



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Technical Data Sheet Opto Interrupter EAITRCA1

Features

- Fast response time
- High analytic
- High sensitivity
- Cut-off visible wavelength $\lambda_P=940\text{nm}$
- Pb Free
- This product itself will remain within RoHS compliant version.

Description

The **EAITRCA1** 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 receive the radiation.

Applications

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

Device Selection Guide

| Device No. | Chip Material | LENS COLOR |
|------------|---------------|-------------|
| IR | GaAlAs | Water clear |
| PT | Silicon | Water clear |

Absolute Maximum Ratings (Ta=25°C)

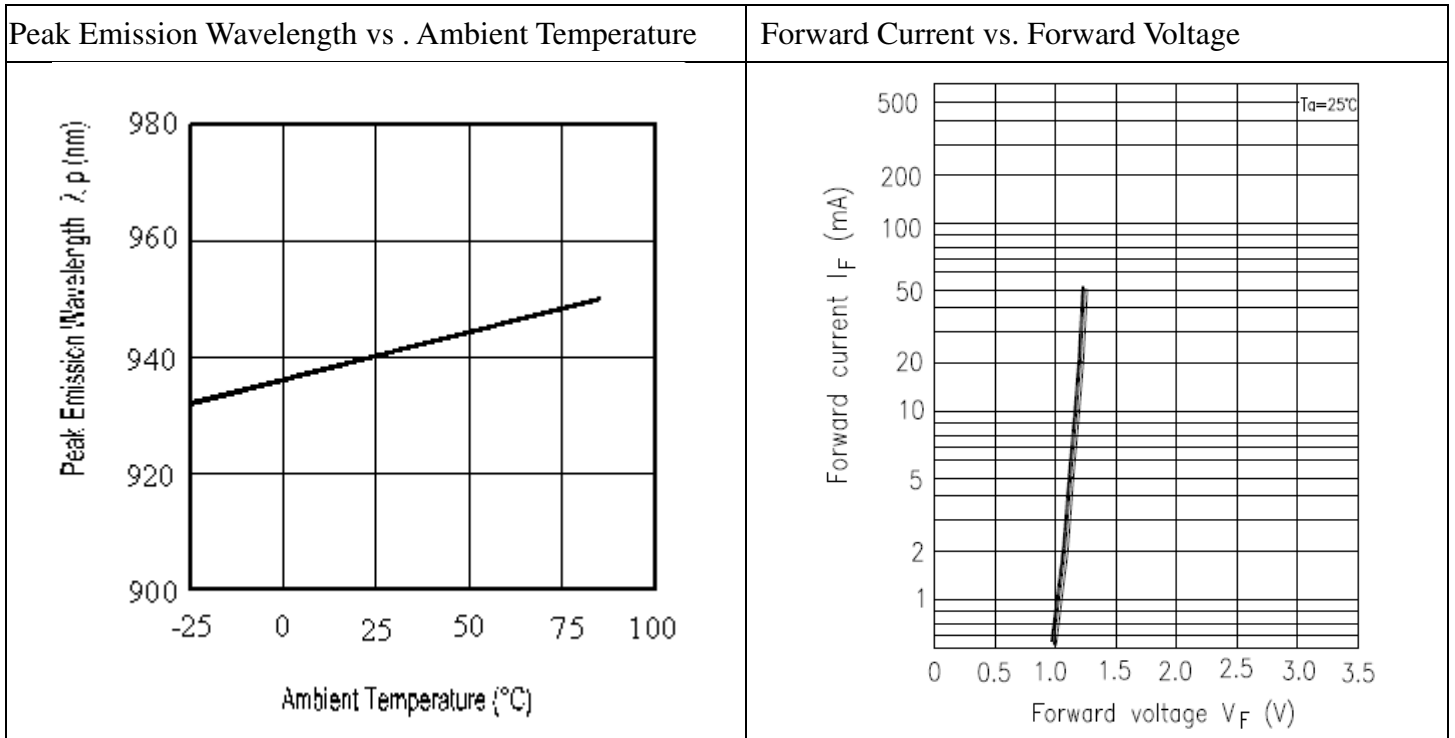
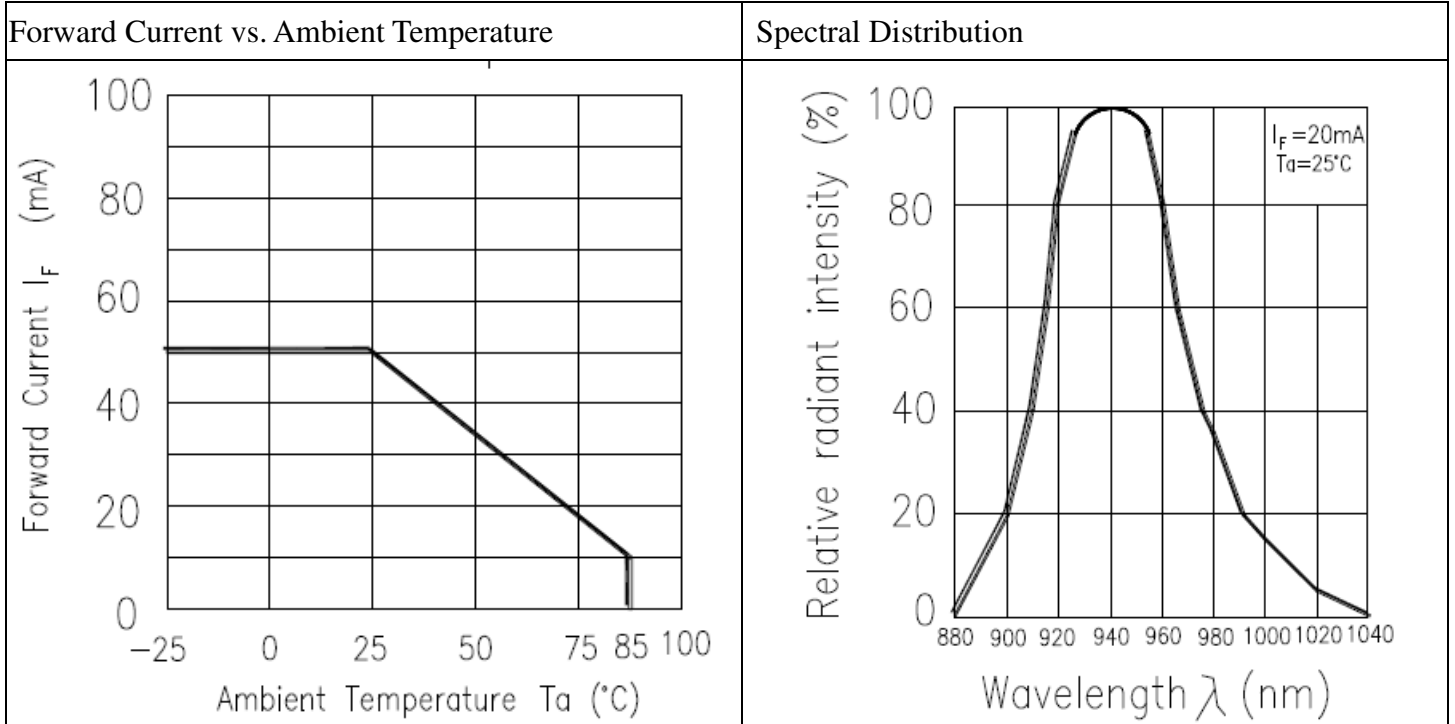
| Parameter | | Symbol | Ratings | Unit |
|---|---|--------------------|---------|------|
| Input | Power Dissipation at(or below) 25°C Free Air Temperature | Pd | 75 | mW |
| | Reverse Voltage | V _R | 5 | V |
| | Forward Current | I _F | 50 | mA |
| | Peak Forward Current (*1) Pulse width ≤100μs, Duty cycle=1% | I _{FP} | 1 | A |
| Output | Collector Power Dissipation | P _C | 75 | mW |
| | Collector Current | I _C | 20 | mA |
| | Collector-Emitter Voltage | B V _{CEO} | 30 | V |
| | Emitter-Collector Voltage | B V _{ECO} | 5 | V |
| Operating Temperature | | T _{opr} | -25~+85 | °C |
| Storage Temperature | | T _{stg} | -40~+85 | °C |
| Lead Soldering Temperature (*2) (1/16 inch form body for 5 seconds) | | T _{sol} | 260 | °C |

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

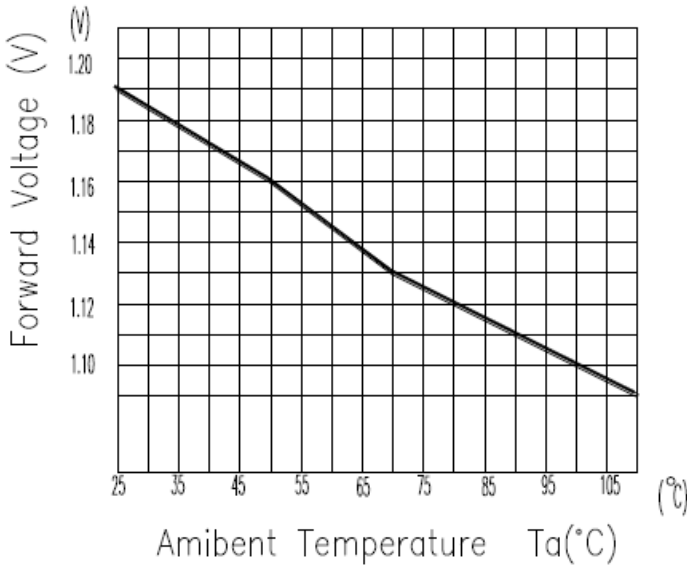
Electro-Optical Characteristics (Ta=25°C)

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Condition |
|-------------------------|------------------------|---------------|------|------|------|---------------|---|
| Input | Forward Voltage | V_F | - | 1.2 | 1.5 | V | $I_F=20\text{mA}$ |
| | Reverse Current | I_R | - | - | 10 | μA | $V_R=5\text{V}$ |
| | Peak Wavelength | λ_P | - | 940 | - | nm | $I_F=20\text{mA}$ |
| Output | Dark Current | I_{CEO} | - | - | 100 | nA | $V_{CE}=20\text{V}, E_e=0\text{mW/cm}^2$ |
| | C-E Saturation Voltage | $V_{CE(sat)}$ | - | - | 0.4 | V | $I_C=2\text{mA}, E_e=1\text{mW/cm}$ |
| Collector Current (* 3) | | $I_{C(ON)}$ | 0.9 | - | 15 | mA | $V_{CE}=5\text{V}, I_F=20\text{mA}$ |
| Response Time | Rise Time | t_R | - | 15 | - | μs | $V_{CE}=5\text{V} \quad I_C=1\text{mA} \quad R_L=1\text{K}\Omega$ |
| | Fall Time | t_F | - | 15 | - | μs | |

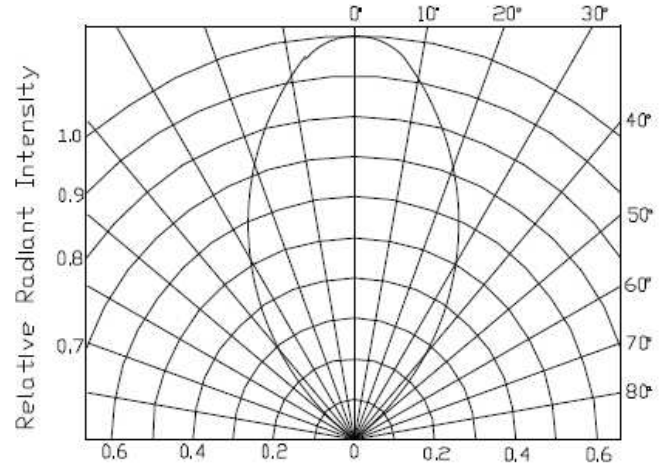
Typical Electrical/Optical/Characteristics Curves for IR



Forward Voltage vs. Ambient Temperature(°C)

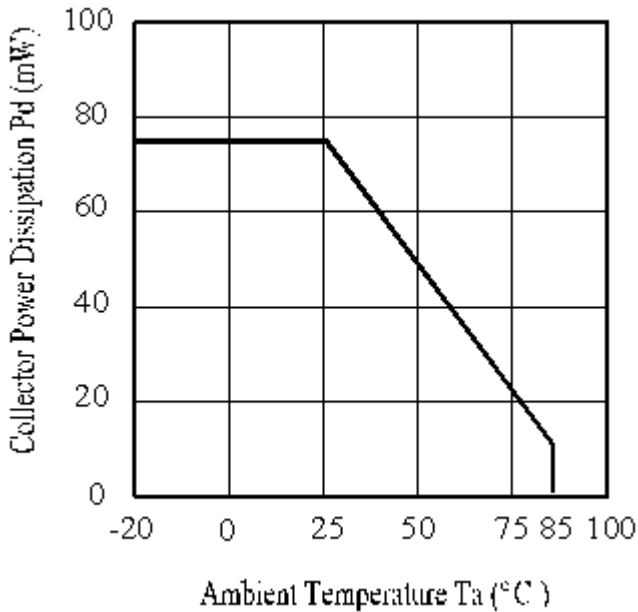


Relative Radiant Intensity vs. Angular Displacement

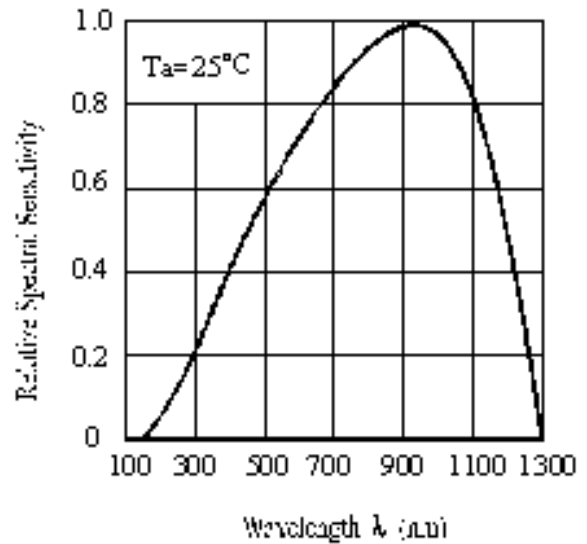


Typical Electro/Optical/Characteristics Curves for PT

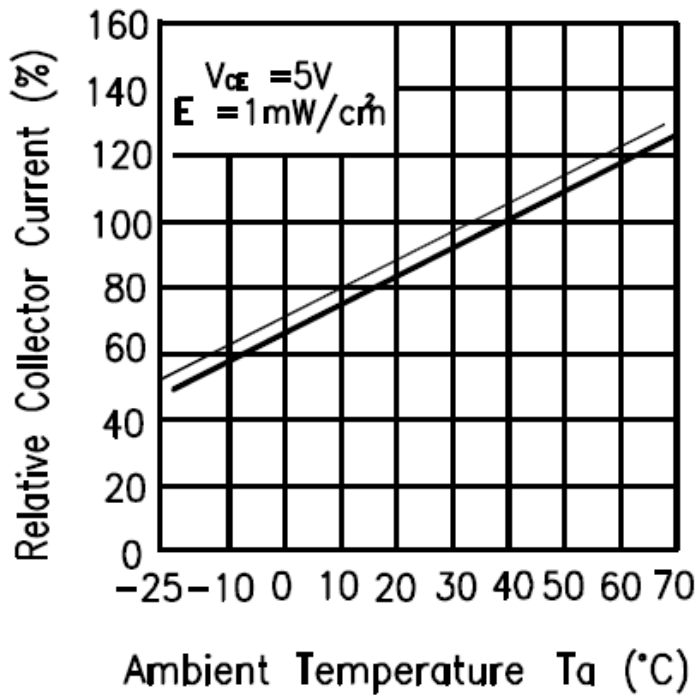
Collector Power Dissipation vs. Ambient Temperature



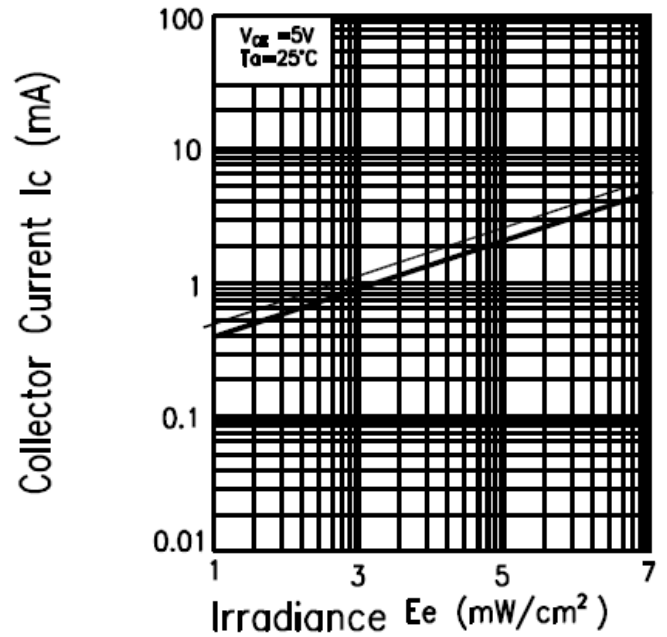
Spectral Distribution



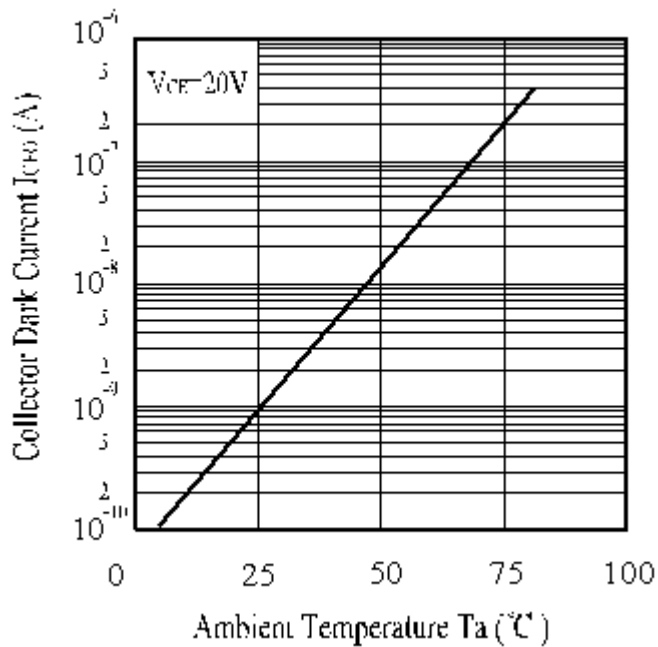
Relative Collector Current vs. Ambient Temperature



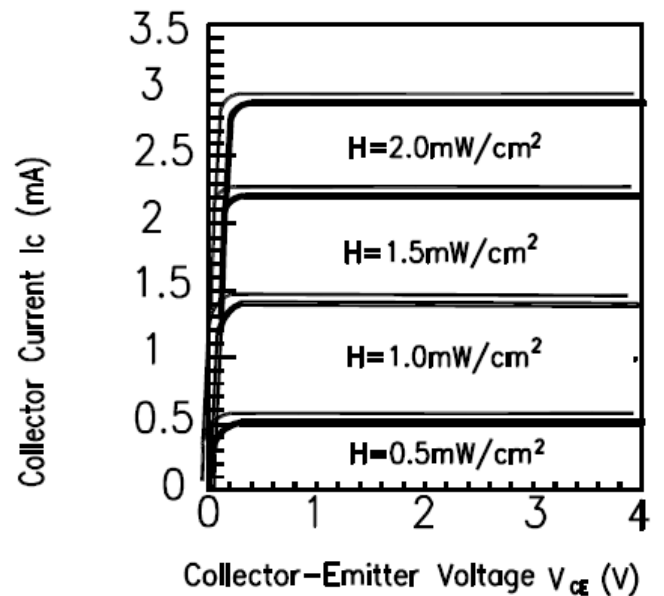
Collector Current vs. Irradiance



Collector Dark Current vs. Ambient Temperature



Collector Current vs. Collector-Emitter Voltage



Reliability Test Item And Condition

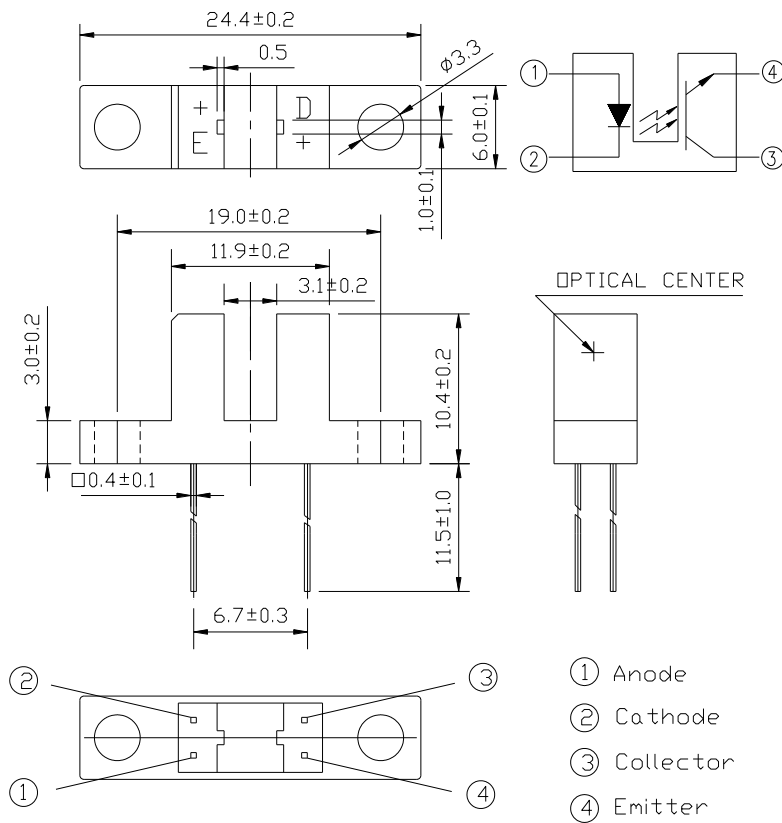
The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

| NO. | Item | Test Condition | Test Hours/ Cycle | Sample Size | Failure Judgement Criteria | Ac/Re |
|-----|----------------------------------|---|----------------------|-------------|--|-------|
| 1 | Solder Heat | TEMP : 260°C ± 5 °C | 10 sec | 22 PCs | Ic(on) ≤ L×0.8 L :Lower specification limit | 0/1 |
| 2 | Temperature Cycle | H : +100°C 15 mins ↑ 5 min ↓ L : -40°C 15 min | 300 cycle | 22 PCs | | 0/1 |
| 3 | Thermal Shock | H : +100°C 5 min ↑ 10 sec ↓ L : -10°C 5 min | 300 cycle | 22 PCs | | 0/1 |
| 4 | High Temperature Storage | TEMP. : +100°C | 1000 hrs | 22 PCs | | 0/1 |
| 5 | Low Temperature Storage | TEMP. : -40°C | 1000 hrs | 22 PCs | | 0/1 |
| 6 | DC Operating Life | V _{CE} =5V I _F =20mA | 1000 hrs | 22 PCs | | 0/1 |
| 7 | High Temperature / High Humidity | 85°C / 85% R.H. | 1000 hrs | 22 PCs | | 0/1 |

Package Dimension

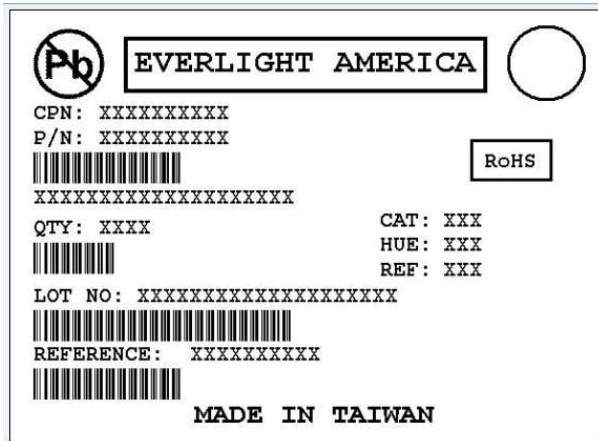


1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.2 mm
3. Lead spacing is measured where the lead emerge from the package
4. Above specification may be changed without notice. EVERLIGHT Americas will reserve authority on material change for above specification
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6. When using this product, please observe the absolute maximum ratings and the instructions for use outlined in these specification sheets. EVERIGHT Americas 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.

Packing Quantity Specification

1. 20pcs/1Tube, 100Tubes/1Box
2. 4Boxes/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

Notes

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