

ON1387

Photo Interrupters

■ Outline

ON1387 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 : 3 mm
- Type which is directly attached to PCB(with attachment positioning pins)

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

Parameter	Symbol	Ratings	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3 V
	Forward current (DC)	I_F	50 mA
	Power dissipation*1	P_D	75 mW
Output (Photo transistor)	Collector current	I_C	20 mA
	Collector to emitter voltage	V_{CE0}	30 V
	Emitter to collector voltage	V_{ECO}	5 V
	Collector power dissipation*2	P_C	100 mW
Temperature	Operating ambient temperature	T_{opr}	-25 ~ +85 °C
	Storage temperature	T_{stg}	-40 ~ +100 °C

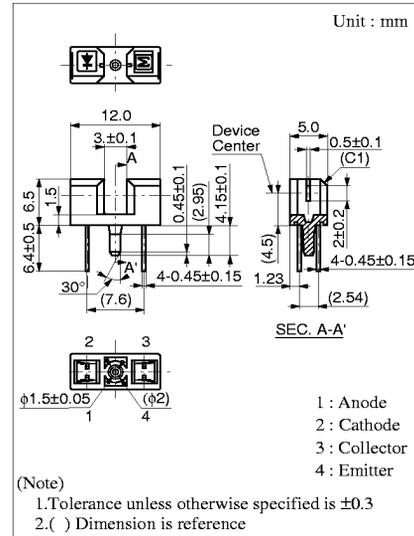
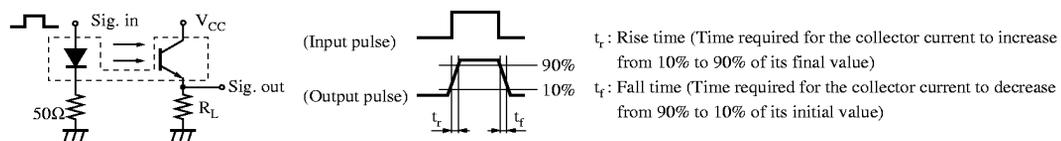
Note) *1 : Input power derating ratio is 1.0 mW/°C at $T_a=25^\circ\text{C}$.

*2 : Output power derating ratio is 1.33 mW/°C at $T_a=25^\circ\text{C}$.

■ Electrical Characteristics $T_a=25\pm 3^\circ\text{C}$

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_{CE0} $V_{CE}=10\text{V}$		10	200	nA
Transfer characteristics	Collector current	I_C $V_{CC}=5\text{V}$, $I_F=20\text{mA}$, $R_L=100\Omega$	1.5		15	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

Note) * : Switching time measurement circuit



Internal connection

