

## Opto Interrupter ITR9904



### 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

### Description

- ITR9904 is integrated of infrared emitting diode and NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing, the interrupter can be used as a switch when receiver part is obscured by objects.

### Applications

- Printer
- Stumpers
- Vending machine
- Opto switch

## 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	50	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>	20	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)  $t=5 \text{ Sec}$

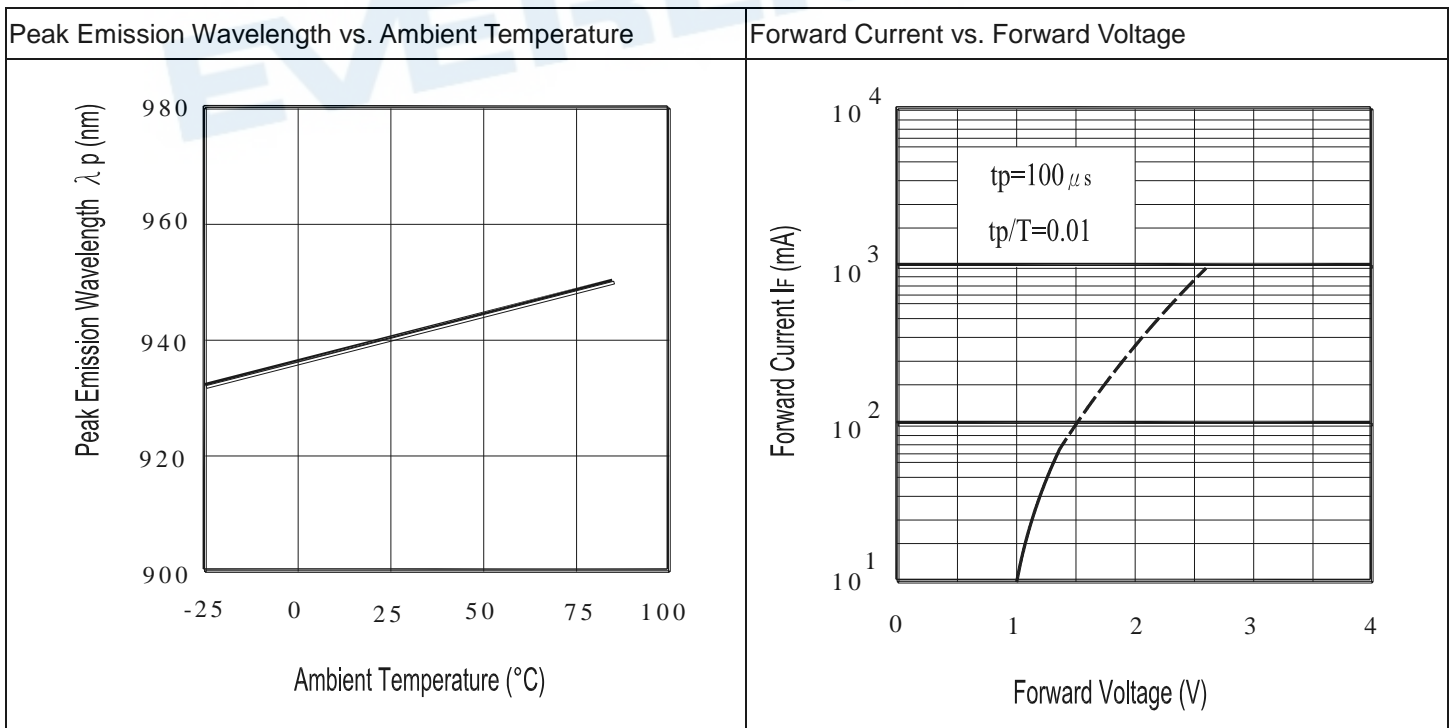
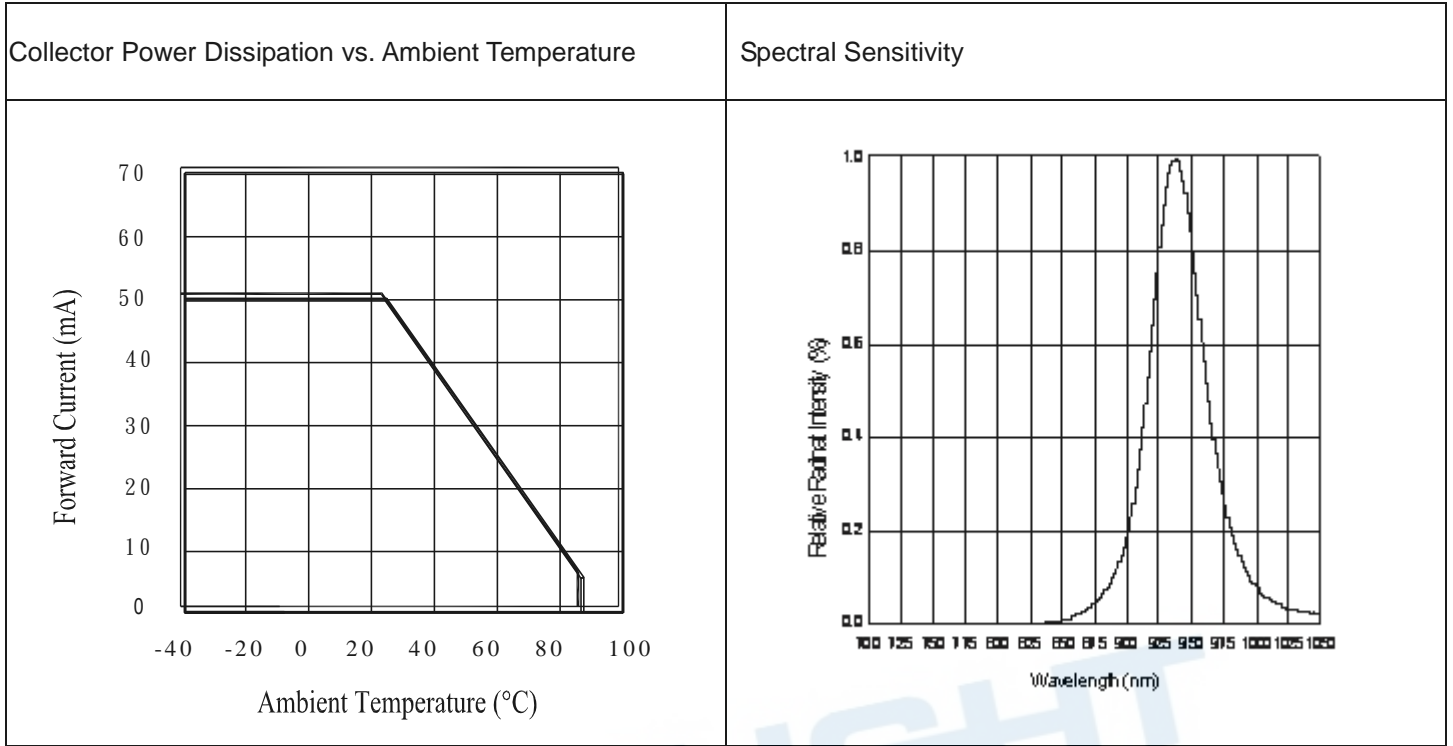
**Electro-Optical Characteristics (Ta=25°C)**

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input	Forward Voltage	$V_F$	---	1.2	1.5	V	$I_F=20mA$
	Reverse Current	$I_R$	---	---	10	$\mu A$	$V_R=5V$
	Peak Wavelength	$\lambda_P$	---	940	---	nm	$I_F=20mA$
Output	Dark Current	$I_{CEO}$	---	---	100	nA	$V_{CE}=20V, E_e=0mW/cm^2$
	C-E Saturation Voltage	$V_{CE(sat)}$	---	---	0.4	V	$I_C=0.1mA$ $I_F=20mA$
Transfer Characteristics	Collect Current	$I_C(on)A$	410	---	1250	$\mu A$	$V_{CE}=5V$ $I_F=20mA$
		$I_C(on)B$	830	---	2500		
		$I_C(on)C$	1670	---	5000		
	Rise time	$t_r$	---	15	---	$\mu sec$	$V_{CE}=2V$ $I_C=1mA$ $R_L=1000\Omega$
Fall time	$t_f$	---	15	---	$\mu sec$		

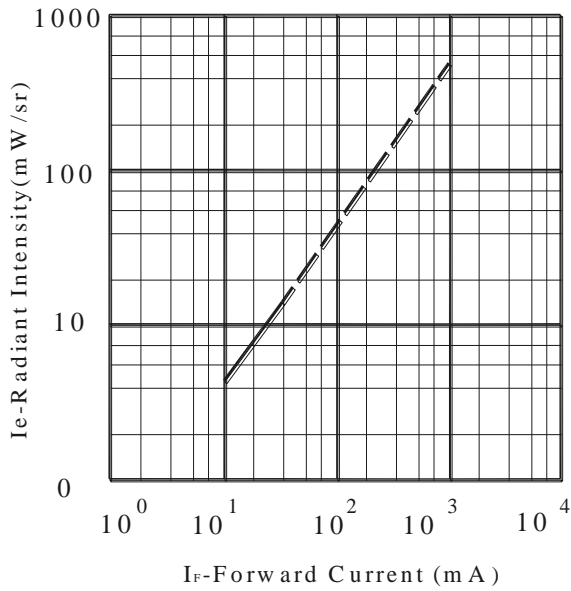
Note: Collect Current Bank use the New standard testing machine

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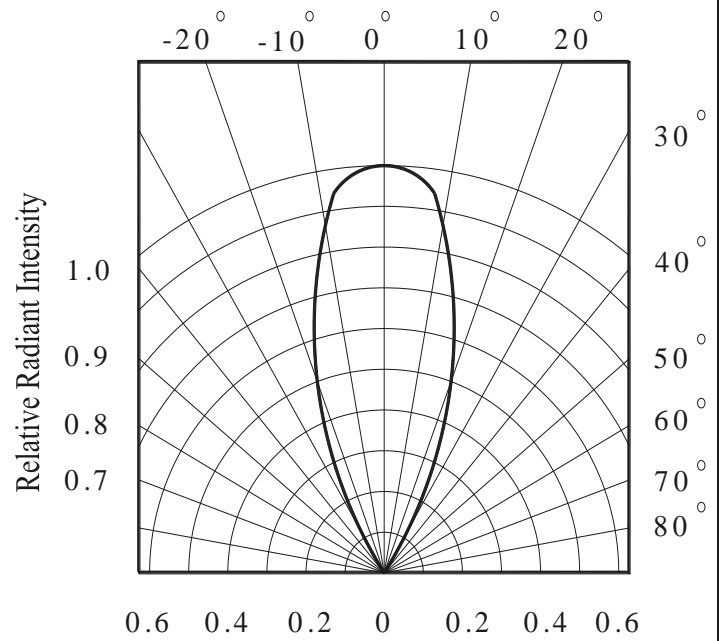
Typical Electrical/Optical/Characteristics Curves for IR



Relative Radiant Intensity vs Forward Current

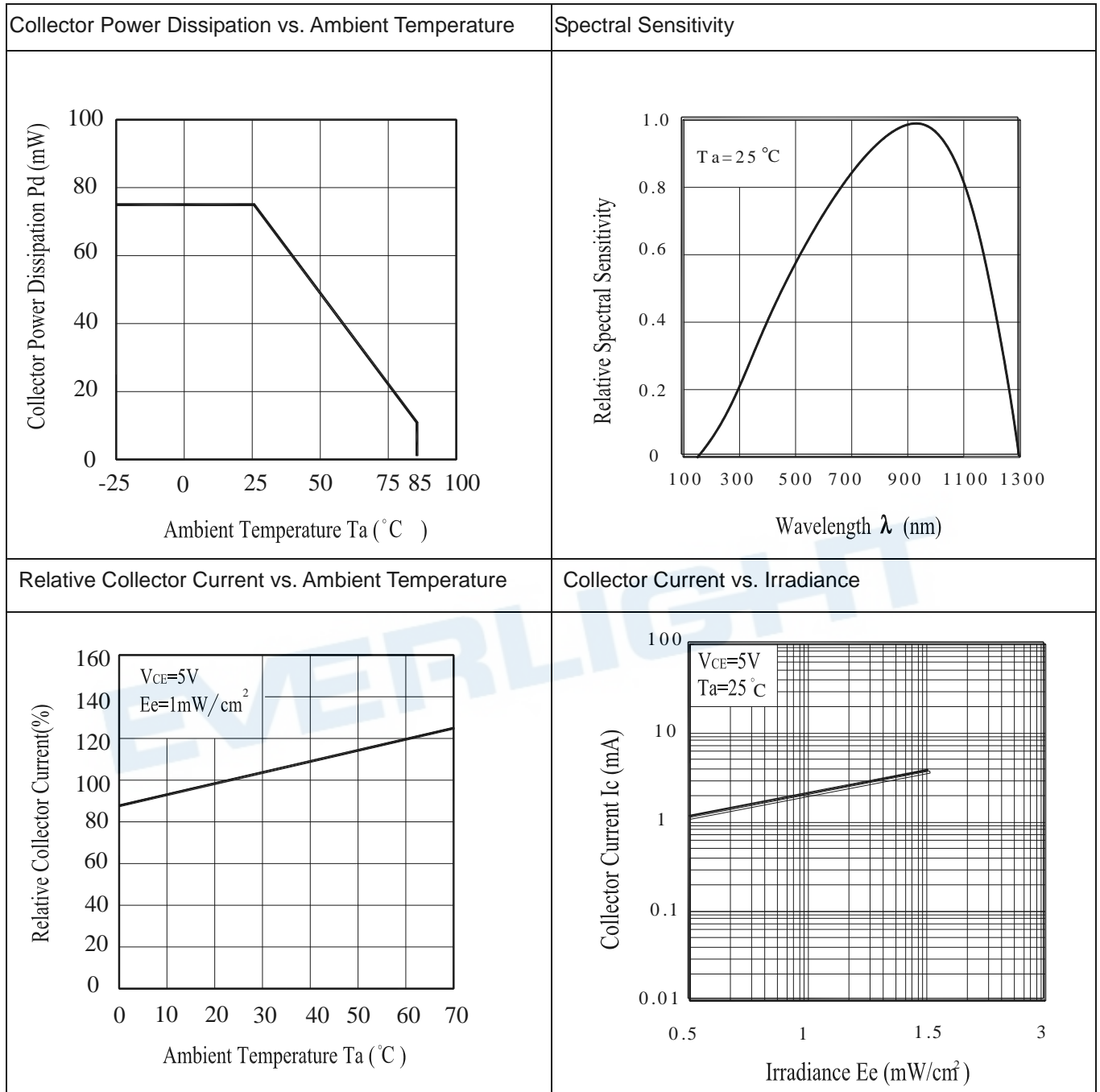


Relative Radiant Intensity vs Angular Displacement

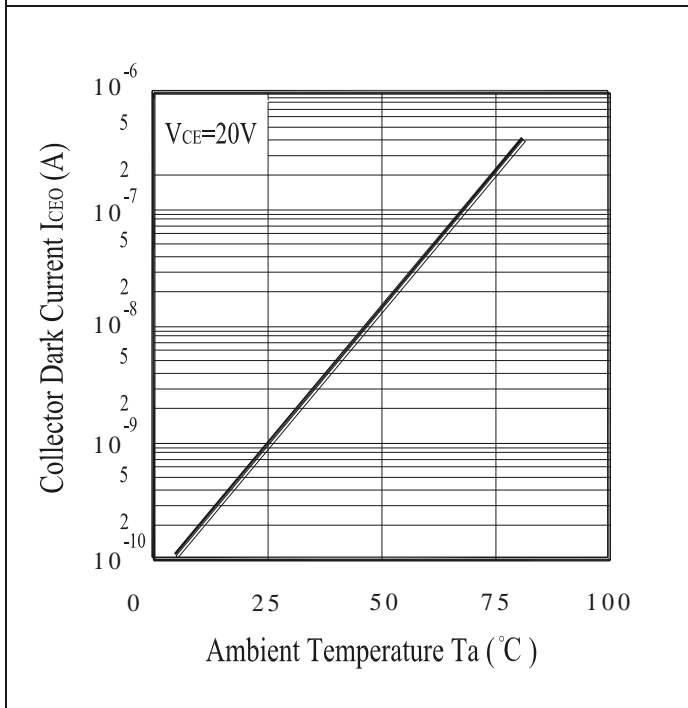


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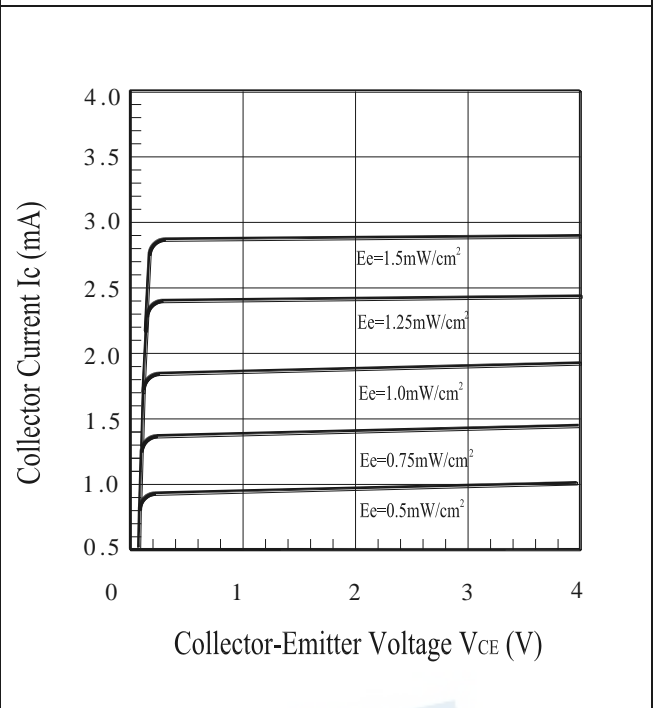
Typical Electrical/Optical/Characteristics Curves for PT



Collector Dark Current vs. Ambient Temperature

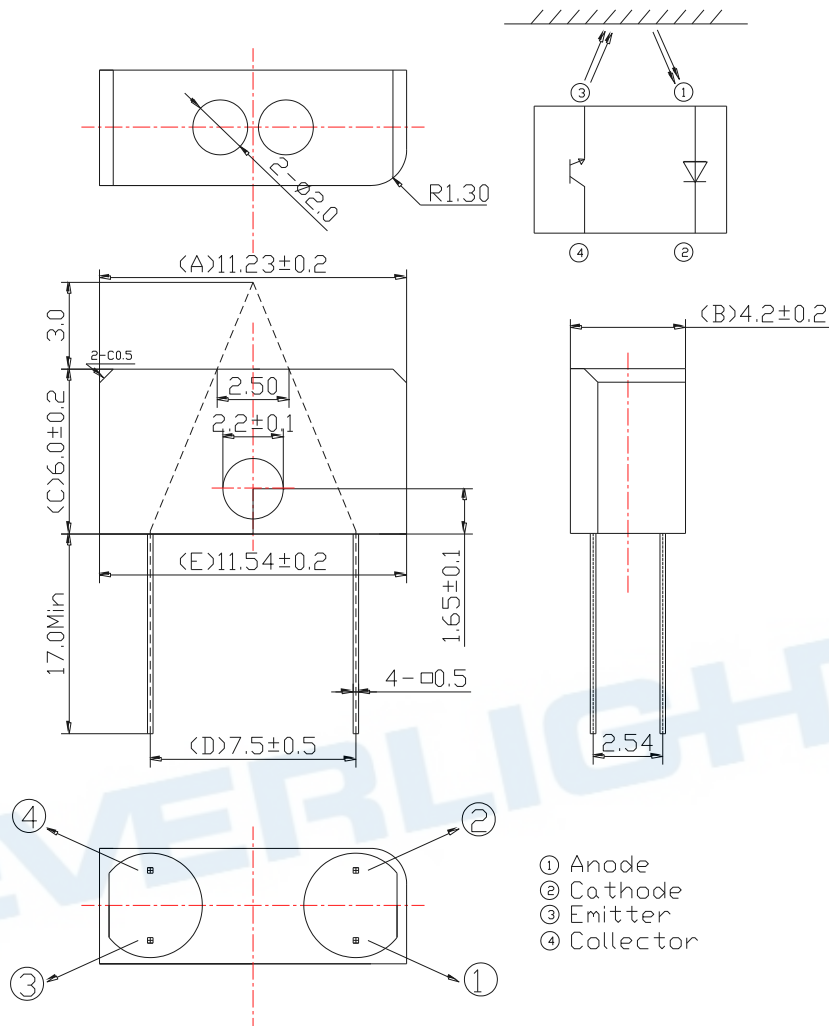


Collector Current vs. Collector-Emitter Voltage



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### Package Dimension



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



**Packing Quantity Specification**

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

**Label Form Specification**

CPN:  
P/N:  
ITR9904/F399(EO)  
QTY:  
LOT NO:  
Reference

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RoHS

CAT:  
HUE:  
REF:

Pb

X

- 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

**Notes**

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instruction for using 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.
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