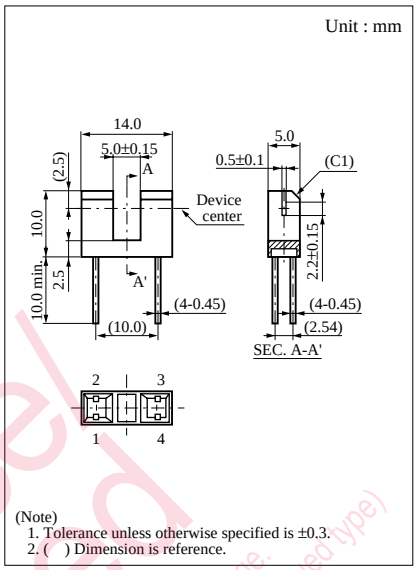
CNA1015

Photo Interrupters



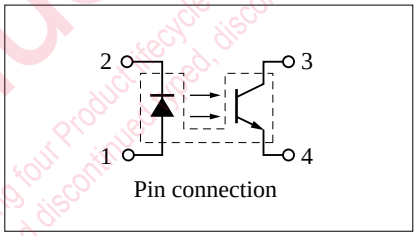
Overview

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

Internal connector



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

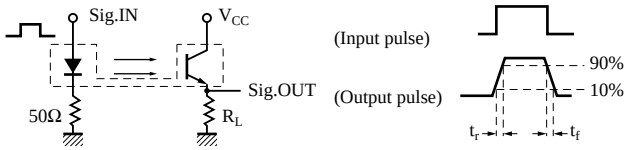
*1 Input power derating ratio is 1.0 mW/˚C at Ta = 25˚C.

*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 = 20mA		1.25	1.4	V
	Reverse current (DC)	I_R	V_R = 3V			10	μA
Output characteristics	Collector cutoff current	I_{CEO}	V_{CE} = 10V		10	200	nA
Transfer characteristics	Collector current	I_C	V_{CC} = 5V, I_F = 20mA, R_L = 100Ω	0.5		10	mA
	Collector to emitter saturation voltage	$V_{CE(sat)}$	I_F = 40mA, I_C = 1mA			0.4	V
	Response time	t_r , t_f *	V_{CC} = 5V, I_C = 1mA, R_L = 100Ω		5		μs

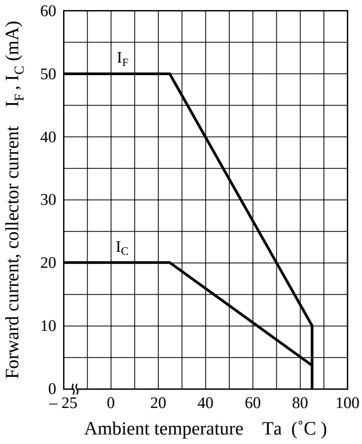
* Switching time measurement circuit



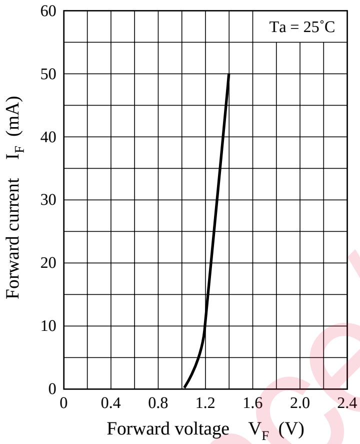
t_r : Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)

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

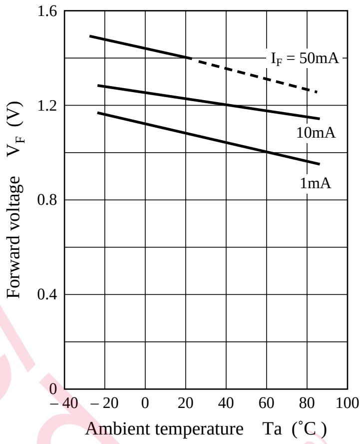
I_F , I_C — Ta



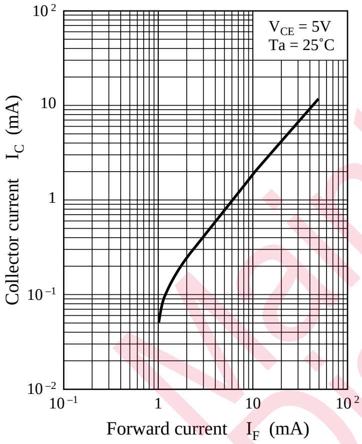
I_F — V_F



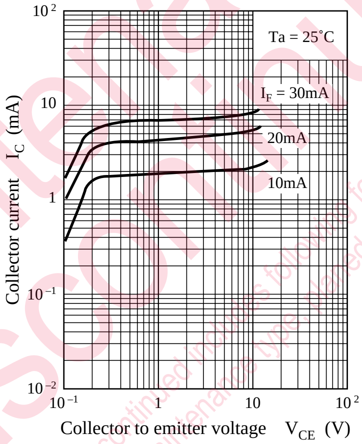
V_F — Ta



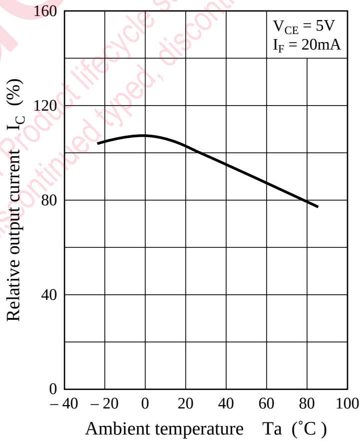
I_C — I_F



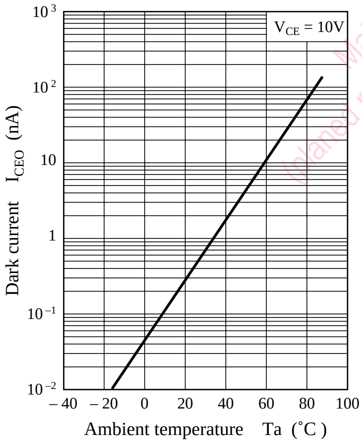
I_C — V_{CE}



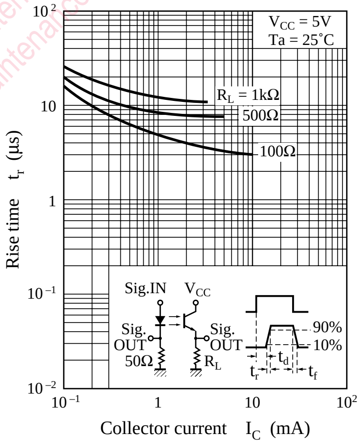
I_C — Ta



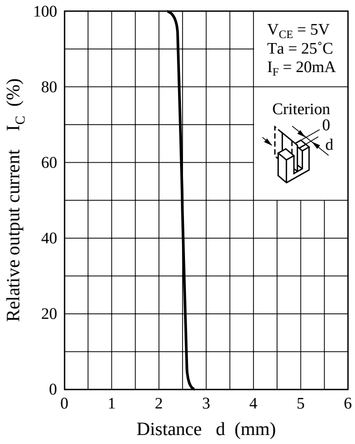
I_{CEO} — Ta



t_r — I_C



I_C — d



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⚠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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