

# CNA4302A

## Integrated Photosensors

Object Detection, Contactless Switch

### ■ Features

- Highly precise position detection (Slit width: 0.3 mm)
- Gap width: 1.2 mm
- High response:  $t_{PHL} = 3 \mu s$ ,  $t_{PLH} = 8 \mu s$  (typ.)
- With a positioning pins

### ■ Absolute Maximum Ratings $T_a = 25^\circ C \pm 3^\circ C$

Parameter		Symbol	Rating	Unit
Input	Reverse voltage	$V_R$	6	V
	Forward current	$I_F$	50	mA
	Power dissipation *1	$P_D$	75	mW
Output	Operation Supply voltage	$V_{CC}$	7	V
	Output voltage	$V_O$	12	V
	Output current	$I_{OUT}$	8	mA
	Collector power dissipation *2	$P_C$	80	mW
Temperature	Operating ambient temperature	$T_{opr}$	-25 to +85	$^\circ C$
	Storage temperature	$T_{stg}$	-40 to +100	$^\circ C$

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

\*2: Output power derating ratio is 1.07 mW/ $^\circ C$  at  $T_a \geq 25^\circ C$

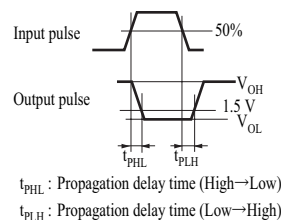
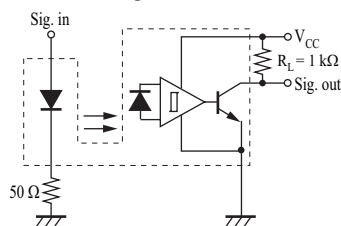
### ■ Electrical Characteristics $T_a = 25^\circ C \pm 3^\circ C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input Characteristics	Forward voltage	$V_F$	$I_F = 20 \text{ mA}$		1.2	1.4	V
	Reverse current	$I_R$	$V_R = 3 \text{ V}$			10	$\mu A$
Output Characteristics	Supply voltage	$V_{CC}$		2.2		7.0	V
	Low level output voltage	$V_{OL}$	$V_{CC} = 5 \text{ V}, I_{OL} = 5 \text{ mA}, I_F = 2 \text{ mA}$		0.15	0.4	V
	High level output current	$I_{OH}$	$V_{CC} = 5 \text{ V}, V_{OH} = 12 \text{ V}, I_F = 0 \text{ mA}$			100	$\mu A$
	Low level supply current	$I_{CCL}$	$V_{CC} = 5 \text{ V}, I_F = 2 \text{ mA}$		0.8	2.0	mA
	High level supply current	$I_{CCH}$	$V_{CC} = 5 \text{ V}, I_F = 0 \text{ mA}$		0.8	2.0	mA
Transfer Characteristics	High $\rightarrow$ Low threshold input current	$I_{FHL}$	$V_{CC} = 5.0 \text{ V}$			1.60	mA
	Hysteresis	$I_{FLH} / I_{FHL}$	$V_{CC} = 5.0 \text{ V}$		0.88		—
	Propagation delay time (High $\rightarrow$ Low) *	$t_{PHL}$	$V_{CC} = 5 \text{ V}, R_L = 1 \text{ k}\Omega, I_F = 2 \text{ mA}$		3.0		$\mu s$
	Propagation delay time (Low $\rightarrow$ High) *	$t_{PLH}$			8.0		

Note) 1. Input and output are practiced by electricity.

2. This device is designed by disregarding for radiation.

3. \*: Propagation delay time measuring circuit





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