

Integrated Photosensors

■ Overview

The two elements are arranged so as to face each other, and objects passing between them are detected.

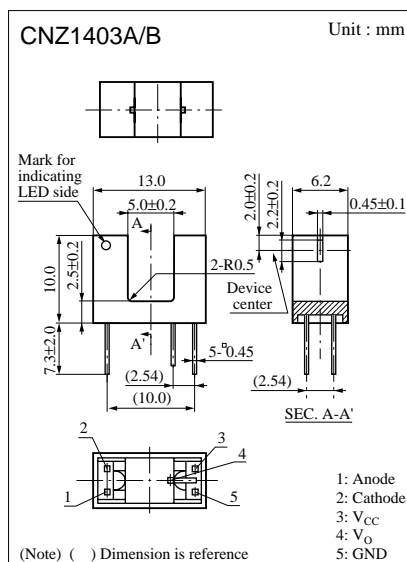
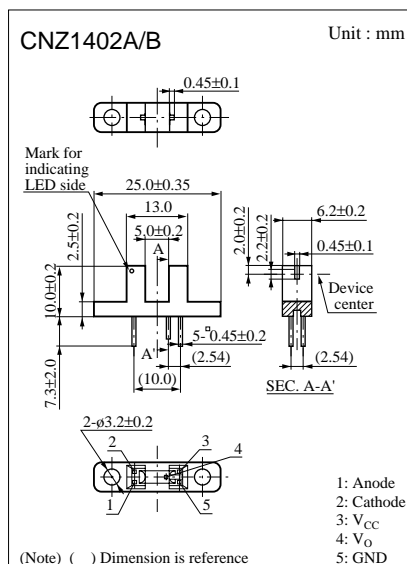
- Built-in Schmitt circuit for strong noise-withstanding capability
- Large output current
- Open-collector output
- Output transistors turn on and off (two types) when light is shined
CNZ1402A/CNZ1403A : Normally ON type
CNZ1402B/CNZ1403B : Normally OFF type

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 IC)	Output current	I_O	20	mA
	Output voltage	V_O	30	V
	Supply voltage	V_{CC}	16	V
	Power dissipation	P_C^{*2}	200	mW
Temperature	Operating ambient temperature	T_{opr}	-20 to +85	°C
	Storage temperature	T_{sto}	-30 to +100	°C

*² Output power derating ratio is 2.67 mW/°C at $T_a \geq 25^\circ\text{C}$.

■ Pin Connection

Note) The part numbers in the parenthesis show conventional part number.

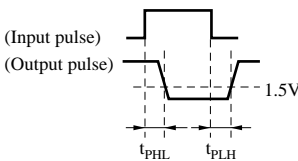
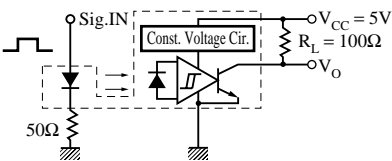


Electrical Characteristics (Ta = 25°C)

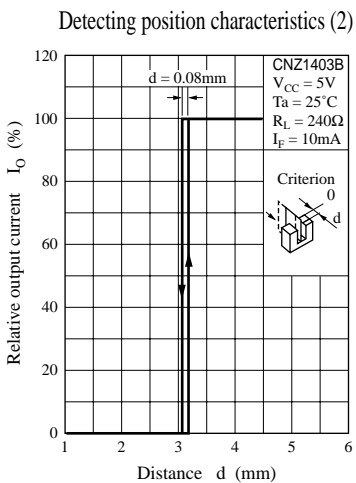
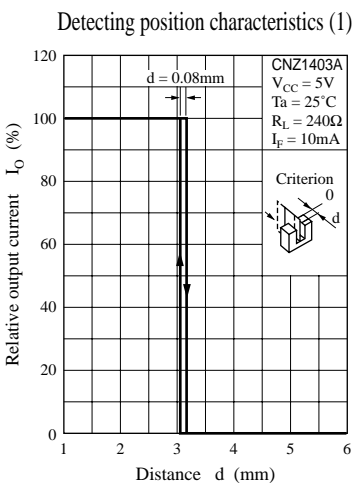
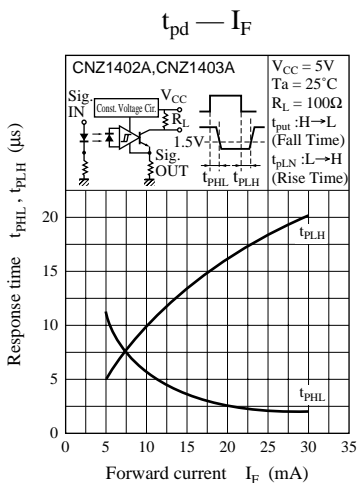
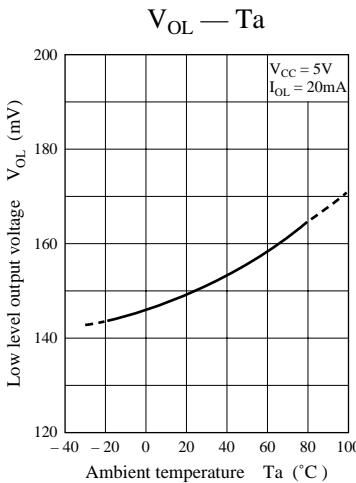
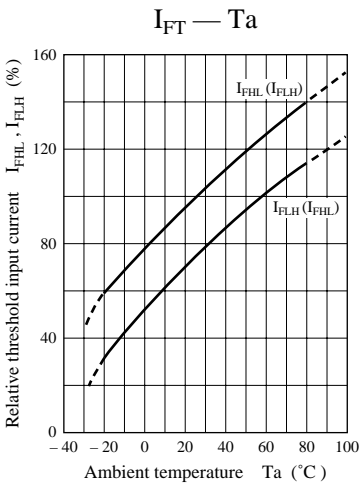
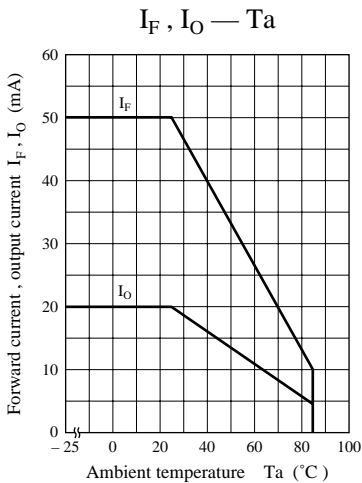
Parameter		Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V _F	I _F = 50mA		1.2	1.5	V
	Reverse current (DC)	I _R	V _R = 3V			10	μA
	Capacitance between terminals	C _t	V _R = 0V, f = 1MHz		50		pF
Output characteristics	“H” Output current	I _{OH}	V _{CC} = 5V, V _{OH} = 30V, I _F = 0mA, (I _F = 10mA)			100	μA
	“L” Output voltage	V _{OL}	V _{CC} = 5V, I _{OL} = 20mA, I _F = 10mA, (I _F = 0mA)		0.15	0.4	V
Transfer characteristics	Threshold input current	I _{FH→L} (I _{FL→H})	V _{CC} = 5V		5	10	mA
	Hysteresis	I _{FLH} /I _{FHL} (I _{FHL} /I _{FLH})	V _{CC} = 5V, R _L = 240Ω		0.75		
	Response time	t _{PHL} (t _{PLH})*	V _{CC} = 5V, I _{FP} = 10mA, R _L = 100Ω		6		μs
			t _{PLH} (t _{PHL})*	V _{CC} = 5V, I _{FP} = 10mA, R _L = 100Ω		10	

Note) Normally ON type characteristics is shown, () shows Normally OFF type.

* Switching time measurement circuit



t_{PHL} : H \rightarrow L Propagation time
 t_{PLH} : L \rightarrow H Propagation time



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