

### ITR8307/L24/TR8

#### Features

- Fast response time
- High sensitivity
- Cut-Off visible wavelength
- Thin
- Compact
- Pb free
- This product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).



#### Description

ITR8307-L24/TR8 is a light reflection switch which includes a GaAs IR-LED 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.

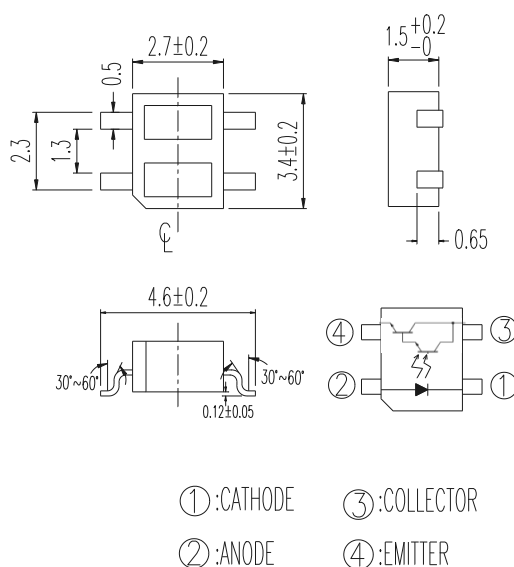
#### Applications

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

#### Device Selection Guide

Device No.	Chip Material
IR	GaAlAs
PTT	Silicon

## Package Dimensions



## Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	$P_d$	75	mW
	Reverse Voltage	$V_R$	5	V
	Forward Current	$I_F$	50	mA
	Peak Forward Current (*1) Pulse width $\leq 100\mu s$ , 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		$T_{opr}$	-40~+85	°C
Storage Temperature		$T_{stg}$	-40~+90	°C
Lead Soldering Temperature (*2)		$T_{sol}$	260	°C

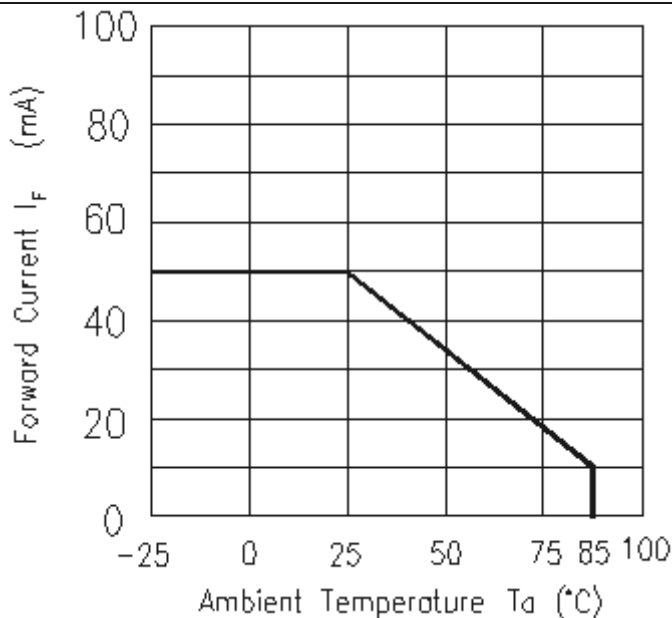
Notes: (\* 1)  $t_w=100 \mu sec.$ ,  $T=10 msec.$  (\* 2)  $t=5 Sec$

**Electro-Optical Characteristics (Ta=25°C)**

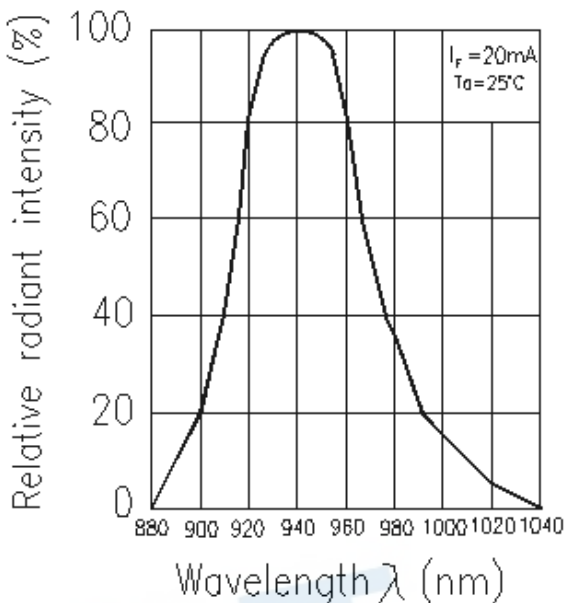
Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Input	Forward Voltage	$V_F$	---	1.2	1.6	V	$I_F=20\text{mA}$
	Reverse Current	$I_R$	---	---	10	$\mu\text{A}$	$V_R=5\text{V}$
	Peak Wavelength	$\lambda_p$	---	940	---	nm	---
Output	Dark Current	$I_{CEO}$	---	---	100	nA	$V_{CE}=10\text{V}$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	1	V	$I_C=2\text{mA}$ $I_E=1\text{mW/cm}^2$
Transfer Characteristics	Light Current	$I_C(ON)$	0.5	---	15.0	mA	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$
	Leakage Current	$I_{CEOD}$	---	---	5	$\mu\text{A}$	$V_{CE}=2\text{V}$ $I_F=4\text{mA}$
	Rise time	$t_r$	---	20	---	$\mu\text{ sec}$	$V_{CE}=2\text{V}$ $I_C=0.1\text{mA}$ $R_L=1\text{K}\Omega$ , $d=1\text{mm}$
	Fall time	$t_f$	---	20	---	$\mu\text{ sec}$	

Typical Electrical/Optical/Characteristics Curves for IR

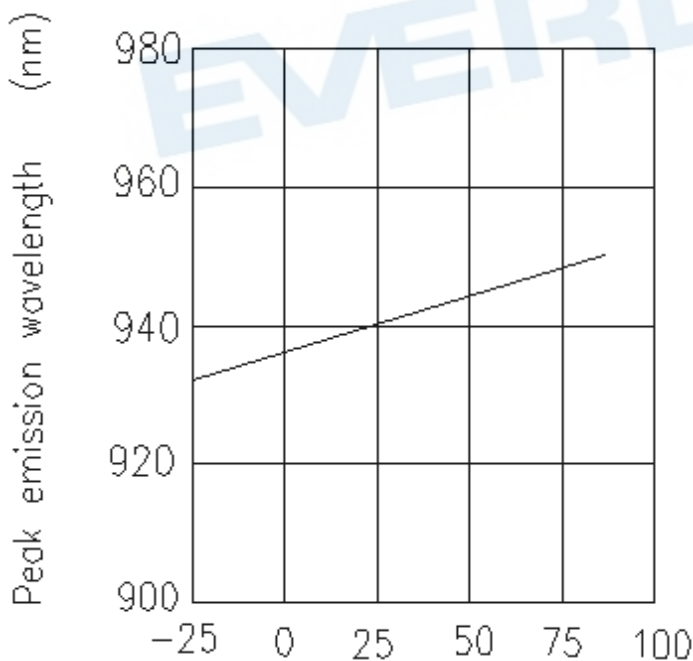
Forward Current vs. Ambient Temperature



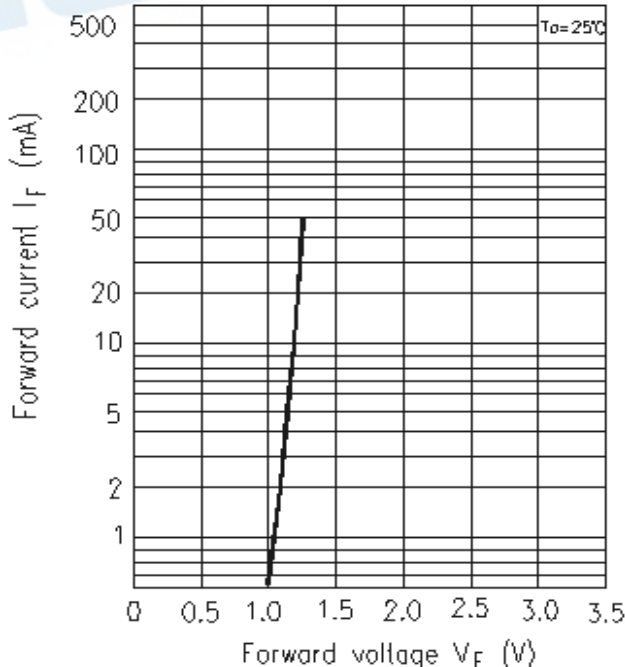
Spectral Distribution

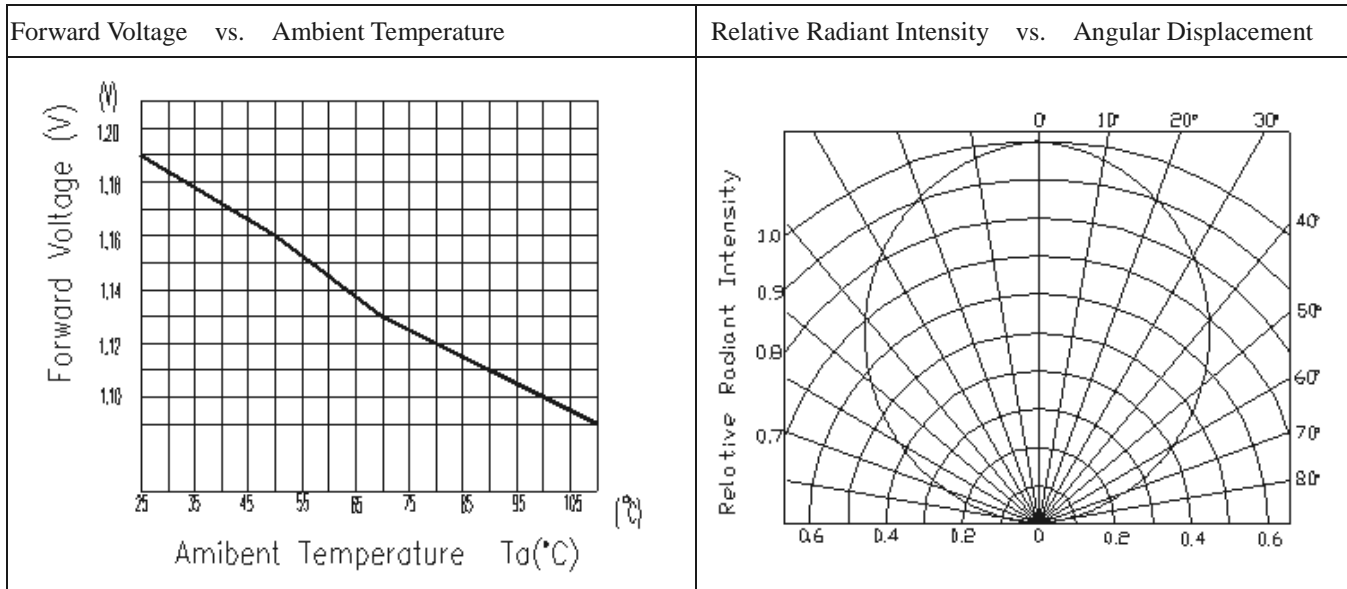


Peak Emission Wavelength vs. Ambient Temperature

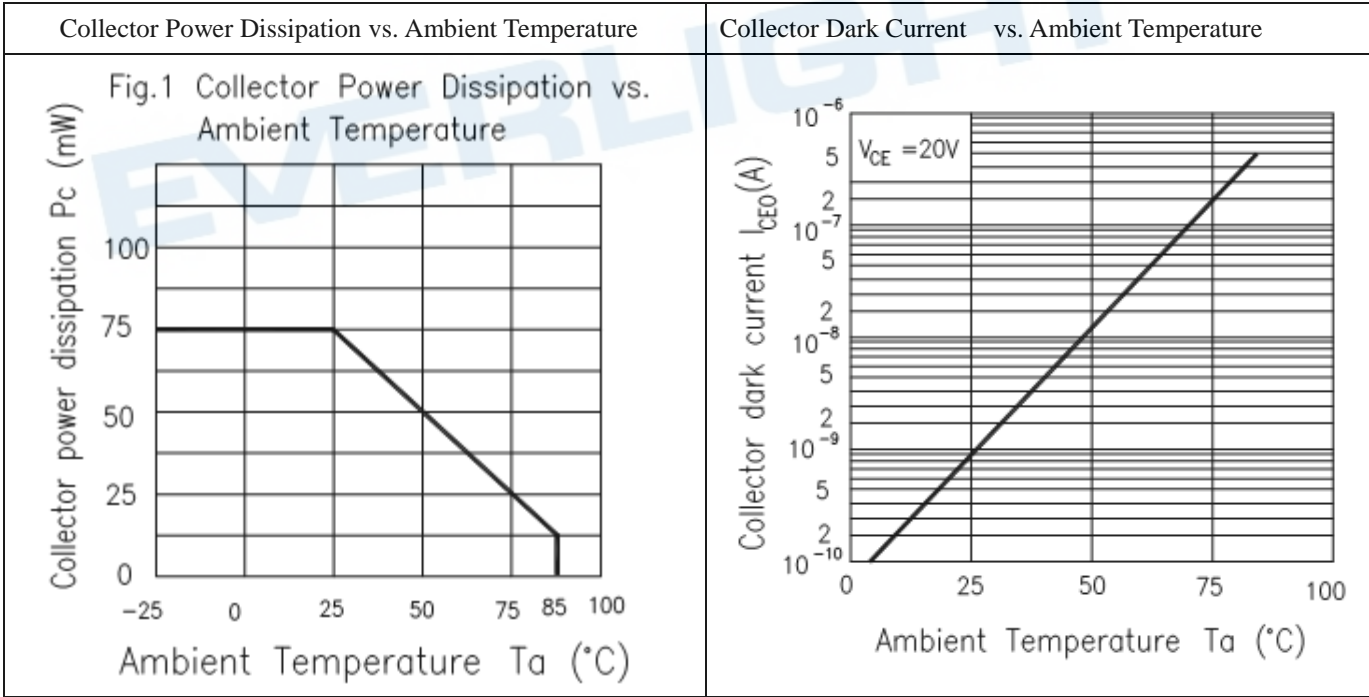


Forward Current vs. Forward Voltage

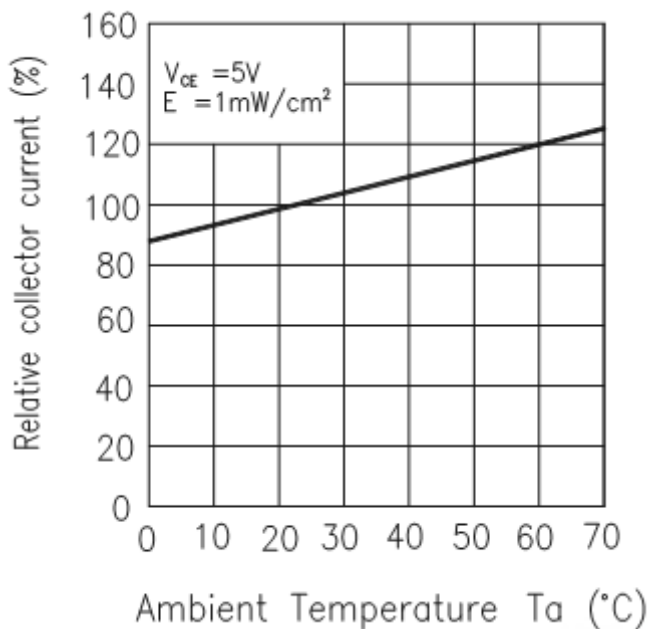




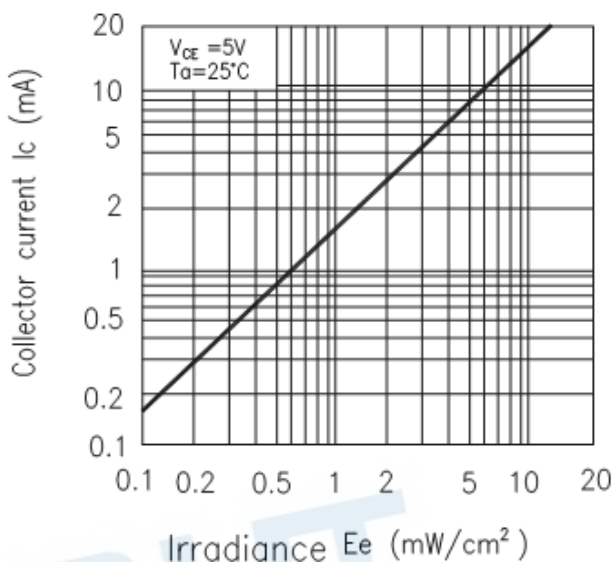
Typical Electro/Optical/Characteristics Curves for PT



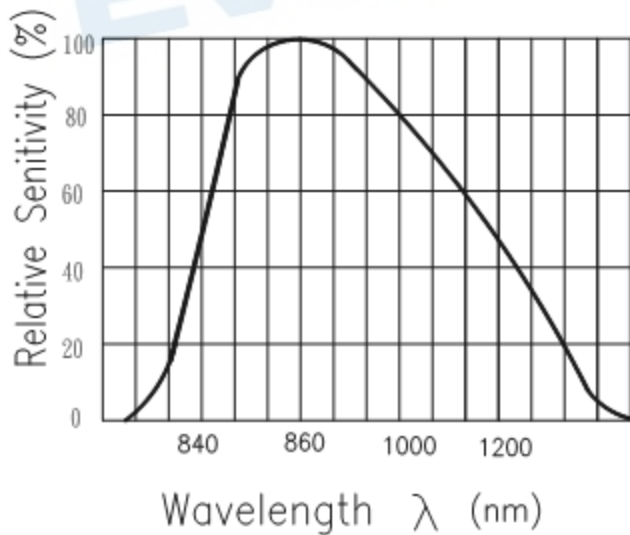
Relative Collector Current vs. Ambient Temperature



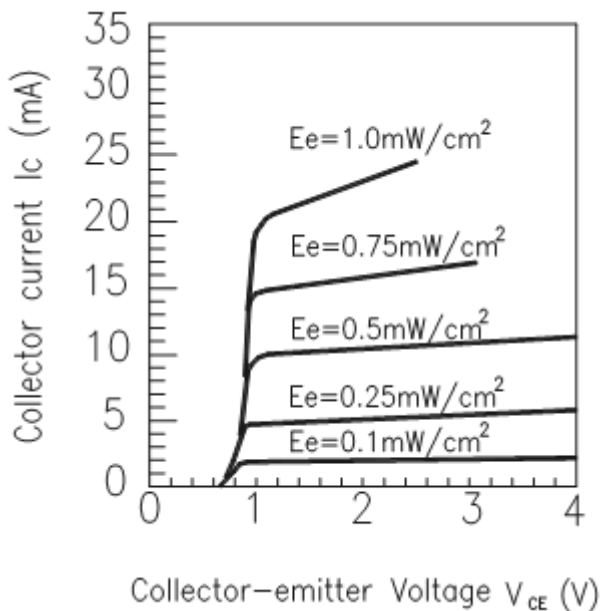
Collector Current vs. Irradiance



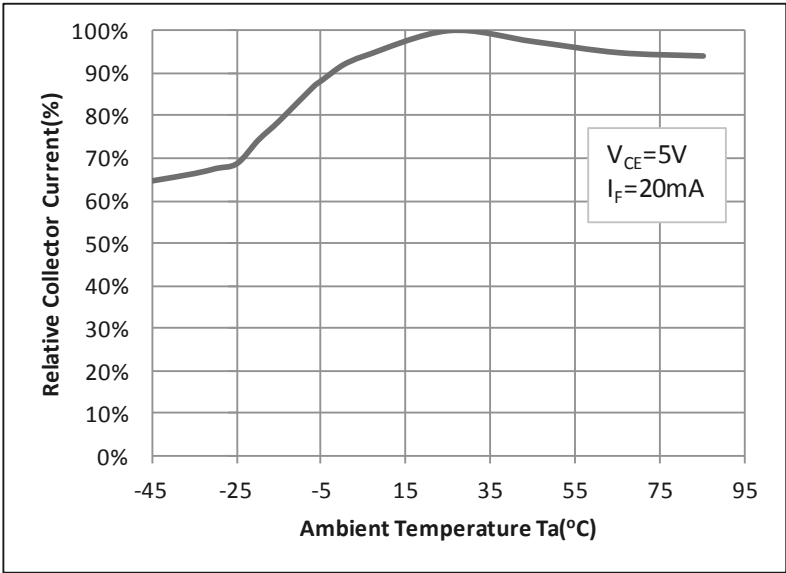
Spectral Sensitivity



Collector Current vs. Collector-emitter Voltage

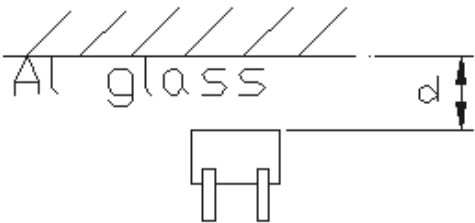
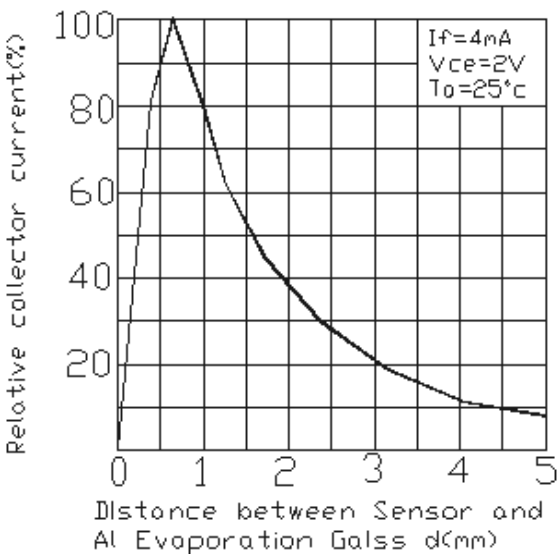


Ambient Temperature vs. Collector Current

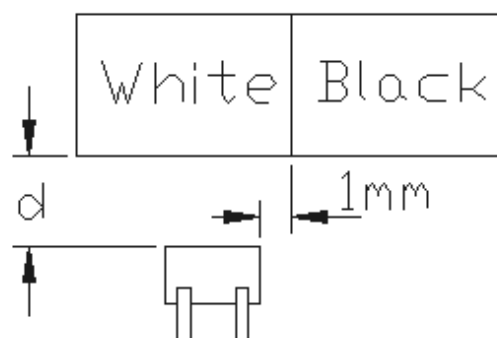
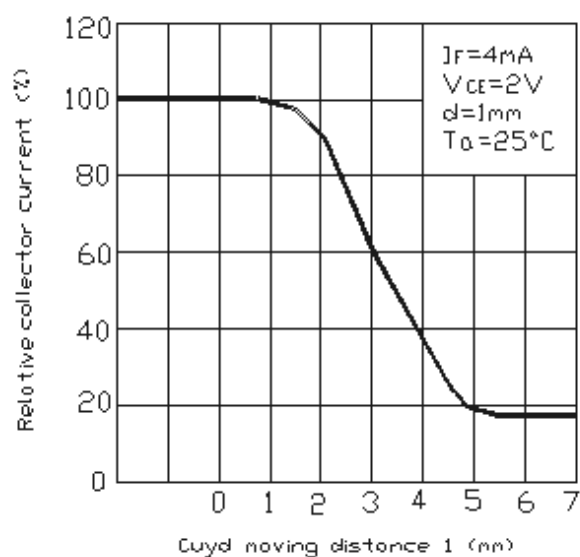


Typical Electrical/Optical/Characteristics Curves For ITR

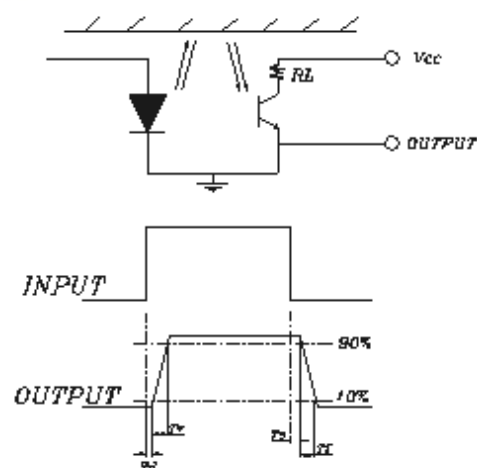
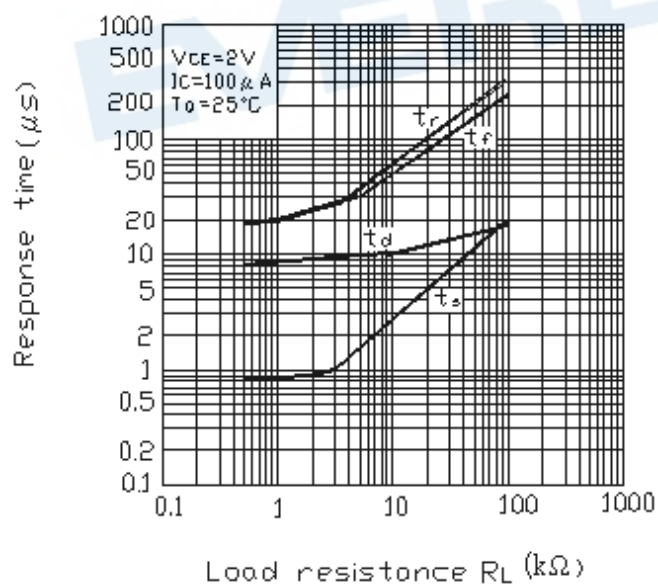
Relative Collector Current vs. Distance between Sensor and AL Evaporation Galss.



Relative Collector Current vs. Card Moving Distance



Response Time vs. Load Resistance

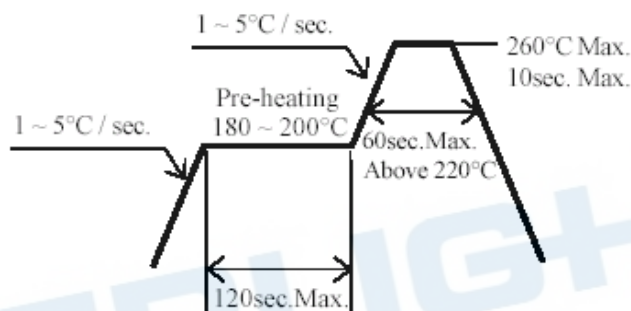




## Recommended Method of Storage

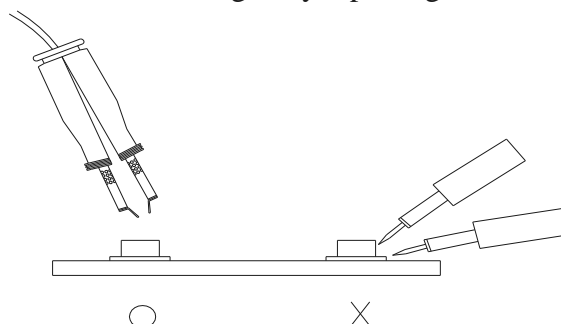
The following are general recommendations for moisture sensitive level (MSL) 4 storage and use:

- Shelf life in sealed bag: 12 months at  $< 40^{\circ}\text{C}$  and  $< 90\%$  relative humidity (RH)
- After bag is opened, devices that will be subjected to reflow solder or other high temperature process must
  - a) Mounted within 72 hours of factory conditions  $< 30^{\circ}\text{C}/60\%\text{RH}$ , or
  - b) Stored at  $< 20\%$  RH
- Devices require bake, before mounting, if:  
Humidity Indicator Card is  $> 20\%$  when read at  $23 \pm 5^{\circ}\text{C}$
- If baking is required, devices may be baked:
  - a) 192 hours at  $40^{\circ}\text{C}$ , and  $< 5\%$  RH (dry air/nitrogen) or
  - b) 96 hours at  $60^{\circ}\text{C}$ , and  $< 5\%$  RH for all device containers
  - c) 24 hours at  $125^{\circ}\text{C}$
- Soldering Condition
  - a) Pb-free solder temperature profile

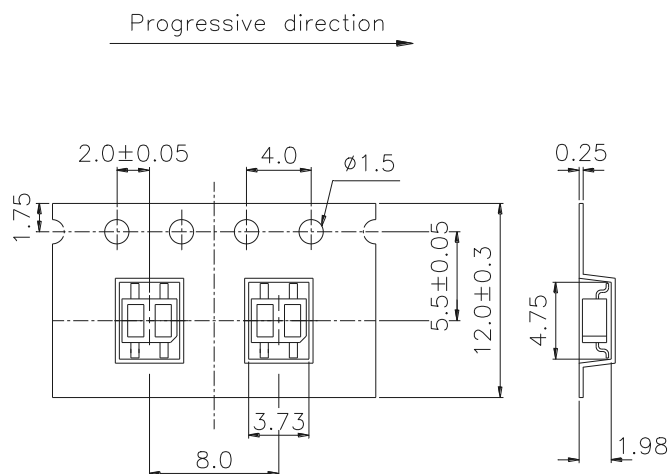


- b) Reflow soldering should not be done more than two times.
  - c) When soldering, do not put stress on the LEDs during heating.
  - d) After soldering, do not warp the circuit board.
- Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

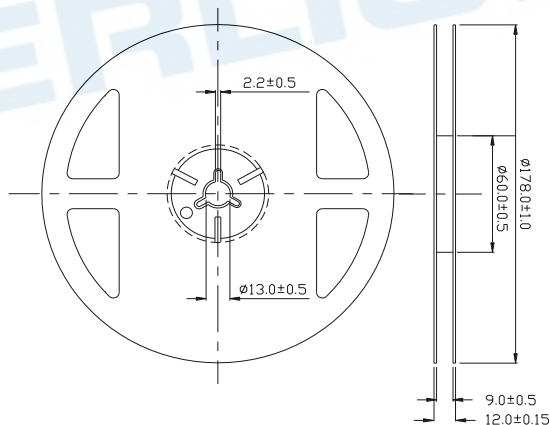


## Taping Dimension



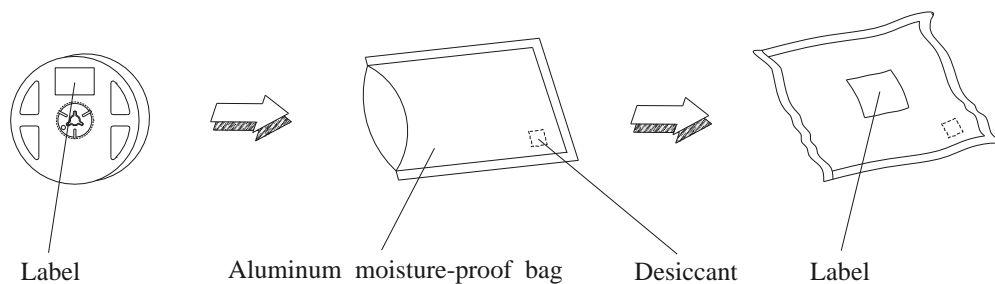
General Tolerance  $\pm 0.1$   
UNIT:mm

## Reel Dimensions



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm

## Moisture Resistant Packaging



## Packing Quantity Specification

1. 1000 Pcs/ 1Reel
2. 15 Reel /1 Box
3. 2 Box/ 1 Carton

## Label Form Specification

RoHS **EVERLIGHT**

CPN: XXXXXXXXXXXX  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

P/N:  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

LOT NO:  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

QTY: HUE:  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

CAT: REF:  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

REFERENCE:  
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX

QR Code

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number
- X: Month
- Reference: Identify Label Number

## DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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