EVERLIGHT AMERICAS

DATASHEET

Top View ▪LED
EAPL3020RA0

Features

- P-LCC-2 package.
- White package.
- Optical indicator
- Colorless clear window
- Wide viewing angle.
- Suitable for vapor-phase reflow,infrared reflow and wave solder processes
- Computable with automatic placement equipment
- Available on tape and reel(8mm Tape)
- Pb-free.
- The product itself will remain within RoHS compliant version.

Descriptions

The EAPL3020RA0 series available in soft orange, green,blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the device ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at premium.

Applications

- Telecommunication:indicator and backlighting in telephone and fax
- Flat backlight for LCD, switch and symbol
- Light pipe application
- General use

Device Selection Guide

Chip Material	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Conduction
Q1	72	90	mcd	I_F=20mA
Q2	90	112		
R1	112	140		
R2	140	180		

Bin Range of Dominant Wavelength

Group	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

Group	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		

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominat Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	Pd	60	mW
Electrostatic Discharge(HBM)	ESD	2000	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	Tsol	Reflow Soldering: 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	72	-----	180	mcd	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	
Peak Wavelength	λp	---	632	---	nm	
Dominant Wavelength	λd	617.5	---	633.5	nm	
Spectrumm Radiation Bandwidth	Δλ	----	20	----	nm	
Forward Voltage	V_F	1.75	----	2.35	V	
Reverse Current	I_R	----	----	10	μA	V_R=5V

Notes:

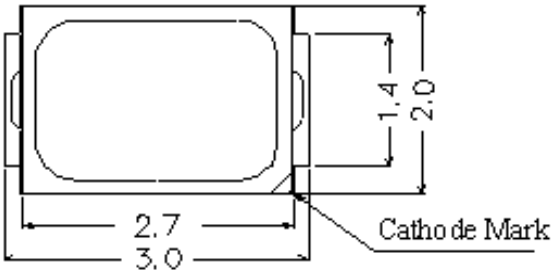
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

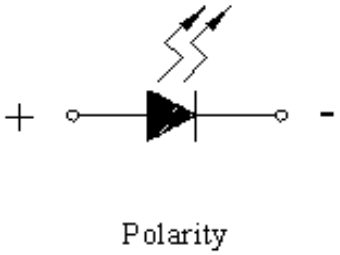
Reliability Test Items and Conditions

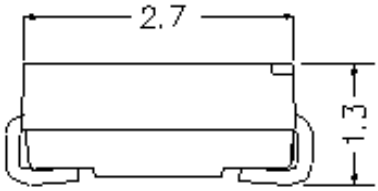
The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

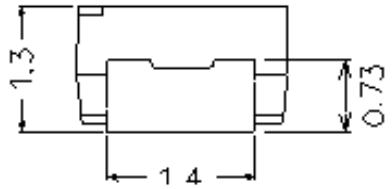
No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260℃±5℃ Min. 10 sec.	6 Min.	22 PCS	0/1
2	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature 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	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/85%RH	1000 Hrs.	22 PCS.	0/1

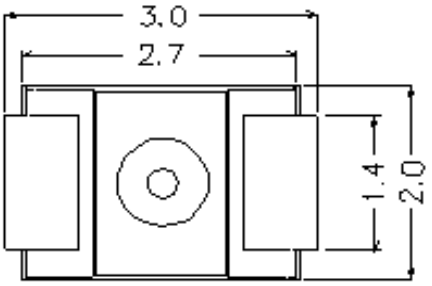
Package Outline Dimensions

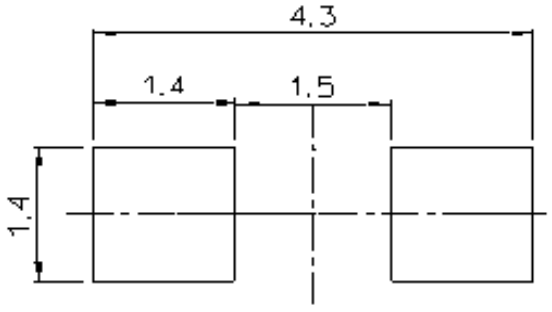








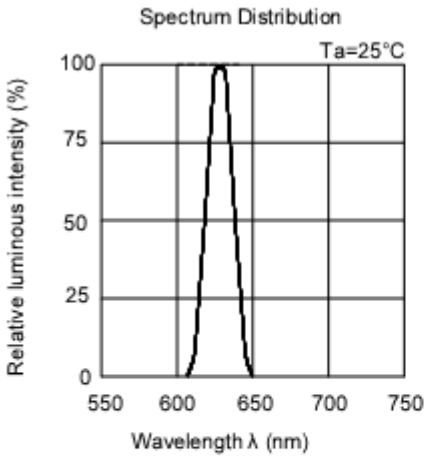


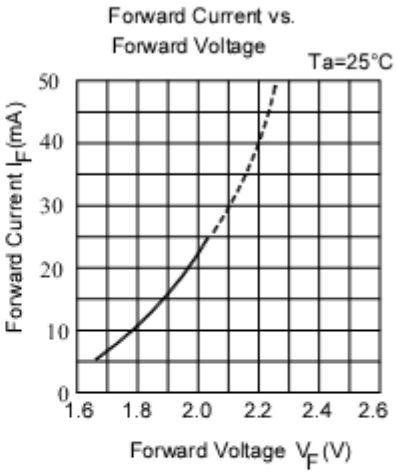


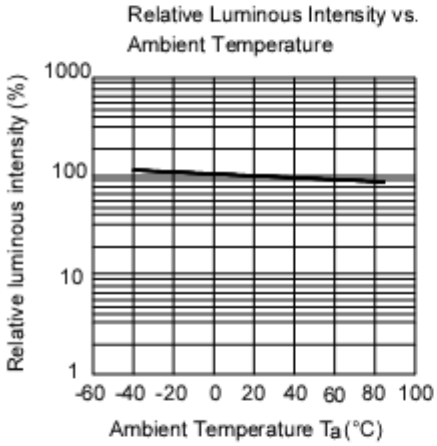
Recommended soldering pad design

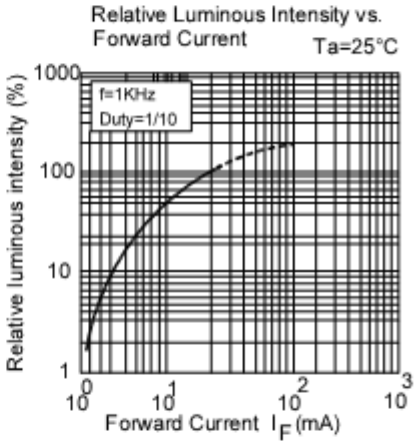
Note: Tolerances unless mentioned is ±0.1mm; Unit = mm.

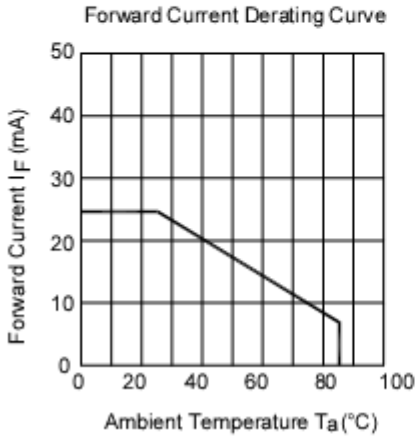
Typical Electro-Optical Characteristics Curves

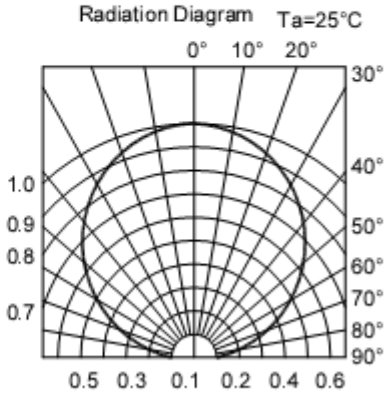










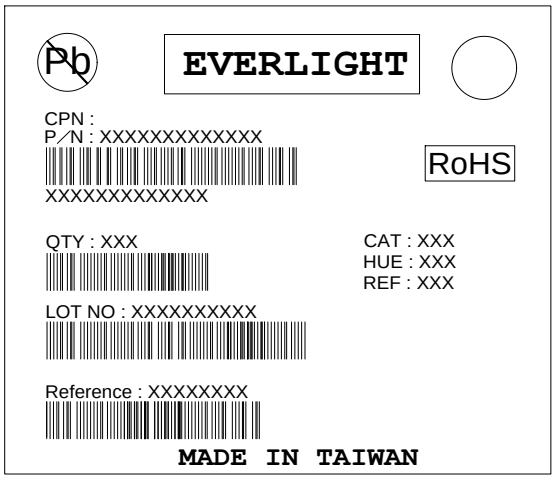


Label Explanation

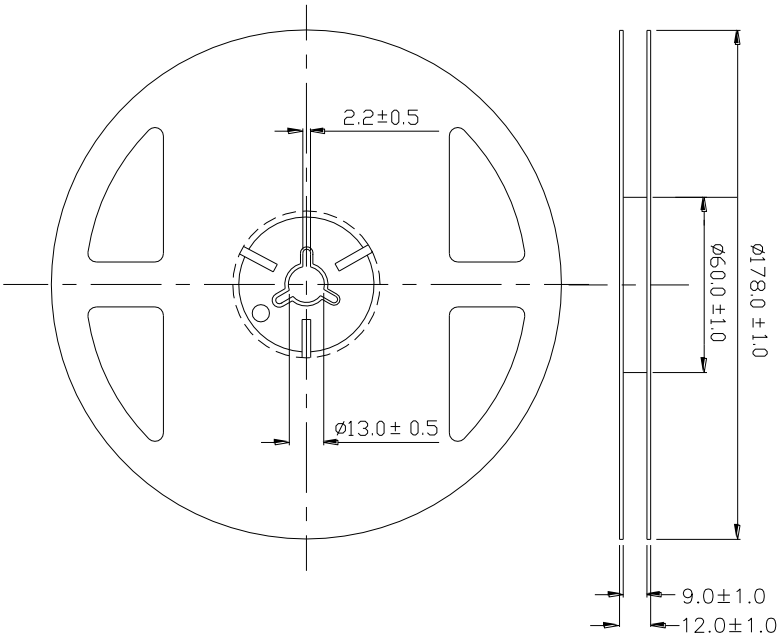
CAT: Luminous Intensity Rank

HUE: Dom.Wavelength Rank

REF: Forward Voltage Rank

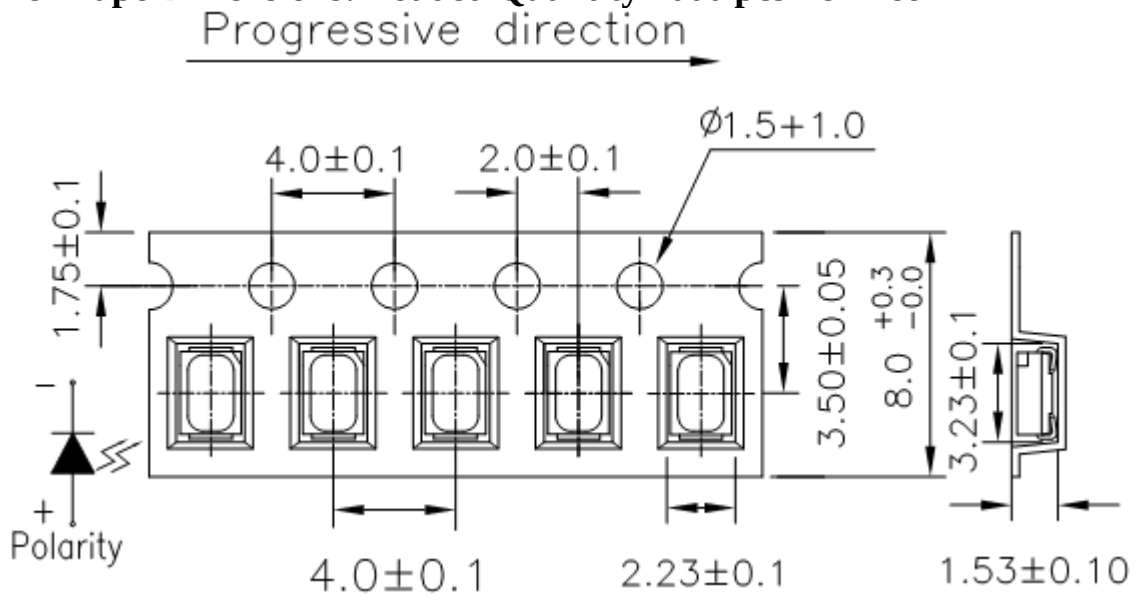


Reel Dimensions



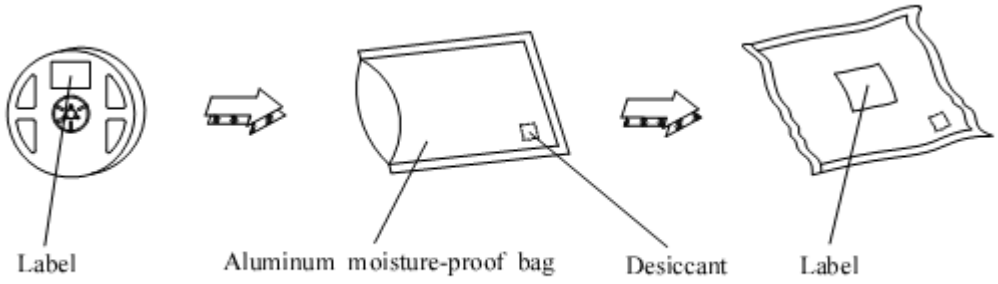
Note:.Tolerance unless mentioned is ±0.1mm; Unit = mm

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



Note: Tolerance unless mentioned is ±0.1mm; Unit = mm

Moisture Resistant Packaging



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.

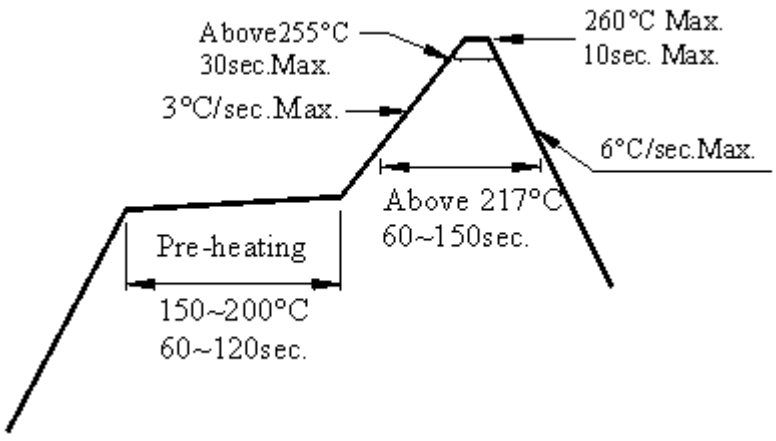
   2.2 Before opening the package: The LEDs should be used within one year and kept at 30℃ or less and 70%RH or less.

   2.3 After opening the package: We recommend that the LED should be soldered quickly (within 3 days).The soldering condition is 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.(One time only)

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.

4. Soldering Iron

   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.