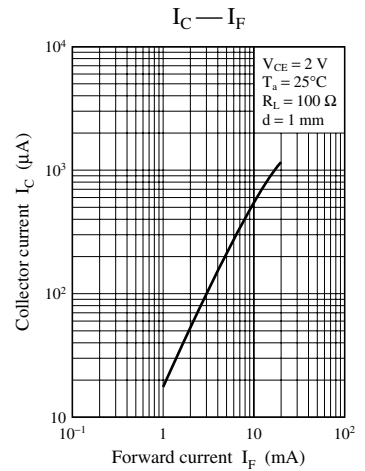
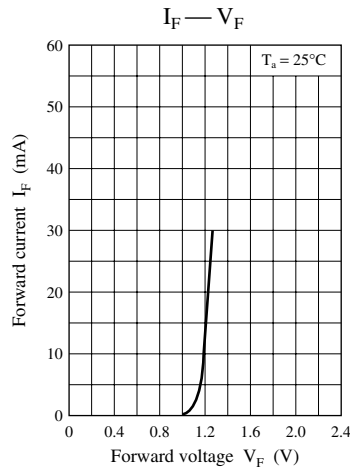
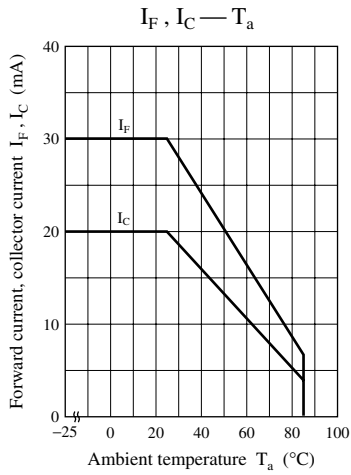
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Forward voltage (DC)	$V_F$	$I_F = 4 \text{ mA}$		1.15	1.3	V
	Reverse current (DC)	$I_R$	$V_R = 3 \text{ V}$			10	$\mu\text{A}$
Output characteristics	Collector cutoff current	$I_{CEO}$	$V_{CE} = 20 \text{ V}$			100	nA
Transfer characteristics	Collector current *1	$I_C$	$V_{CE} = 2 \text{ V}, I_F = 4 \text{ mA}, d = 1 \text{ mm}$	40		243	$\mu\text{A}$
	Leakage current	$I_D$	$V_{CE} = 2 \text{ V}, I_F = 4 \text{ mA}$			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 *2		$t_r$	$V_{CC} = 2 \text{ V}, I_C = 0.1 \text{ mA}$		40	
$t_f$			$R_L = 1000 \Omega$		50		

Note) \*1: Output current ( $I_C$ ) 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



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