

CNZ1120 (ON1120)

Photo Interrupter

For contactless SW and object detection

■ Overview

CNZ1120 is a photocoupler in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity phototransistor is used as the light detecting element. The two elements are arranged so as to face each other, and objects passing between them are detected.

■ Features

- Wide gap between emitting and detecting elements, suitable for thick plate detection
Gap: 10 mm
- Fast response: $t_r, t_f = 6 \mu s$ (typ.)
- The external case is molded using visible light cutoff resin. The case has no openings, so the photosensor is not easily susceptible to output attenuation resulting from dust or particles

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

Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Power dissipation *1	P_D	75	mW
	Forward current	I_F	50	mA
	Reverse voltage	V_R	3	V
Output (Photo transistor)	Collector-emitter voltage (Base open)	V_{CEO}	20	V
	Emitter-collector voltage (Base open)	V_{ECO}	5	V
	Collector current	I_C	20	mA
	Collector power dissipation *2	P_C	100	mW
Operating ambient temperature		T_{opr}	-5 to +60	$^\circ C$
Storage temperature		T_{stg}	-15 to +65	$^\circ C$

Note) *1: Input power derating ratio is 1.88 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.

*2: Output power derating ratio is 2.50 mW/ $^\circ C$ at $T_a \geq 25^\circ C$.

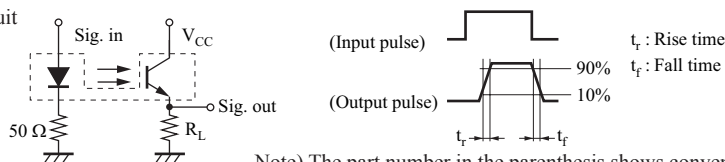
■ Electrical-Optical Characteristics $T_a = 25^\circ C \pm 3^\circ C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Reverse current	I_R	$V_R = 3 V$			10	μA
	Forward voltage	V_F	$I_F = 50 mA$		1.2	1.5	V
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 10 V, I_F = 0 mA, I_D = 0 mA$ (No background light)			200	nA
Transfer characteristics	Collector current	I_C	$V_{CC} = 10 V, I_F = 20 mA, R_L = 100 \Omega$	1.0			mA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 50 mA, I_C = 0.1 mA$			0.4	V
	Rise time *	t_r	$V_{CC} = 10 V, I_C = 1 mA,$		6	200	μs
	Fall time *	t_f	$R_L = 100 \Omega$		6	200	μs

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

2. This device is designed by disregarding radiation.

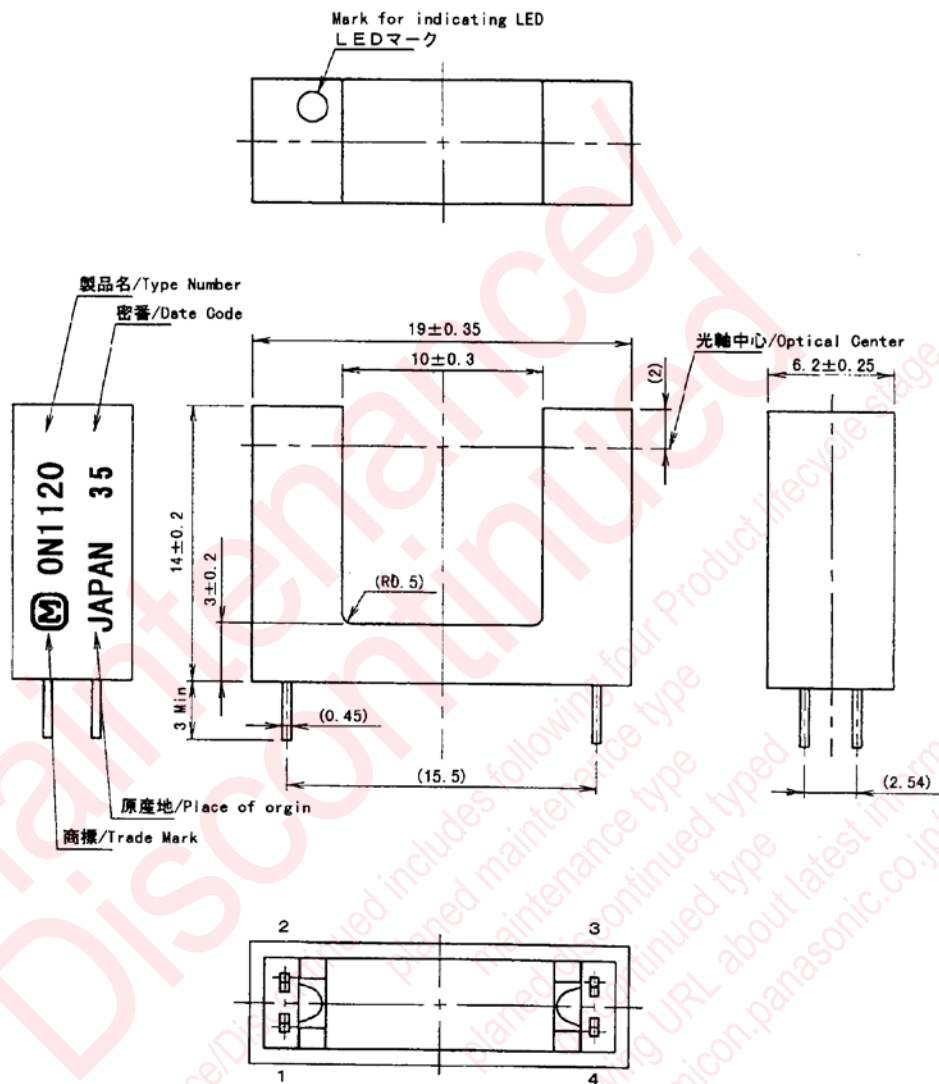
3. *: Switching time measurement circuit



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

■ Package (Unit: mm)

LSSNIR4S0001



(注 1) マークは、目視又は顕微鏡に於いて解読できる事。
 (Note1) What a mark sees an attention and can decode in a microscope.

- Pin name
- 1: Anode
- 2: Cathode
- 3: Collector
- 4: Emitter

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