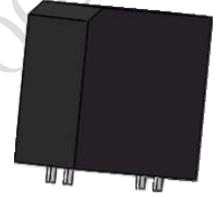


Optical Switch with Phototransistor output

■ Features

- Fast Response Time.
- High Resolution
- Daylight Filter
- Transmission Wavelength $\lambda_p=940\text{nm}$
- High sensitivity
- This product can omni 360 degree tilt detecting
- Lead Free product, in compliance with RoHS



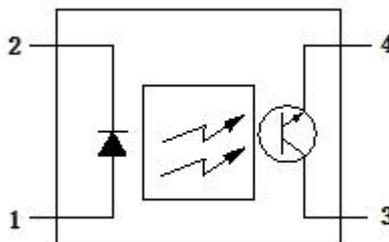
■ Description

GTOS-H30 consists of an infrared emitting diode and a phototransistor, encased in a black thermoplastic housing, face-to-face on the converging optical axis. Only when the product is dumped, the phototransistor will receive radiation from the infrared transmitter, which is the normal ON state. When the product is upright, the phototransistor will turn off and will not receive radiation.

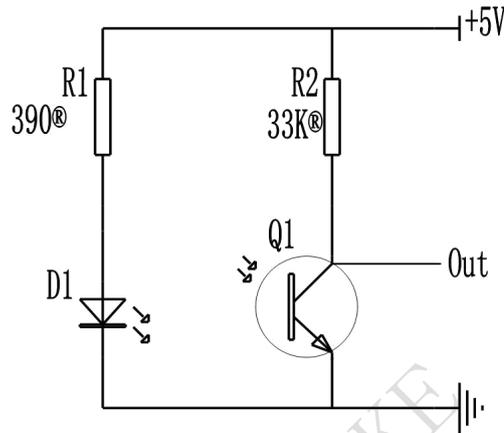
■ Applications

- Fan
- Air purifier
- Humidifier
- Electric heater
- Dehumidifier or dump protection appliances and equipment

■ Functional Block Diagram

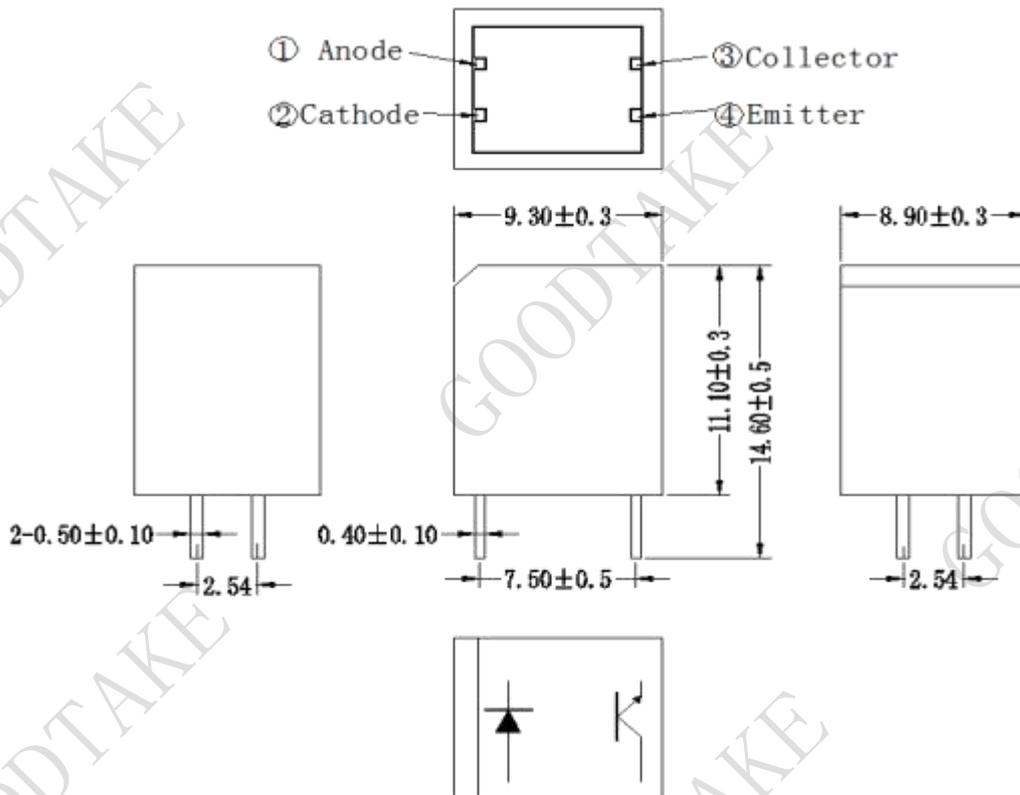


■ Application Circuit



■ Dimensions

Dimensions in mm: tolerance ± 0.3 mm



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

Parameter		Symbol	Ratings	Unit
Input Emitter	Power Dissipation	PD	75	mW
	Reverse Voltage	VR	5	V
	Forward Current	IF	50	mA
	Peak Forward Current	IFP	1	A
Output Detector	Collector Power Dissipation	PC	75	mW
	Collector Current	IC	20	mA
	Collector-Emitter Breakdown Voltage	BVCEO	30	V
	Emitter-Collector Breakdown Voltage	BVECO	5	V
Operating Temperature		Topr	-25~+85	°C
Storage Temperature max		Tstg	-40~+85	°C
Soldering Temperature		Tsd	270°C, 6 sec max (2mm from Body)	°C

Notes : IFP conditions –Pulse current $\leq 100\mu\text{s}$ And Duty $\leq 1\%$

■ Typical Electrical & Optical characteristics $T_a=25^\circ\text{C}$

Parameter		Symbol	Min	Typ	Max	Unit	Test Condition
Input Emitter	Forward Voltage	V _F		1.2	1.3	V	I _F =20 mA
	Reverse Current	I _R			10	μA	V _F =5V
	Peak Wavelength	λ _P		940		nm	
Output Detector	Collector Dark Current	I _{CEO}		5	100	nA	V _{CE} =20V I _F =0mA E _e =0mW/cm ²
	Collector-Emitter Saturation Voltage	V _{CE(sat)}		0.1	0.4	V	I _c =0.25mA I _F =20mA
	Upright Dump State Collector Current	I _{C(of)}			0.15	mA	V _{CE} =5V I _F =20mA
	Dump State Collector Current	I _{C(on)}	0.5	5.0	-	mA	V _{CE} =5V I _F =20mA
Transfer Characteristics	Rise Time	T _r		15		μS	V _{CC} =5V
	Fall Time	T _f		15		MS	I _c =1mA R _L =1000Ω

■ Typical Electrical Optical Characteristics Curves

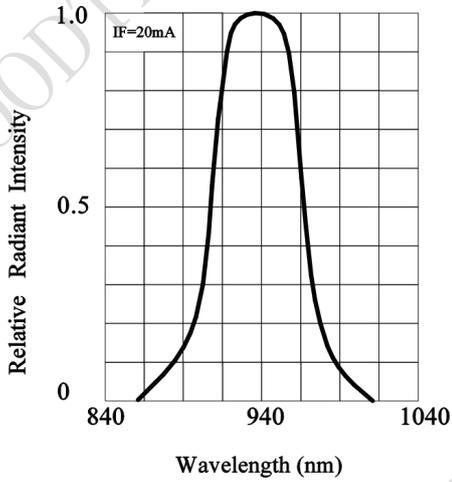


Fig.1 Septral Distribution

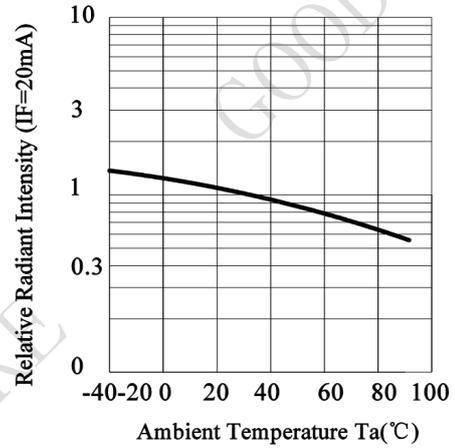


Fig.2 Relative Radiant Intensity vs. Ambient Temperature

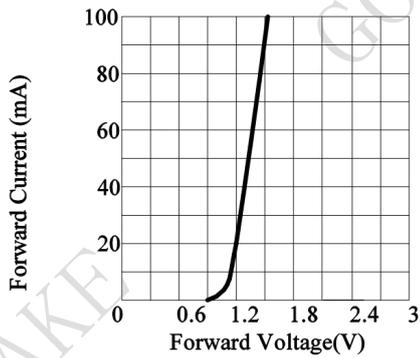


Fig.3 Forward Current vs. Forward Voltage

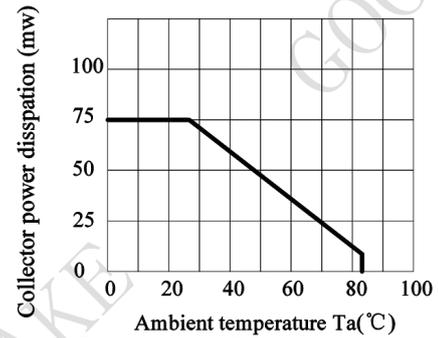


Fig.4 Collector Power dissipation vs. Ambient temperature

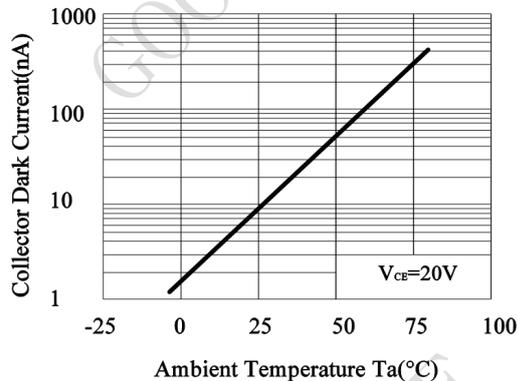
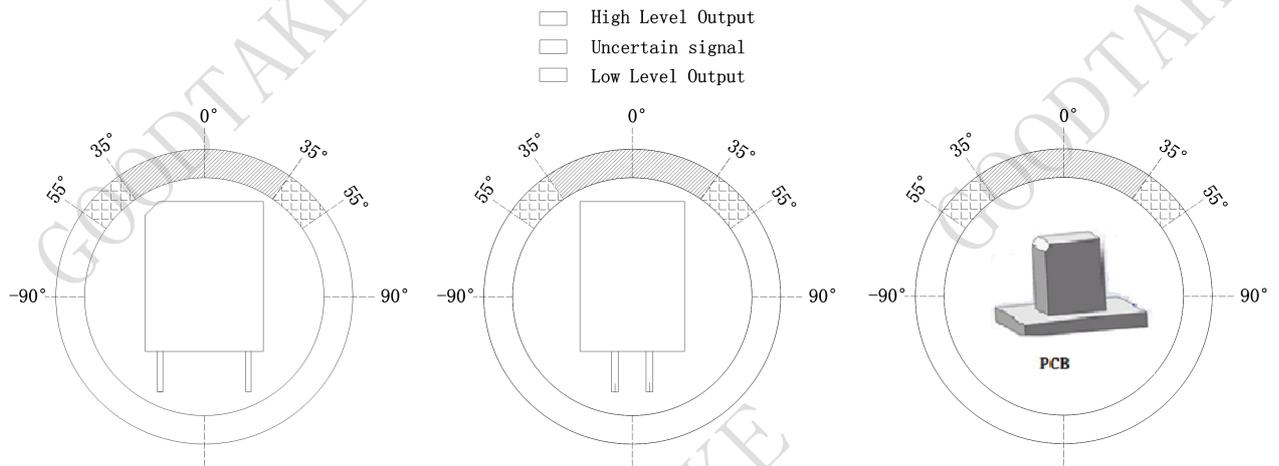


Fig.5 Collector Dark Current(nA) vs. Ambient Temperature Ta(°C)

■ Detecting position characteristics



When the products is upright, the output is high level.

When the products tilt to any direction and more than 45 ± 10 degree, output is the low level.

