

## Opto Interrupter ITR9909

### Features

- Fast response time
- High analytic
- Cut-off visible wavelength  $\lambda_p=940\text{nm}$
- High sensitivity
- Pb free
- This product itself will remain within RoHS compliant version
- Copliance with EU REACH
- Compliance Halogen Free. ( Br<900 ppm , Cl<900ppm , Br+Cl<1500ppm )

### Description

- The ITR9909 consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing,
- The phototransistor receives radiation from the IR only .This is the normal situation.
- But when an object is in between , phototransistor could not receives the radiation.
- For additional component information , please refer to IR and PT

### Applications

- Mouse Copier
- Switch Scanner
- Floppy disk driver
- Non-contact Switching
- For Direct Board

## Device Selection Guide

Device No.	Chip Materials	Lens Color
IR	GaAlAs	Blue
PT	Silicon	Black

## Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation at(or below) 25°C Free Air Temperature	Pd	75	mW
	Reverse Voltage	V <sub>R</sub>	5	V
	Forward Current	I <sub>F</sub>	50	mA
	Peak Forward Current (*1) Pulse width ≤ 100μs, Duty cycle=1%	I <sub>FP</sub>	1	A
Output	Collector Power Dissipation	Pd	75	mW
	Collector Current	I <sub>C</sub>	50	mA
	Collector-Emitter Voltage	B V <sub>CEO</sub>	30	V
	Emitter-Collector Voltage	B V <sub>ECO</sub>	5	V
Operating Temperature		T <sub>opr</sub>	-25~+85	°C
Storage Temperature		T <sub>stg</sub>	-40~+85	°C
Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds)		T <sub>sol</sub>	260	°C

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

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	VF	---	1.2	1.5	V	IF=20mA
			---	1.4	1.85		IF=100mA, tp=100μ s,tp/T=0.01
			---	2.6	4.0		IF=1A,tp=100μ s,tp/T=0.01
	Reverse Current	IR	---	---	10	μA	VR=5V
	Peak Wavelength	λP	---	940	---	nm	IF=20mA
Output	Dark Current	ICEO	---	---	100	nA	VCE=20V,Ee=0mW/cm <sup>2</sup>
	C-E Saturation Voltage	VCE(sat)	---	---	0.4	V	IC=2mA Ee=1mW/cm <sup>2</sup>
Transfer Characteristics	Collect Current	IC(ON)	200	---	---	uA	VCE=5V IF=20mA
	Rise time	tr	---	15	---	μsec	VCE=5V,IC=1mA ,RL=1000Ω
	Fall time	tf	---	15	---	μsec	

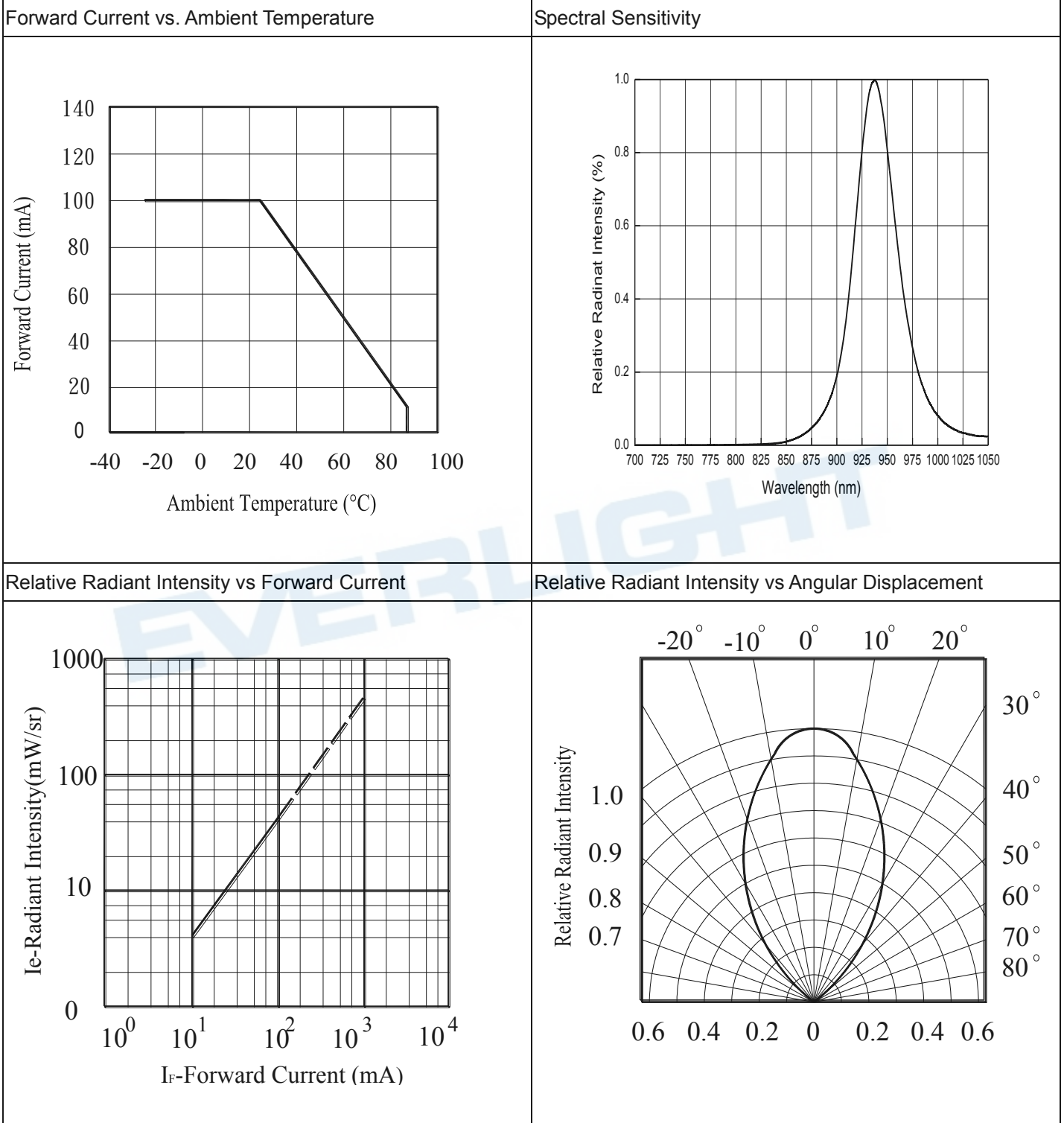
Note:

\*Measurement Uncertainty of Forward Voltage: ±0.1V

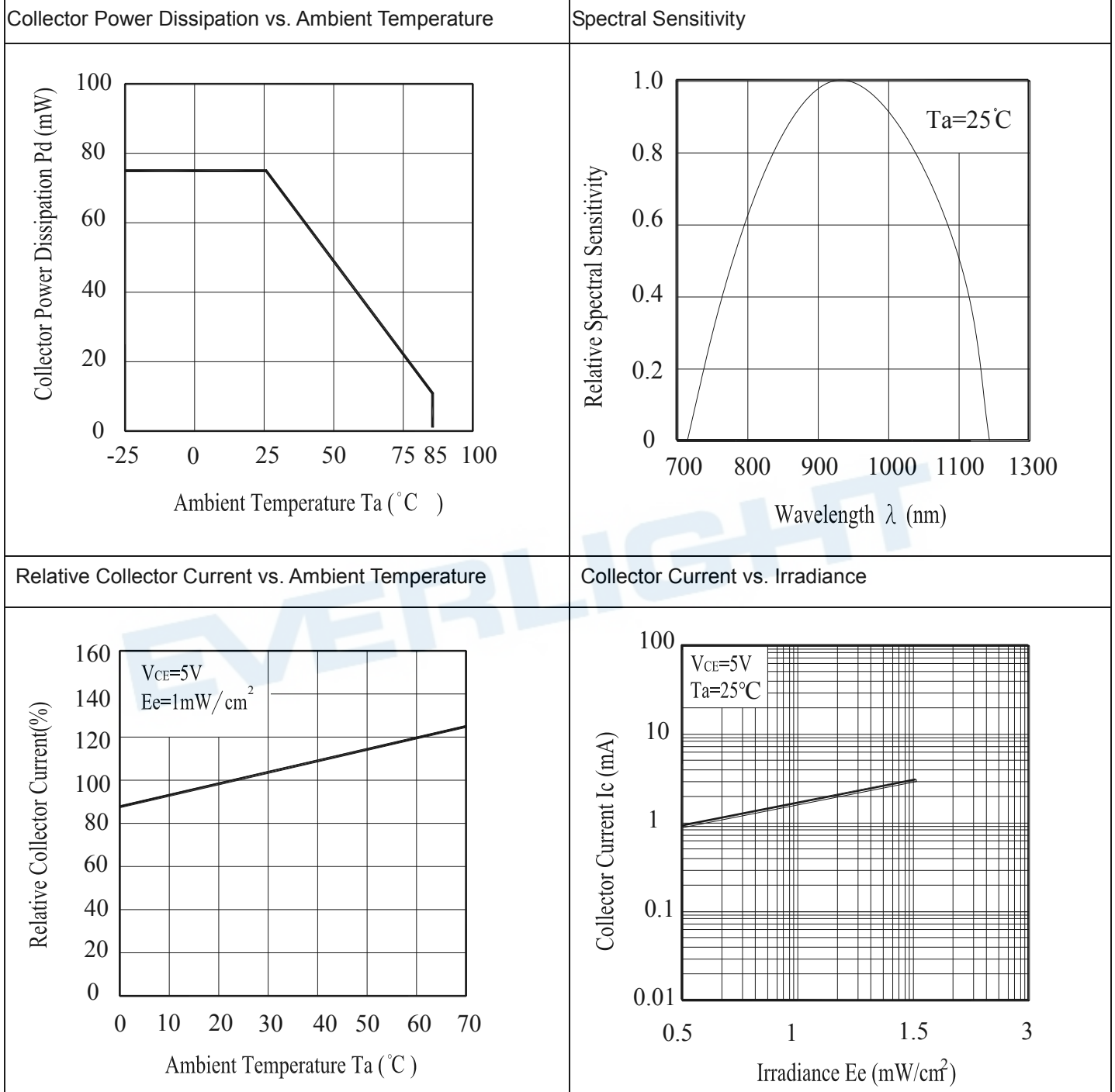
\*Measurement Uncertainty of Luminous Intensity: ±10%

\*Measurement Uncertainty of Dominant Wavelength ±1.0nm

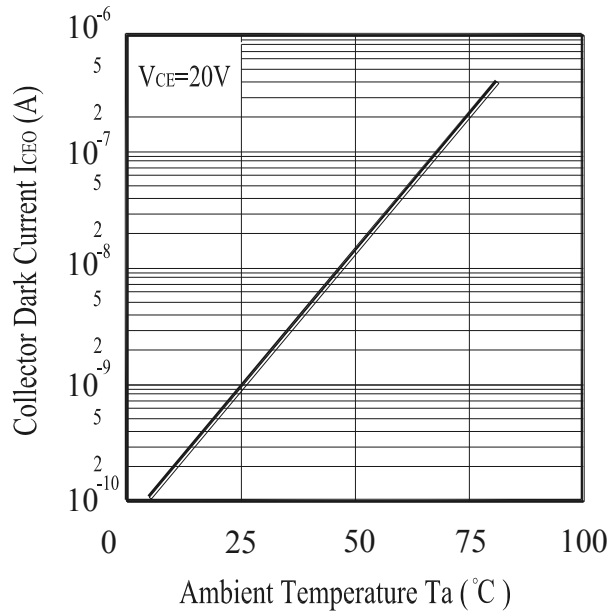
Typical Electrical/Optical/Characteristics Curves for IR



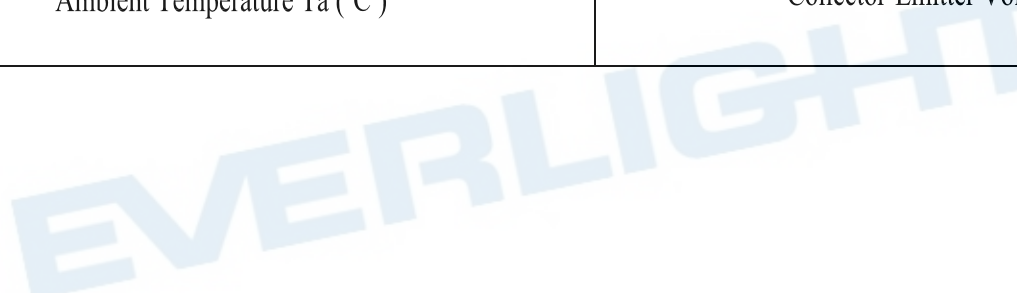
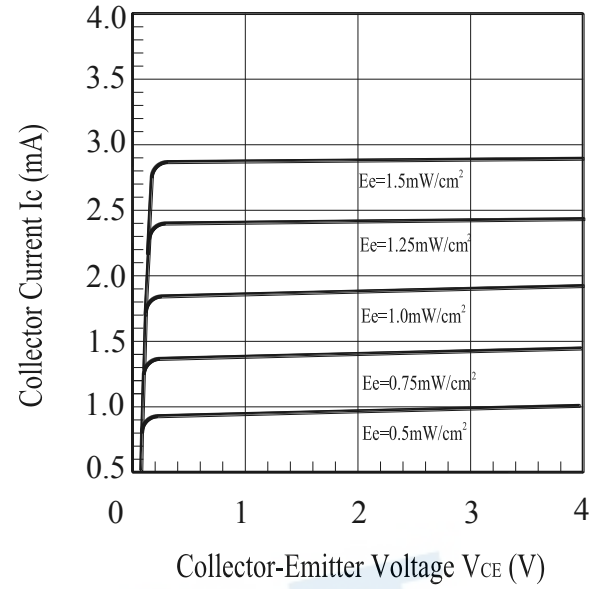
Typical Electrical/Optical/Characteristics Curves for PT



Collector Dark Current vs. Ambient Temperature

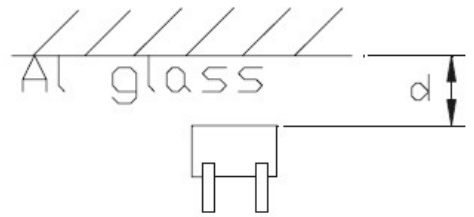
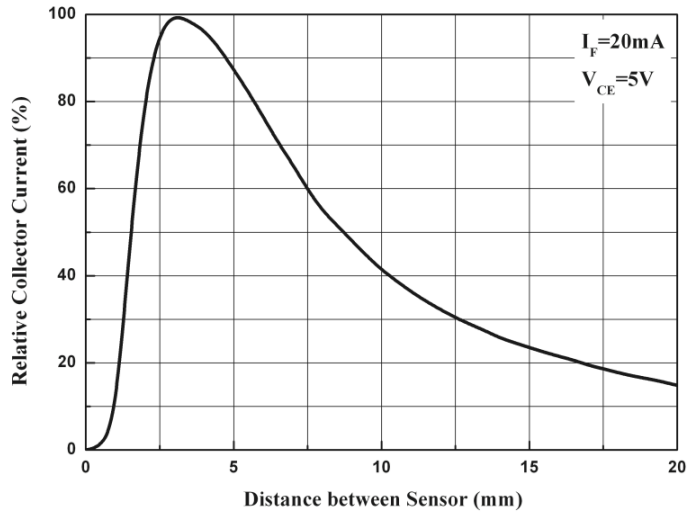


Collector Current vs. Collector-Emitter Voltage



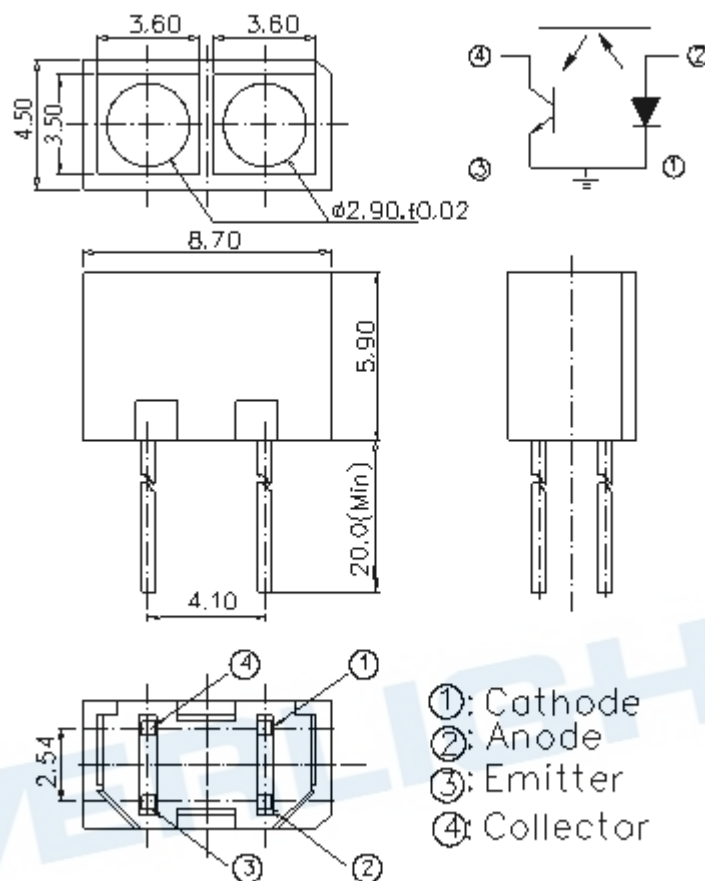
### Typical Electrical/Optical/Characteristics Curves for ITR

Relative Collector Current vs Distance Between Sensor



EVERLIGHT

## Package Dimension

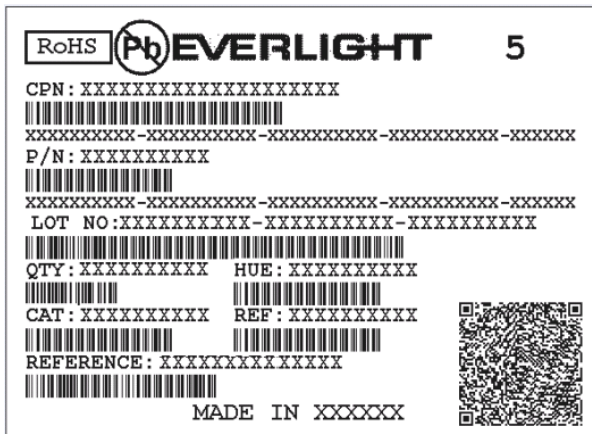


Note: Tolerances unless dimensions  $\pm 0.25\text{mm}$

**Packing Quantity Specification**

- 1. 150PCS/1 Bag, 5 Bags/1Box
- 2. 10Boxes/1Carton

**Label Form Specification**



- 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.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.