EVERLIGHT AMERICAS

DATASHEET

# EAPL2812RA2

## Features

- Side view LED.
- Lead frame package with individual 2 pins.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Pb-free.
- The product itself will remain within RoHS compliant version.

## Descriptions

- The EAPL2812 series is available in soft orange, green, red,blue and yellow. Due to the package design,the LED has wide viewing angle , low power consumption . This feature makes the LED ideal for light guide application.

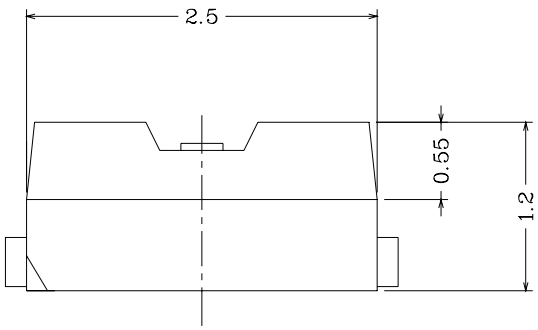
## Applications

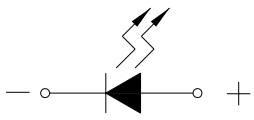
- LCD Back Light.
- Mobile phones .
- Indicators.
- Illuminations.
- Switch Lights.

## Device Selection Guide

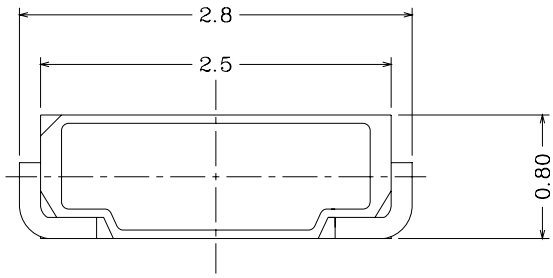
| Chip Material | Emitted Color | Resin Color |
|---|---|---|
| AlGaInP | Brilliant Red | Water Clear |

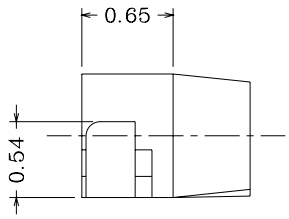
## Package Outline Dimensions

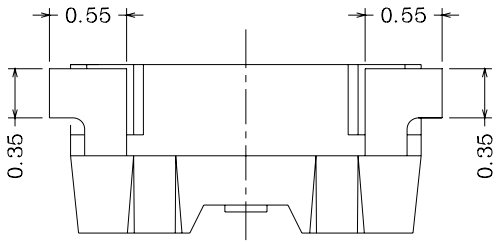


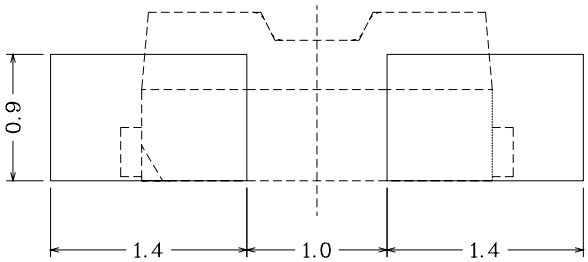
Polarity




Recommended soldering pad design



## Absolute Maximum Ratings (Ta=25℃)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 5 | V |
| Forward Current | $I_F$ | 50 | mA |
| Peak Forward Current(Duty 1/10 @ 1KHz) | $I_{FP}$ | 100 | mA |
| Power Dissipation | Pd | 120 | mW |
| Electrostatic Discharge(HBM) | ESD | 2000 | V |
| Operating Temperature | Topr | -40 ~ +85 | ℃ |
| Storage Temperature | Tstg | -40~ +100 | ℃ |
| Soldering Temperature | Tsol | Reflow Soldering : 260 ℃ for 10 sec.<br>Hand Soldering : 350 ℃ for 3 sec. | |

## Electro-Optical Characteristics (Ta=25℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---|---|---|---|---|---|---|
| Luminous Intensity | $I_V$ | 450 | --- | 900 | mcd | $I_F$=20mA |
| Viewing Angle | 2θ1/2 | ----- | 110 | ----- | deg | |
| Peak Wavelength | λp | ----- | 632 | ----- | nm | |
| Dominant Wavelength | λd | 617.5 | ----- | 633.5 | nm | |
| Spectrum Radiation Bandwidth | △λ | ----- | 20 | ----- | nm | |
| Forward Voltage | $V_F$ | 1.75 | --- | 2.35 | V | |
| Reverse Current | $I_R$ | ----- | ----- | 10 | uA | $V_R$=5V |

**Notes:**

1.Tolerance of Luminous Intensity ±11%

2.Tolerance of Forward Voltage ±0.1V

3.Tolerance of Dominant Wavelength ±1nm

## Bin Range of Luminous Intensity

| Bin Code | Min. | Max. | Unit | Conduction |
|---|---|---|---|---|
| U1 | 450 | 565 | mcd | $I_F$=20mA |
| U2 | 565 | 715 | | |
| V1 | 715 | 900 | | |

## Bin Rang of Dominant Wavelength

| Groups | Bin Code | Min. | Max. | Unit | Condition |
|---|---|---|---|---|---|
| A | E4 | 617.5 | 621.5 | nm | $I_F$=20mA |
| | E5 | 621.5 | 625.5 | | |
| | E6 | 625.5 | 629.5 | | |
| | E7 | 629.5 | 633.5 | | |

## Bin Range of Forward Voltage

| Groups | Bin Code | Min. | Max. | Unit | Condition |
|---|---|---|---|---|---|
| B | 0 | 1.75 | 1.95 | V | $I_F$=20mA |
| | 1 | 1.95 | 2.15 | | |
| | 2 | 2.15 | 2.35 | | |

**Notes:**

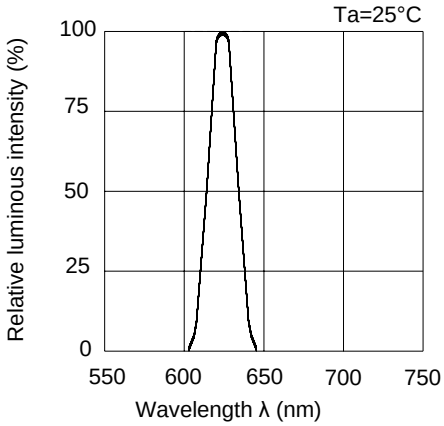
1.Tolerance of Luminous Intensity ±11%

2.Tolerance of Forward Voltage ±0.1V

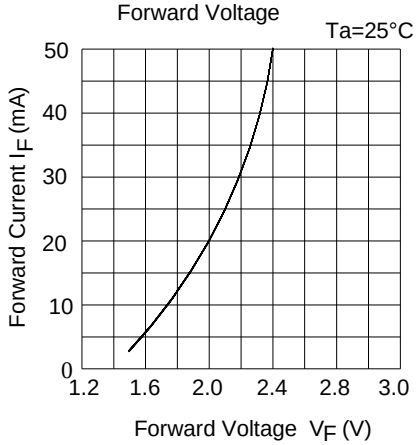
3.Tolerance of Dominant Wavelength ±1nm

# Typical Electro-Optical Characteristics Curves

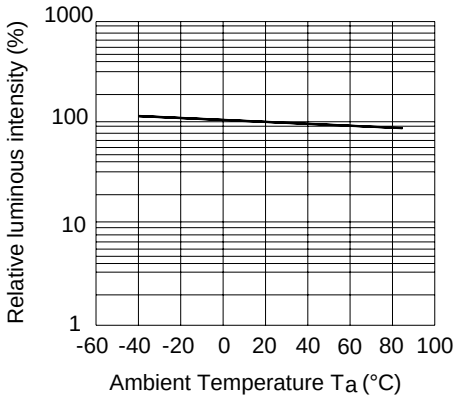
Spectrum Distribution



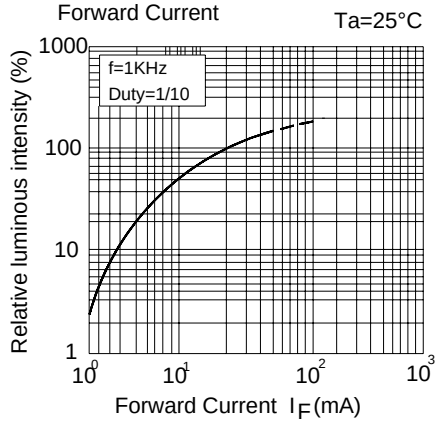

Forward Current vs. Forward Voltage



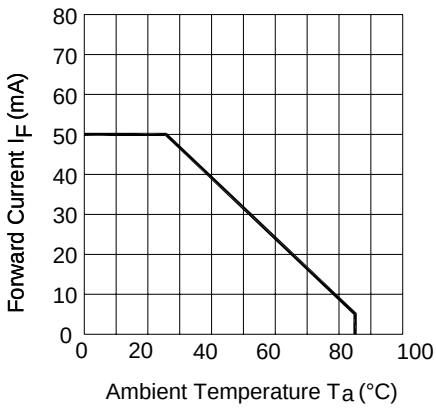

Relative Luminous Intensity vs. Ambient Temperature



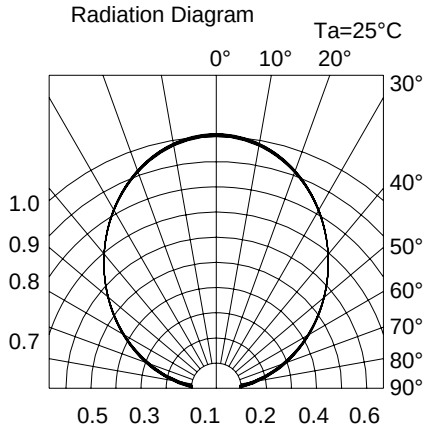

Relative Luminous Intensity vs. Forward Current




Forward Current Derating Curve




Radiation Diagram

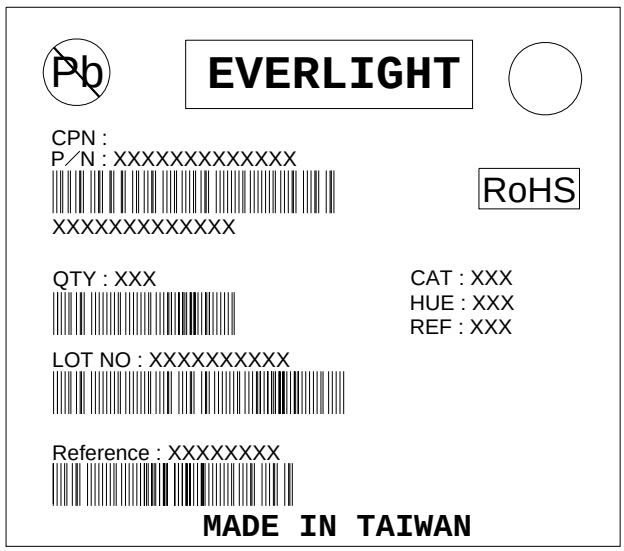


## Label Explanation

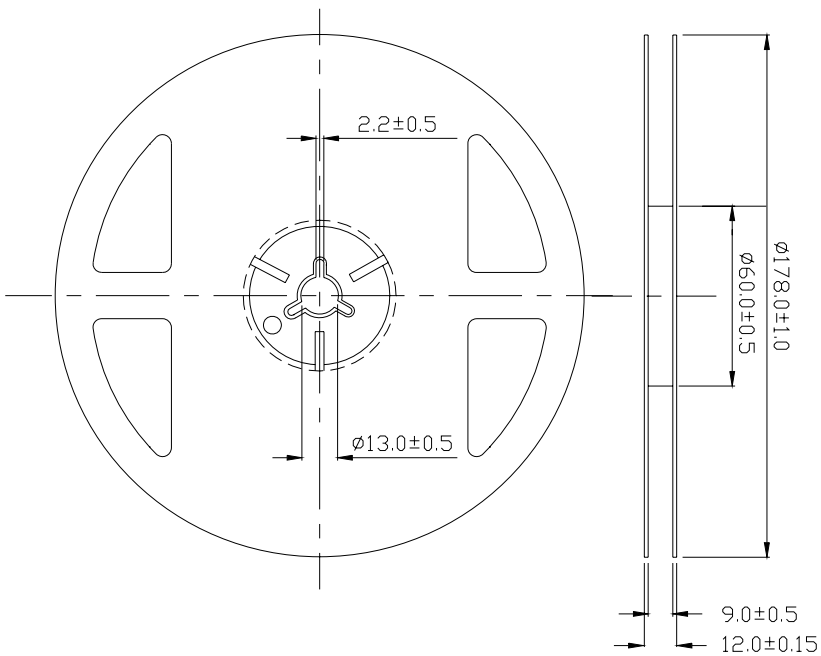
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

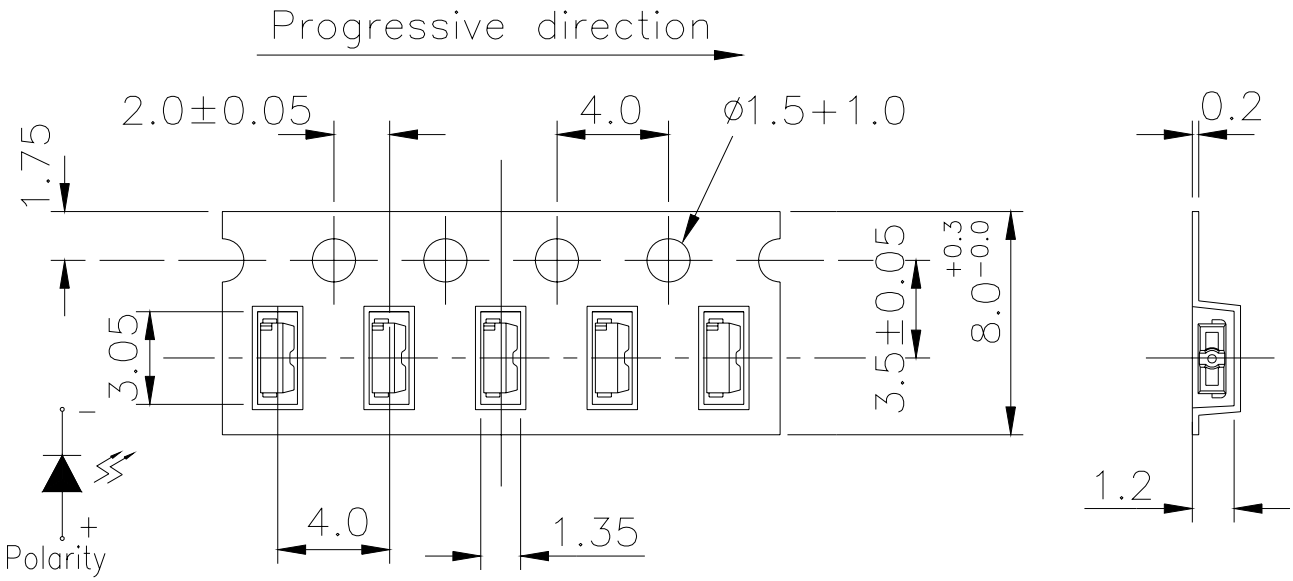



## Reel Dimensions



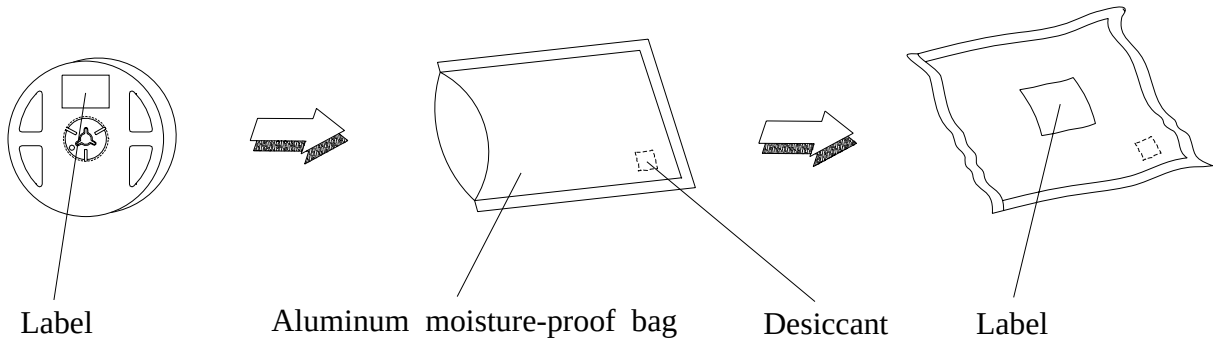

**Note:** The tolerances unless mentioned is: ±0.1mm, Unit = mm

## Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel




**Note:** The tolerances unless mentioned is ±0.1mm, Unit = mm

## Moisture Resistant Packaging



## Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

| No. | Items | Test Condition | Test Hours/Cycles | Sample Size | Ac/Re |
|---|---|---|---|---|---|
| 1 | Reflow Soldering | Temp. : 260℃±5℃<br>Max. 10 sec. | 6 Min. | 22 PCS. | 0/1 |
| 2 | Temperature Cycle | H : +100℃ 15min<br>∫ 5 min<br>L : -40℃ 15min | 300 Cycles | 22 PCS. | 0/1 |
| 3 | Thermal Shock | H : +100℃ 5min<br>∫ 10 sec<br>L : -10℃ 5min | 300 Cycles | 22 PCS. | 0/1 |
| 4 | High Temperature Storage | Temp. : 100℃ | 1000 Hrs. | 22 PCS. | 0/1 |
| 5 | Low Temperature Storage | Temp. : -40℃ | 1000 Hrs. | 22 PCS. | 0/1 |
| 6 | DC Operating Life | $I_F$ = 20 mA / 25℃ | 1000 Hrs. | 22 PCS. | 0/1 |
| 7 | High Temperature / High Humidity | 85℃/85%RH | 1000 Hrs. | 22 PCS. | 0/1 |

## Precautions for Use

1. Over-current-proof

   Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change ( Burn out will happen ).

2. Storage

   2.1 Do not open moisture proof bag before the products are ready to use.

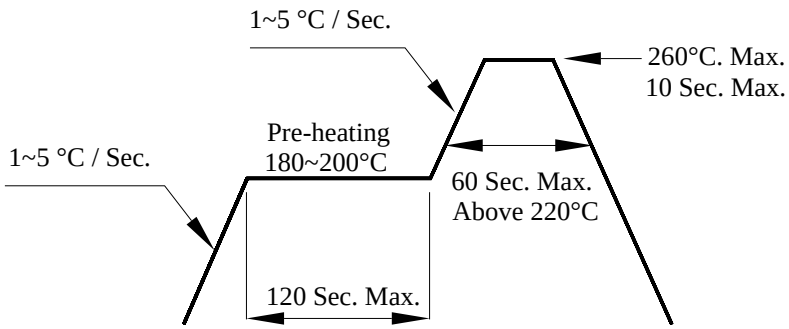
   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

   2.3 After opening the package: The LED's floor life are 4 weeks under 30℃ or less and 60% RH or less.If unused LEDs remain, it should be stored in moisture proof packages.

   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment : 60±5℃ for 24 hours.

3. Soldering Condition

   3.1 Pb-free solder temperature profile




   3.2 Reflow soldering should not be done more than two times.

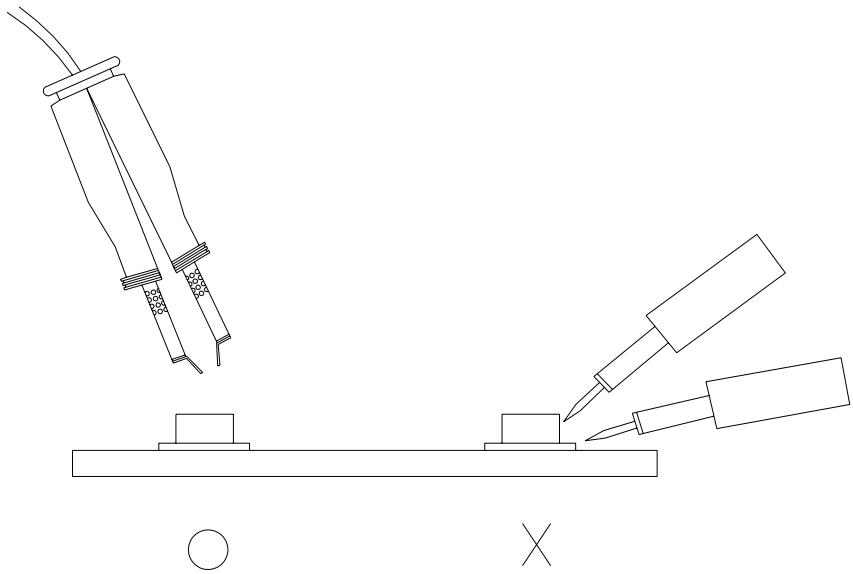
   3.3 When soldering, do not put stress on the LEDs during heating.

   3.4 After soldering, do not warp the circuit board.

Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. 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.



6. Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound