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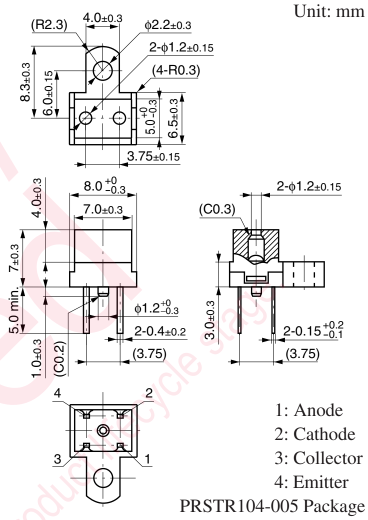
CNB1304H (ON2175)

Reflective photosensor

Tape end sensor for DAT



■ Overview

CNB1304H is a sensor which consists of a high efficiency GaAs infrared light emitting diode and a high sensitivity Si phototransistor which are arranged together in the same direction. It detects the beginning and end of a tape based on changes in the amount of light reflected from a prism which is situated outside of the sensor.

■ Features

- Fast response
- Small size and light weight

■ Absolute Maximum Ratings $T_a = 25°C$

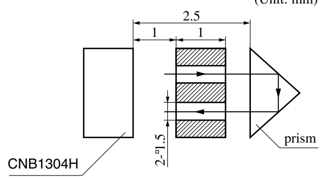
Parameter		Symbol	Rating	Unit
Input (Light emitting diode)	Reverse voltage	V_R	3	V
	Forward current	I_F	50	mA
	Power dissipation *1	P_D	75	mW
Output (Photo transistor)	Collector-emitter voltage (Base open)	V_{CEO}	30	V
	Emitter-collector voltage (Base open)	V_{ECO}	5	V
	Collector current	I_C	20	mA
	Collector power dissipation *2	P_C	100	mW
Temperature	Operating ambient temperature	T_{opr}	−20 to +85	°C
	Storage temperature	T_{stg}	−30 to +100	°C

Note) *1: Input power derating ratio is 1.0 mW/°C at $T_a \geq 25°C$.
*2: Output power derating ratio is 1.33 mW/°C at $T_a \geq 25°C$.

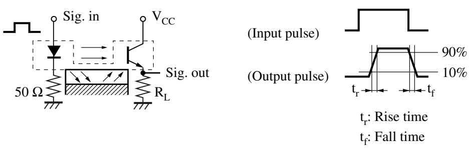
■ Electrical-Optical Characteristics $T_a = 25°C \pm 3°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Input characteristics	Forward voltage	V_F	$I_F = 50$ mA			1.5	V
	Reverse current	I_R	$V_R = 3$ V			10.0	μA
Output characteristics	Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 10$ V			200	nA
Transfer characteristics	Collector current *1	I_C	$V_{CE} = 5$ V, $I_F = 20$ mA	100		1 500	μA
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 50$ mA, $I_C = 0.1$ mA			0.5	V
	Rise time	t_r	$V_{CC} = 10$ V, $I_C = 0.5$ mA, $R_L = 100\ \Omega$		6		μs
	Fall time	t_f			6		

Note) 1. Input and output are handled electrically.
2. This product is not designed to withstand radiation
3. *1: I_C measurement circuit



*2: Switching time measurement circuit



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

⚠Caution for Safety

⚠DANGER

■ This product contains Gallium Arsenide (GaAs).

GaAs powder and vapor are hazardous to human health if inhaled or ingested. Do not burn, destroy, cut, cleave off, or chemically dissolve the product. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.

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(6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.

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