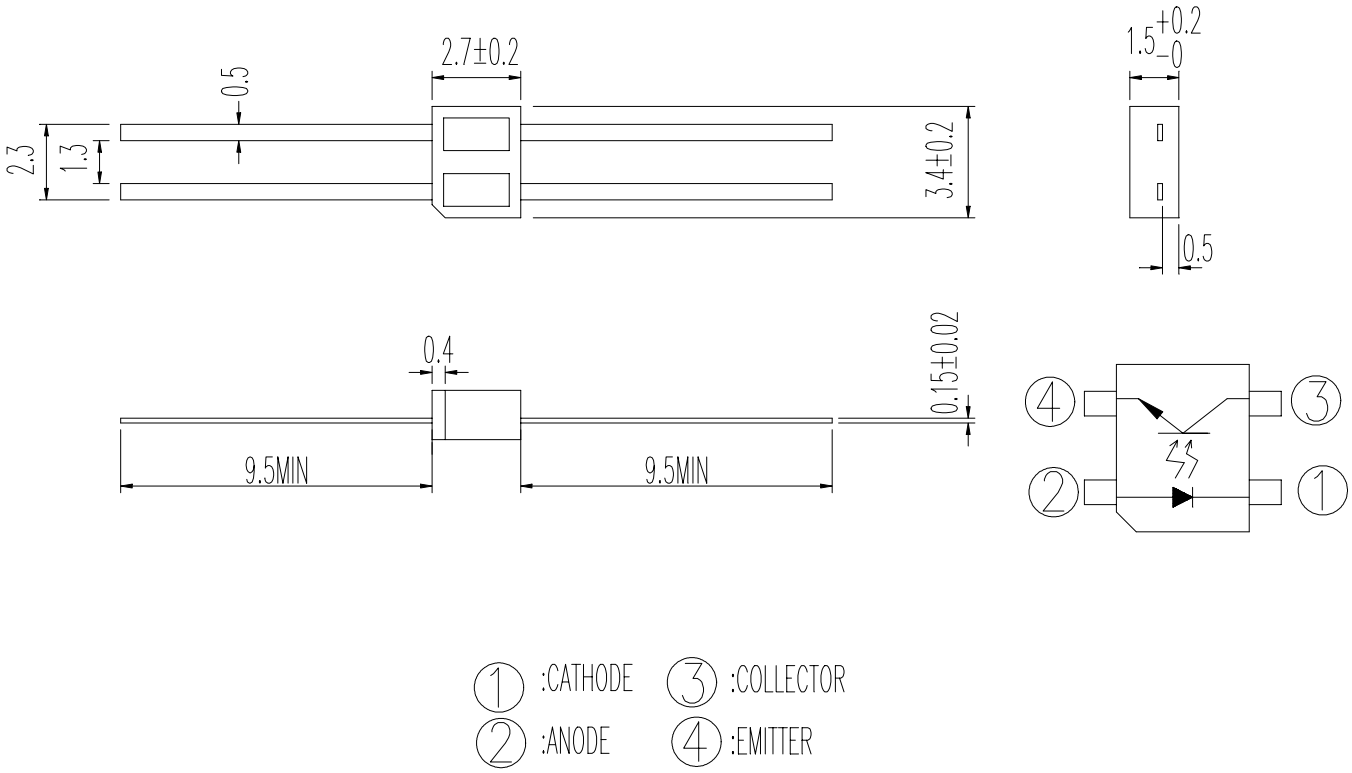
Package Dimensions :



① :CATHODE ③ :COLLECTOR

② :ANODE ④ :EMITTER

Office: NO 25,Lane.76, Chung Yang Rd., Sec.3, Tucheng, Taipei 236, Taiwan, R.O.C.

TEL: 886-2-2267-2000,2267-9936(22Lines)

FAX: 886-2-2267-6189

http: //www.everlight.com

◎**Notes**：

1.All dimensions are in millimeters.
2.General Tolerance:± 0.15mm.
3.Lead spacing is measured where the lead emerge from the package.
4.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
5.These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
6.When using this product , please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.

■ Descriptions:

ITR8307 is a light reflection switch which includes a GaAs IRLED transmitter and a NPN photo-transistor with a high photosensitive receiver for short distance, operating in the infrared range. Both components are mounted side-by-side in a plastic package.

■ Features:

- Fast response time
- High sensitivity
- Cutting wavelength λ=840nm
- Thin
- Compact

■ Applications:

- Camera
- VCR
- Floppy disk driver
- Cassette type recorder
- Various microcomputer control equipment

Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25℃ Free Air Temperature	Pd	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current Pulse width ≦100 μs, Duty cycle=1%	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	50	mA
	Collector-Emitter Voltage	B V_{CEO}	30	V
	Emitter-Collector Voltage	B V_{ECO}	5	V
Operating Temperature		Topr	-25~+85	℃
Storage Temperature		Tstg	-40~+85	℃
Lead Soldering Temperature (1/16 inch from body for 5 seconds)		Tsol	260	℃

(＊1) tw=100 μsec. , T=10 msec. (＊2) t=5 Sec

Electro-Optical Characteristics (Ta=25℃)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	V_F	---	1.2	1.6	V	I_F=20mA
	Reverse Current	I_R	---	---	10	μA	V_R=5V
	Peak Wavelength	λ_P	---	940	---	nm	---
	View Angle	2∈1/2	---	110	---	Deg	I_F=20mA
Output	Dark Current	I_{CEO}	---	---	100	nA	V_{CE}=10V
	C-E Saturation Voltage	V_{CE} (sat)	---	---	0.4	V	I_C=2mA I_B=0.1mA
Light Current		I_C(ON)	0.1	---	---	mA	V_{CE}=5V
Leakage Current		ICEOD	---	---	1	μA	I_F=20mA
Speed	Rise time	t_r	---	20	---	μsec	V_{CE}=2V
	Fall time	t_f	---	20	---	μsec	I_C=100 μA R_L=1KΩ

■ Typical Characteristics For IR

Fig. 1 Forward Current vs. Ambient Temperature

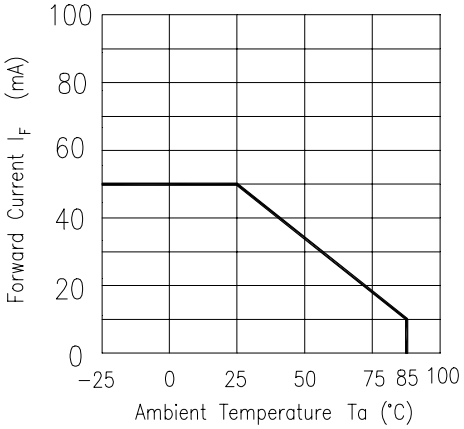


Fig. 2 Spectral Distribution

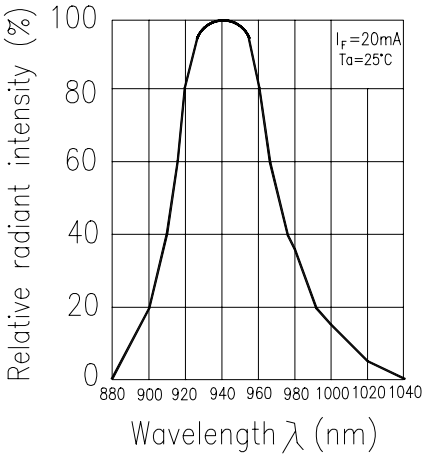


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

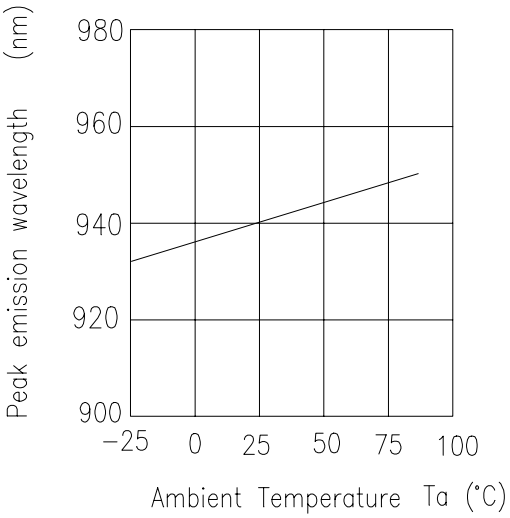


Fig. 4 Forward Current vs. Forward Voltage

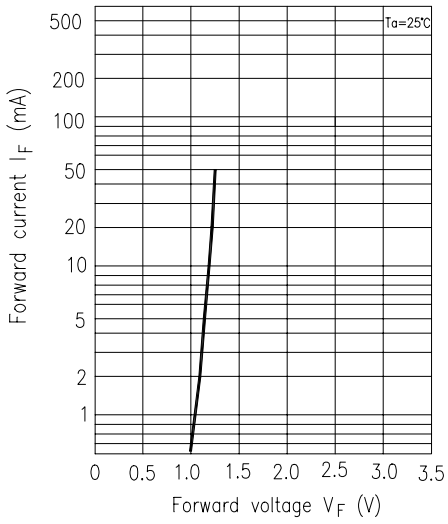


Fig. 5 Forward Voltage vs. Ambient Temperature

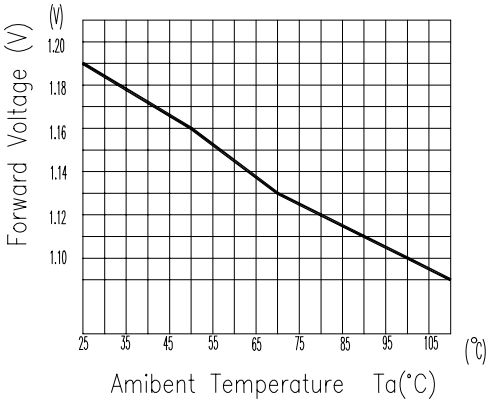
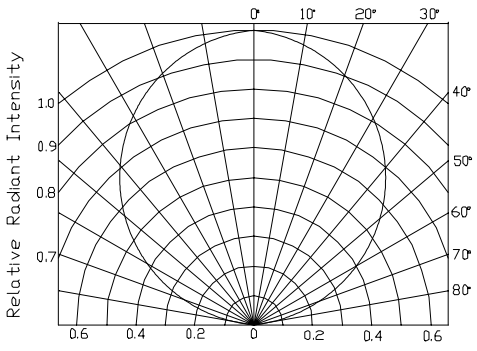


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



■Typical Characteristics

Fig.1 Collector Power Dissipation vs. Ambient Temperature

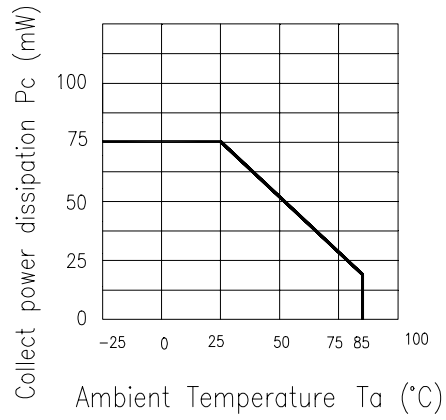


Fig.2 Collector Dark Current vs. Ambient Temperature

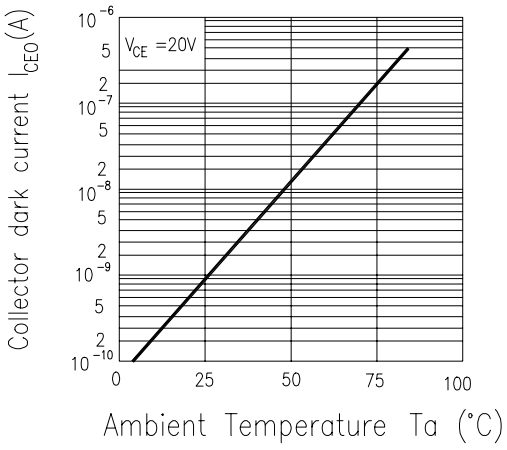


Fig. 3 Relative Collector Current vs. Ambient Temperature

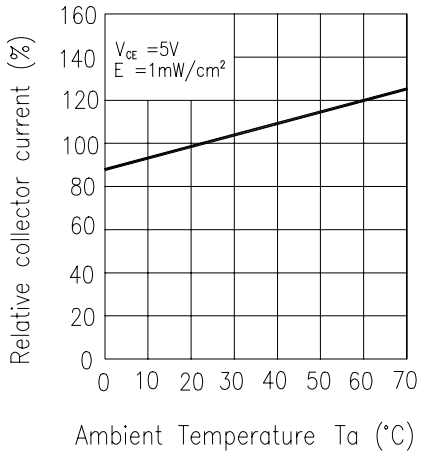


Fig.4 Collector Current vs. Irradiance

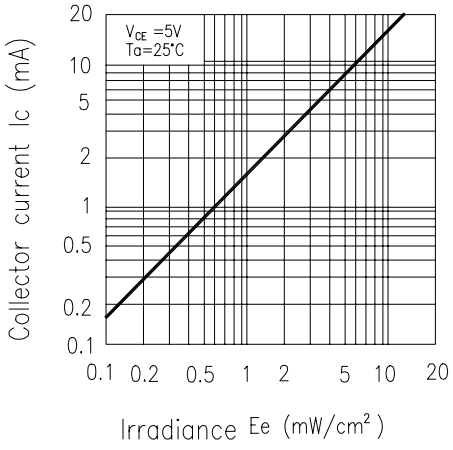


Fig.5 Spectral Sensitivity

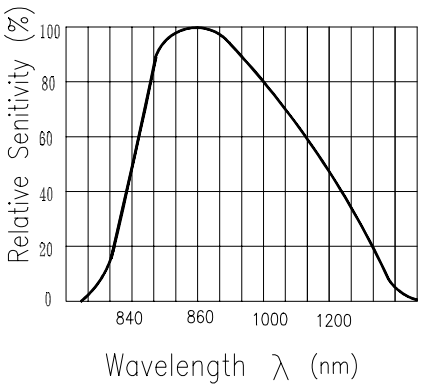
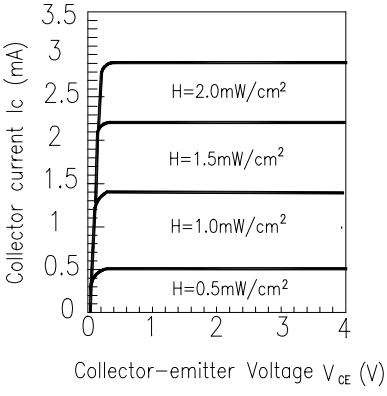
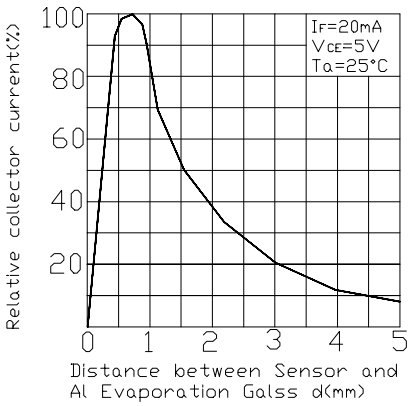


Fig.6 Collector Current vs. Collector-emitter Voltage



■Typical Characteristics For ITR

Fig.7 Relative Collector Current vs. Distance between Sensor and Al Evaporation Galss



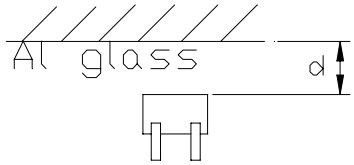
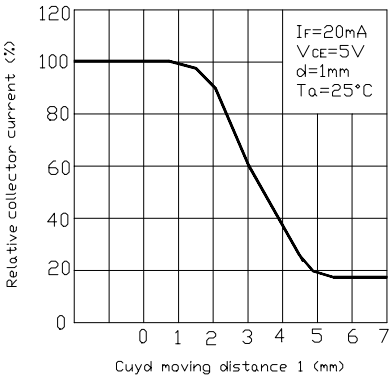


Fig.8 Relative Collector Current vs. Card Moving Distance (1)



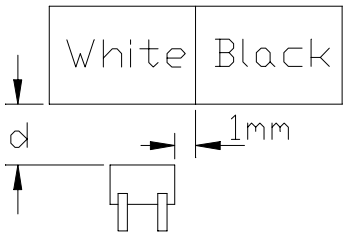
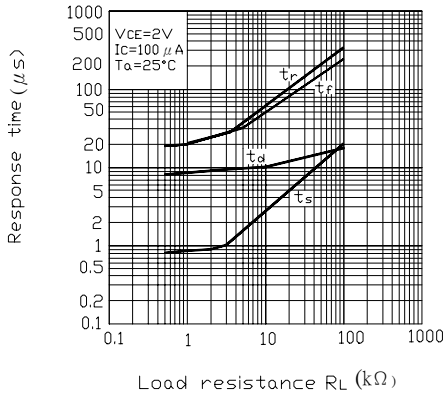
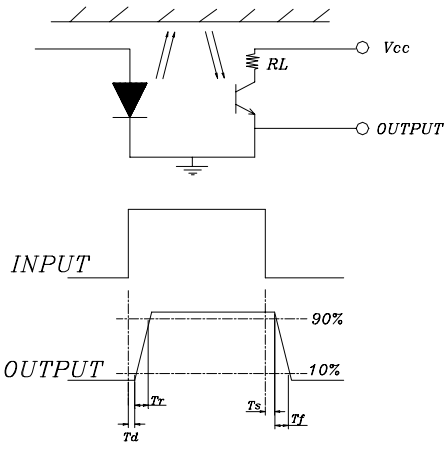


Fig.9 Response Time vs. Load Resistance





■Reliability test item and condition

The reliability of products shall be satisfied with item listed below:

Confidence level :90% LTPD:10%

Parameter	Purpose & Condition	Failure Judgement Criteria	Samples(n) Defective(c)
Temperature Cycle	Evaluates product's ability to withstand exposure to high temperature, low temperature, and temperature variation between two limit temperature. Standard test Condition: 85℃~25℃~-55℃~25℃ ↓ ↓ ↓ ↓ 30min 5min 30min 5min 50 cycle	$I_R \geqq U \times 2$ $Ic(on) \leqq L \times 0.8$ $V_F \geqq U \times 1.2$ U：Upper specification limit L：Lower specification limit	n =22，c=0
Thermal Shock	Evaluates product's ability to withstand rapid temperature change Standard test Condition: 85℃ ~ -55℃ 5min (10 sec)5min 50cycle		n =22，c=0
High Temperature Storage	Evaluates product's ability to withstand prolonged storage at high temperature Standard test Condition: Temperature : 100 ℃ Time : 1000hrs		n =22，c=0
Low Temperature Storage	Evaluates product's ability to withstand prolonged storage at low temperature Standard test Condition: Temperature : -55 ℃ Time : 1000hrs		n =22，c=0

Parameter	Purpose & Condition	Failure Judgement Criteria	Samples(n) Defective(c)
Operating Life Test	Evaluates product's endurance to prolonged electrical or temperature stresses. Standard test Condition: V_{CE}=5V I_F=20mA Time : 1000hrs	$I_R \geqq U \times 2$ $Ic(on) \leqq L \times 0.8$ $V_F \geqq U \times 1.2$ U：Upper specification limit L：Lower specification limit	n =22，c=0
High Temperature High Humidity	Evaluates product's ability to withstand prolonged storage at high temperature and high humidity. Standard test Condition: Temperature: 85℃ Relative humidity:85% Time : 1000hrs		n =22，c=0
Soldering Heat	Evaluates product's ability to withstand soldering heat Standard test conditions Solder temperature : 260±5℃ Solder time : 5 seconds		n =22，c=0

■Supplements

1.Parts

(1) Chip

Type	Material	Peak Wavelength
IR	GaAs	940 nm

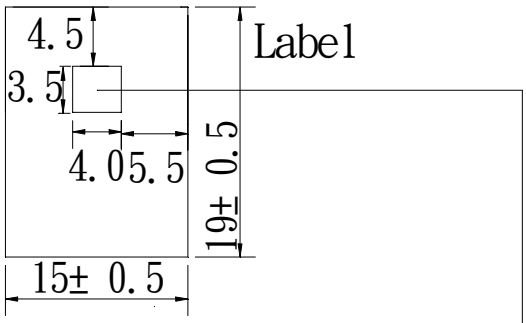
Type	Material	Cutting Wavelength
PT	Silicon	840 nm

(2)Material

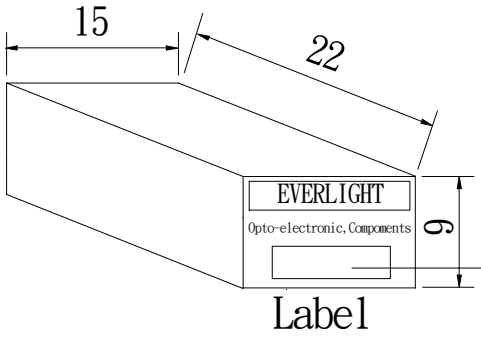
Type	Lead frame	Wire	Part Package
Material	Cu	Gold	Epoxy

■Packing Specifications

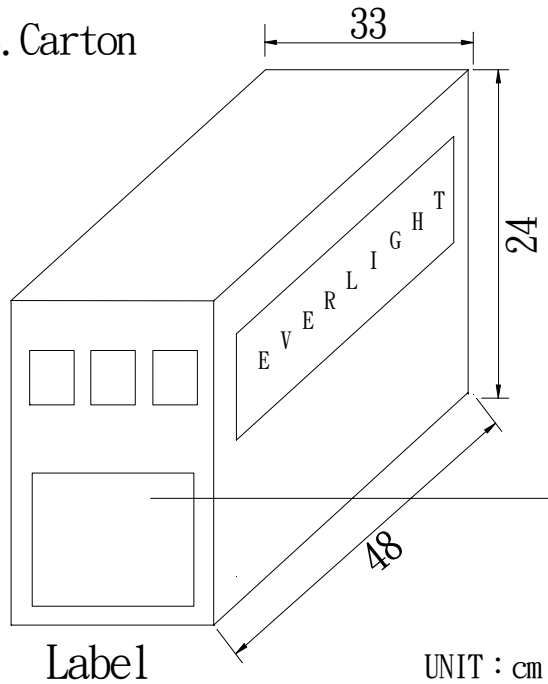
1. Bag



2. Box



3. Carton



UNIT：cm

MADE IN TAIWAN

CPN : Customer's Production

P/N : Production Number

QTY : Packing Quantity

CAT : Ranks

HUE : Peak Wavelength

REF : Reference

LOT NO : Lot Number

MADE IN TAIWAN : Production place

■Packing Quantity Specification

1. 1000Pcs/1Volume，1Volume/1Bag

2.10Bags/1Carton