

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 |

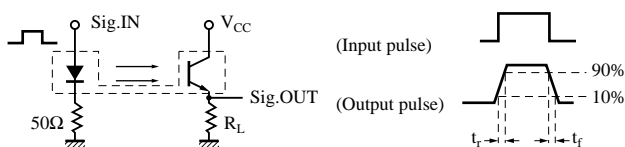
*1 Input power derating ratio is 1.0 mW/°C at Ta = 25°C.

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

Electrical Characteristics (Ta = 25°C)

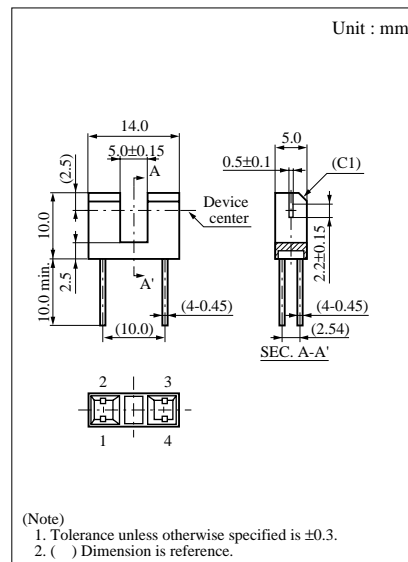
| | Parameter | Symbol | Conditions | min | typ | max | Unit |
|--------------------------|---|---------------|--|-----|------|-----|------|
| Input characteristics | Forward voltage (DC) | V_F | $I_F = 20\text{mA}$ | | 1.25 | 1.4 | V |
| | Reverse current (DC) | I_R | $V_R = 3\text{V}$ | | | 10 | μA |
| 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

