

CNA1015

Photo Interrupters

Overview

CNA1015 series is a transmissive photosensor series 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

- Position detection accuracy : 0.3 mm
- Gap width : 5 mm
- The type directly attached to PCB

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	5 V
	Forward current (DC)	I_F	50 mA
	Power dissipation	P_D^{*1}	75 mW
Output (Photo transistor)	Collector current	I_C	20 mA
	Collector to emitter voltage	V_{CEO}	30 V
	Emitter to collector voltage	V_{ECO}	5 V
	Collector power dissipation	P_C^{*2}	100 mW
Temperature	Operating ambient temperature	T_{opr}	-25 to +85 °C
	Storage temperature	T_{stg}	-40 to +100 °C

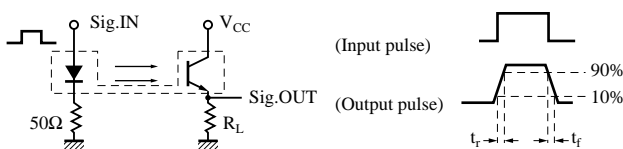
*1 Input power derating ratio is 1.0 mW/°C at Ta = 25°C.

*2 Output power derating ratio is 1.33 mW/°C at Ta = 25°C.

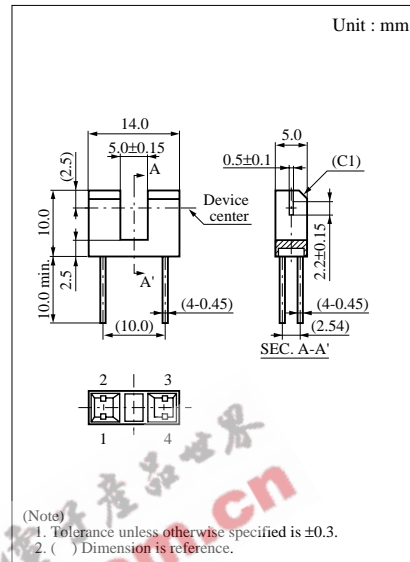
Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F , $I_F = 20\text{mA}$		1.25	1.4	V
	Reverse current (DC)	I_R , $V_R = 3\text{V}$			10	μA
Output characteristics	Collector cutoff current	I_{CEO} , $V_{CE} = 10\text{V}$		10	200	nA
Transfer characteristics	Collector current	I_C , $V_{CC} = 5\text{V}$, $I_F = 20\text{mA}$, $R_L = 100\Omega$	0.5		10	mA
	Collector to emitter saturation voltage	$V_{CE(sat)}$, $I_F = 40\text{mA}$, $I_C = 1\text{mA}$			0.4	V
	Response time	t_r, t_f^* , $V_{CC} = 5\text{V}$, $I_C = 1\text{mA}$, $R_L = 100\Omega$		5		μs

* Switching time measurement circuit



t_r : Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)
 t_f : Fall time (Time required for the collector photo current to decrease from 90% to 10% of its initial value)



Internal connector

