

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	$^\circ\text{C}$
	Storage temperature	T_{stg}	-40 to +100	$^\circ\text{C}$

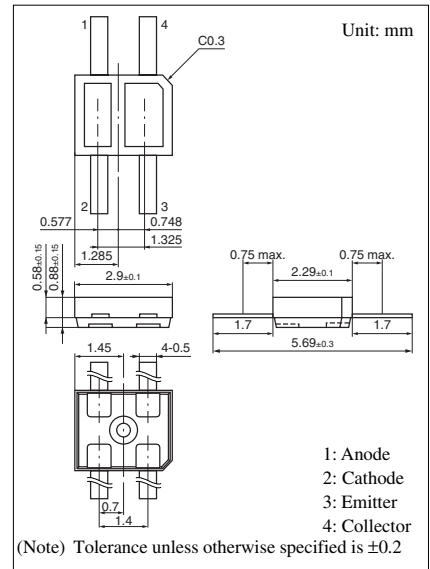
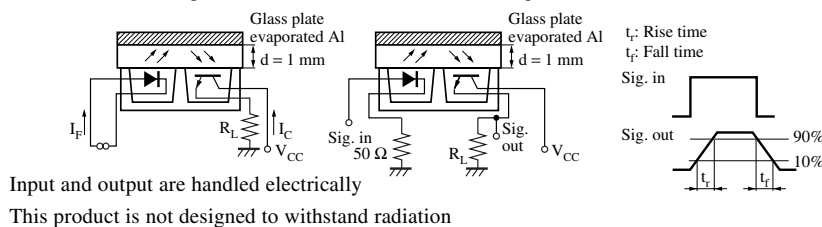
Note) *1: Input power derating ratio is 1.0 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$.

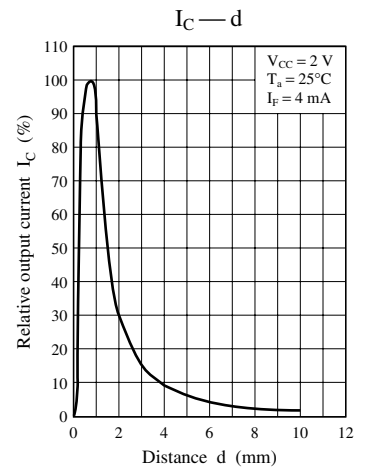
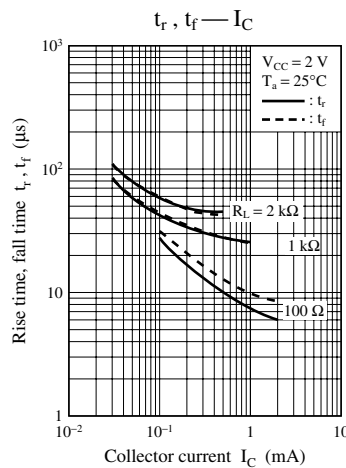
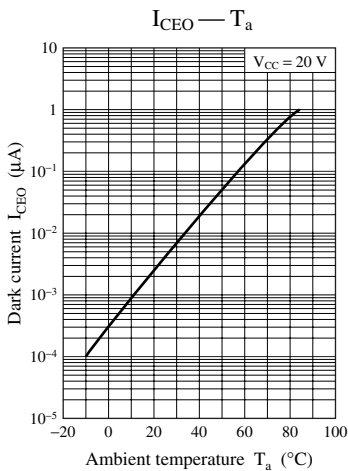
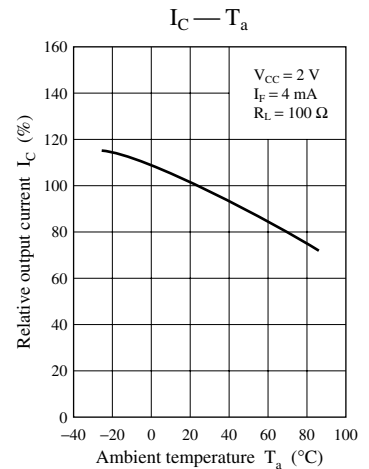
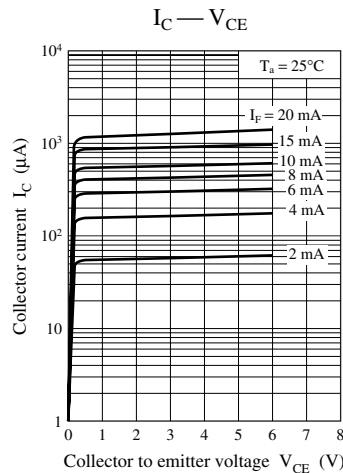
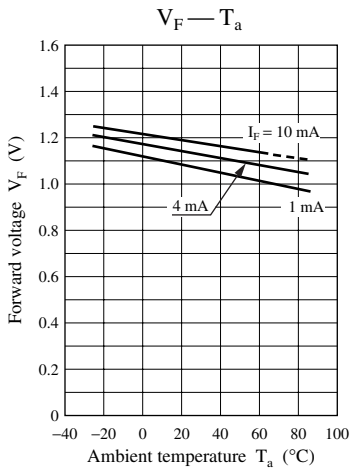
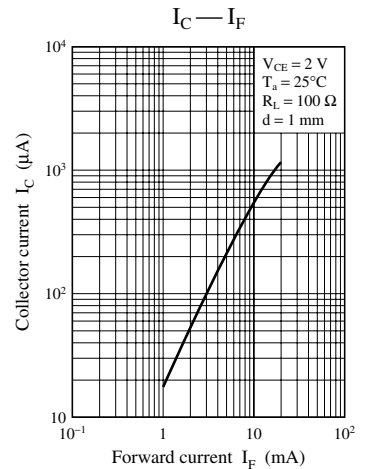
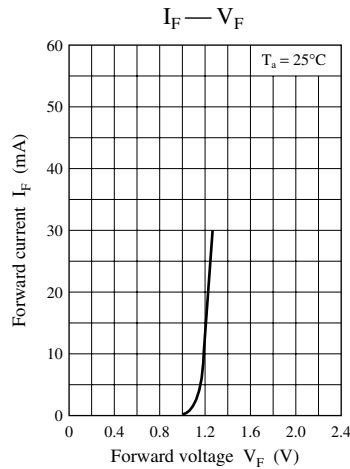
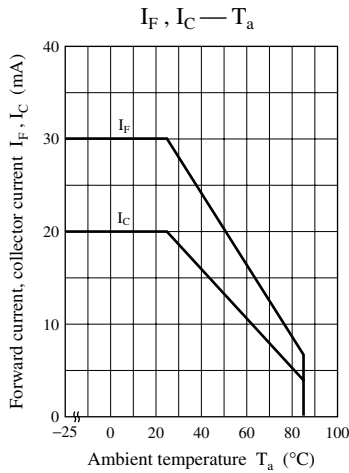
*2: Output power derating ratio is 1.0 mW/ $^\circ\text{C}$ at $T_a \geq 25^\circ\text{C}$.

■ 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	μA
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	μA
	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)





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