

### SMD ▪ Top View LEDs EAPL3527RA1-AM

PRELIMINARY



#### Features

- P-LCC-2 package.
- Colorless clear resin.
- Wide viewing angle 120°.
- Inner reflector and white package.
- Brightness: 450 to 710 mcd at 20mA.
- Qualification according to AEC-Q101 rev C
- Precondition: Bases on JEDEC J-STD 020 Level 2.
- Automotive reflow profile (IR reflow or wave soldering)

#### Applications

- Automotive backlighting or indicator: Dashboard, switch, audio and video equipments...etc.
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Optical indicator.
- General applications.

## Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Super Red	Water Clear

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	12	V
Forward Current	$I_F$	70	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	120	mW
Junction Temperature	$T_j$	125	°C
Operating Temperature	$T_{opr}$	-40 ~ +100	°C
Storage Temperature	$T_{stg}$	-40 ~ +110	°C
Thermal Resistance	$R_{th\ J-A}$	500	K/W
	$R_{th\ J-S}$	300	K/W
ESD (Classification acc. AEC Q101)	$ESD_{HBM}$	2000	V
	$ESD_{MM}$	200	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	450	---	710	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	---	639	---	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	618	---	630	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	Δλ	---	20	---	nm	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	1.7	---	2.6	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	---	---	10	μA	V <sub>R</sub> =12V

Note:

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

### Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
U1	450	560	mcd	I <sub>F</sub> =20mA
U2	560	710		

Note:

Tolerance of Luminous Intensity: ±11%

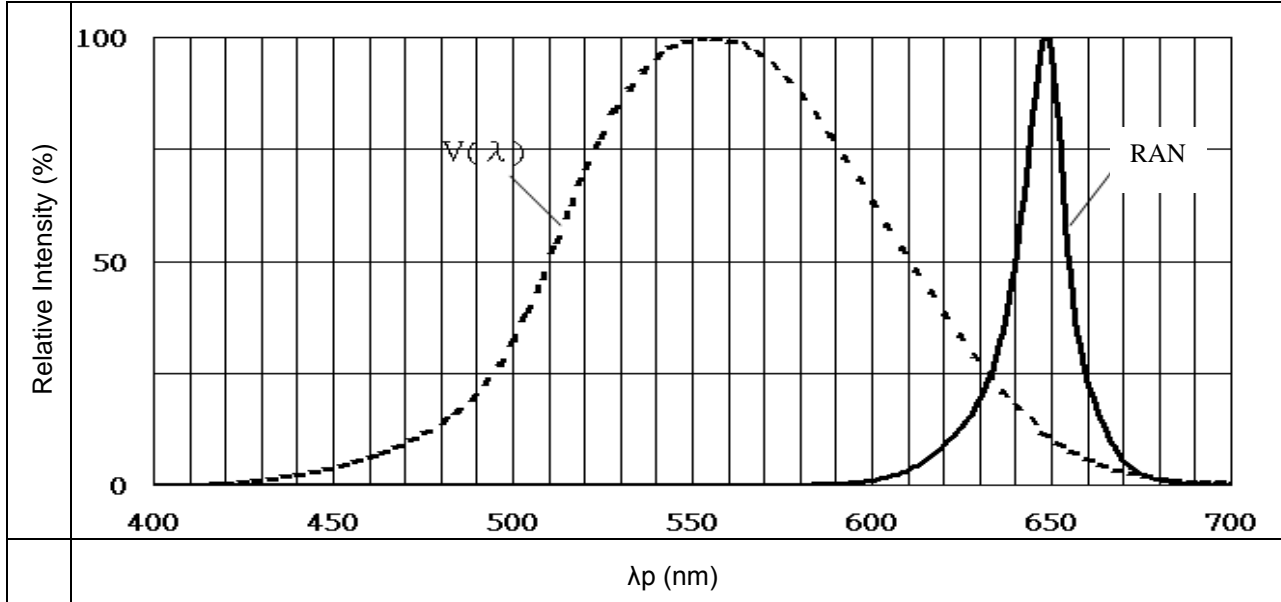
### Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
1	618	624	nm	I <sub>F</sub> =20mA
2	624	630		

Note:  
Tolerance of Dominant Wavelength: ±1nm

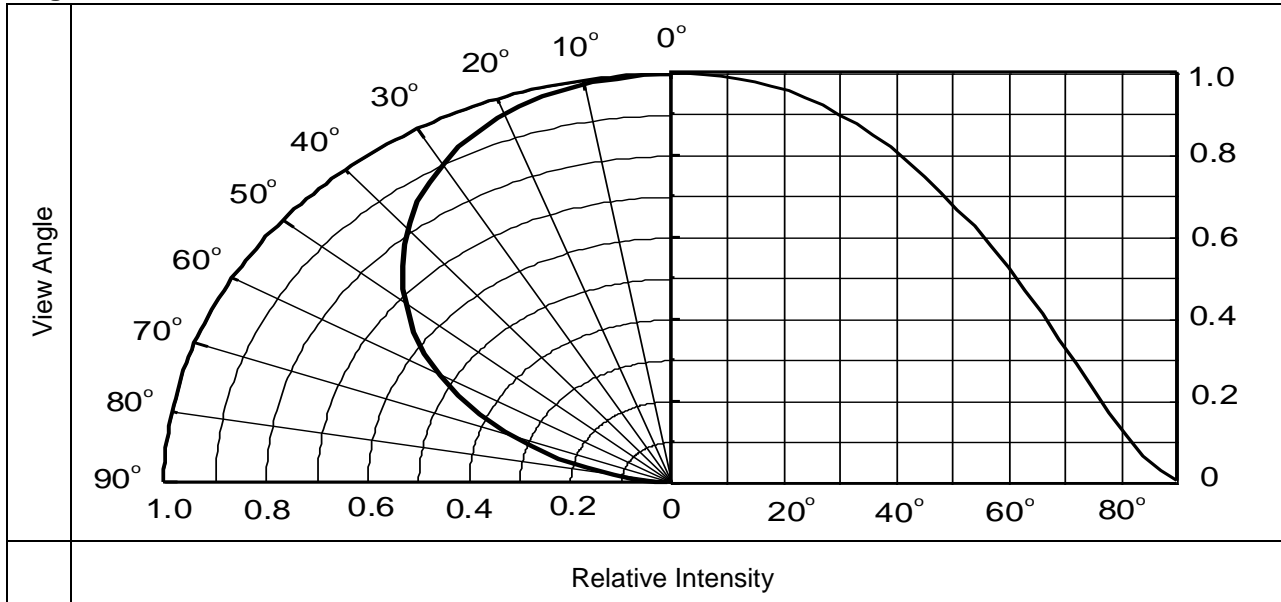
## Typical Electro-Optical Characteristics Curves

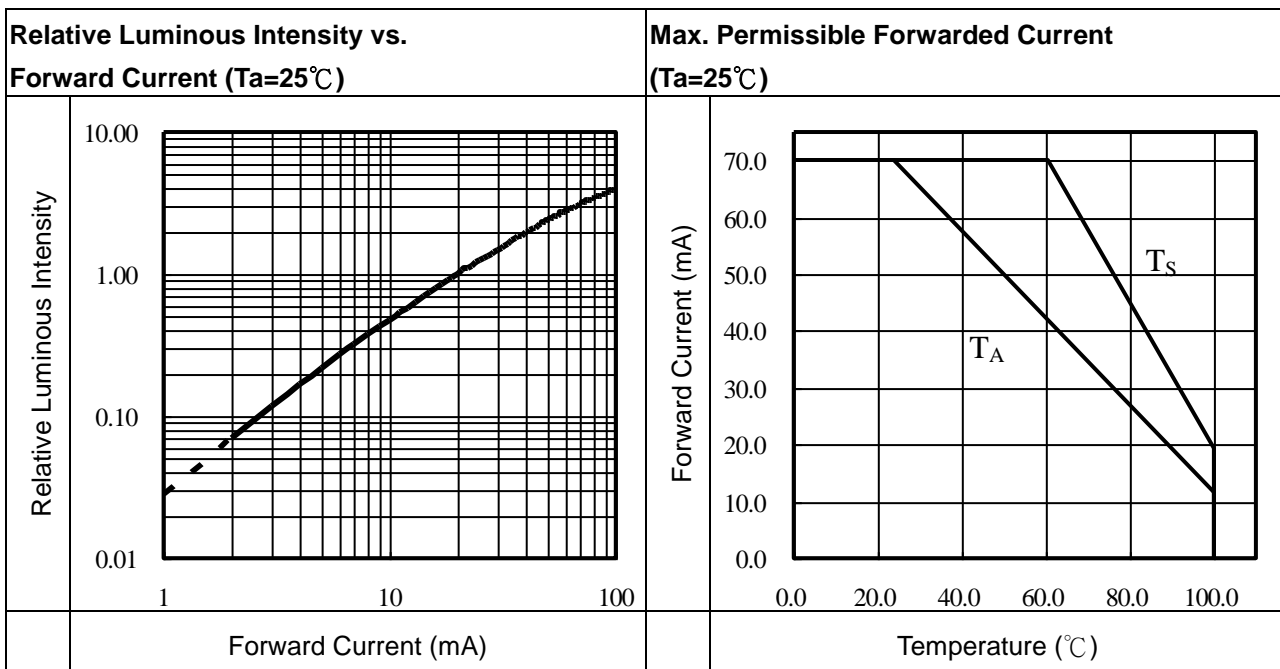
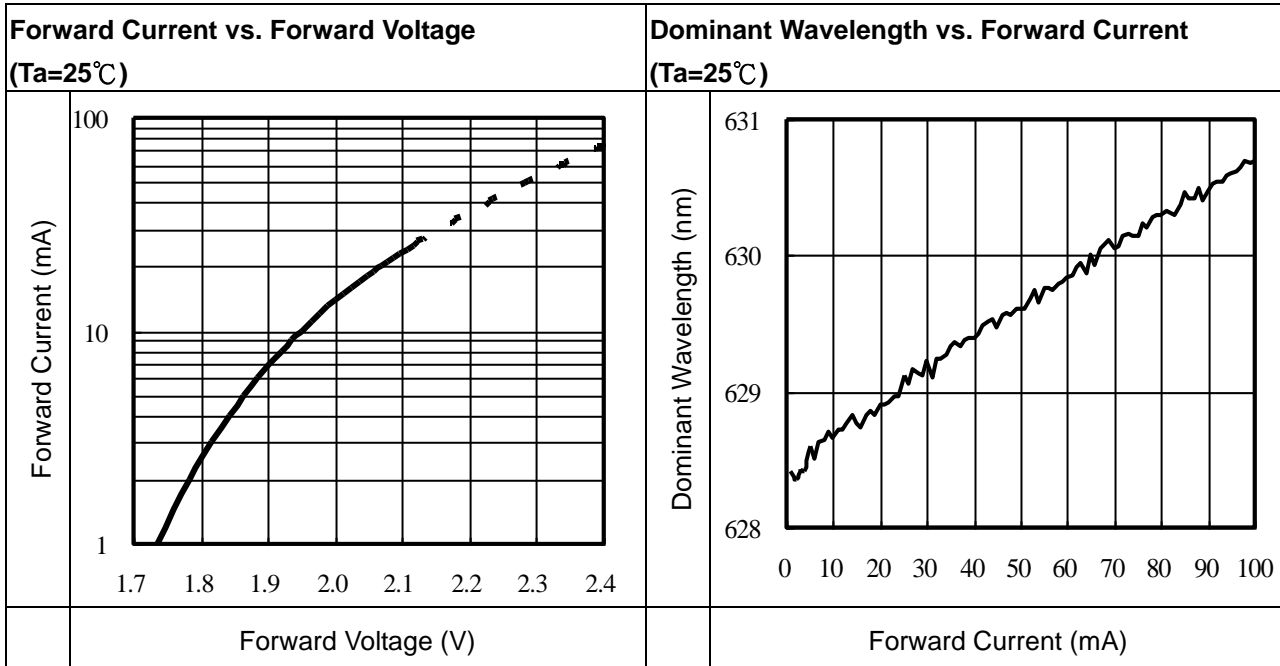
Typical Curve of Spectral Distribution



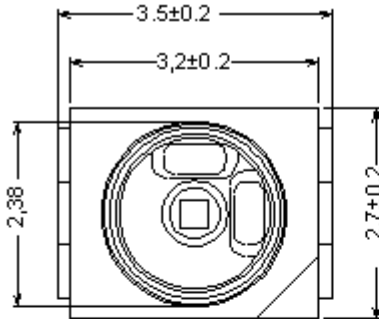
Note:  $V(\lambda)$ =Standard eye response curve;  $I_F = 20\text{mA}$

Diagram Characteristics of Radiation

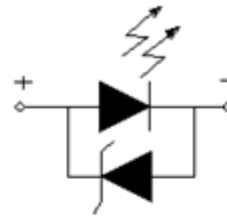




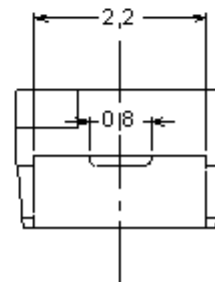
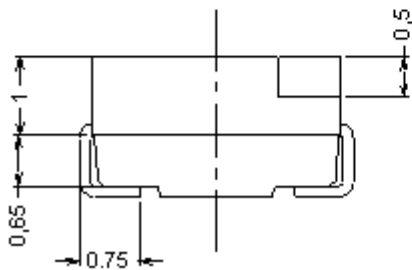
## Package Dimension



Chip position



Polarity



Note: Tolerances unless mentioned  $\pm 0.1$  mm. Unit = mm

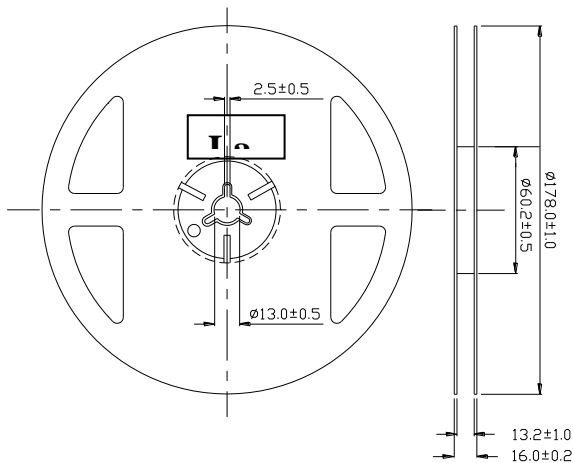
## Moisture Resistant Packing Materials

### Label Explanation

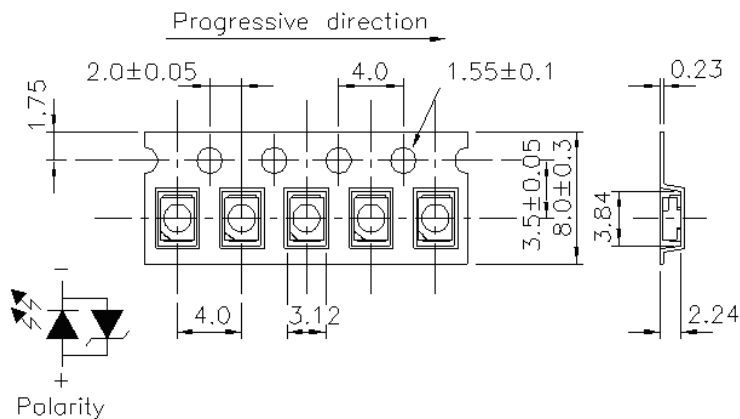


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

### Reel Dimensions



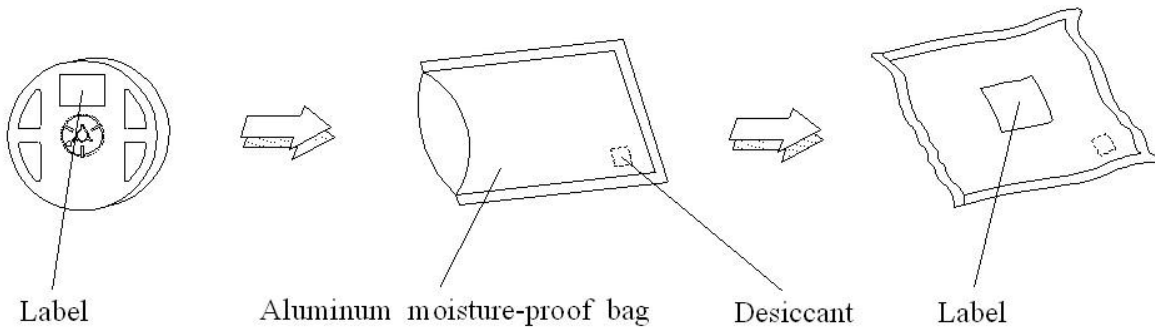
### Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm



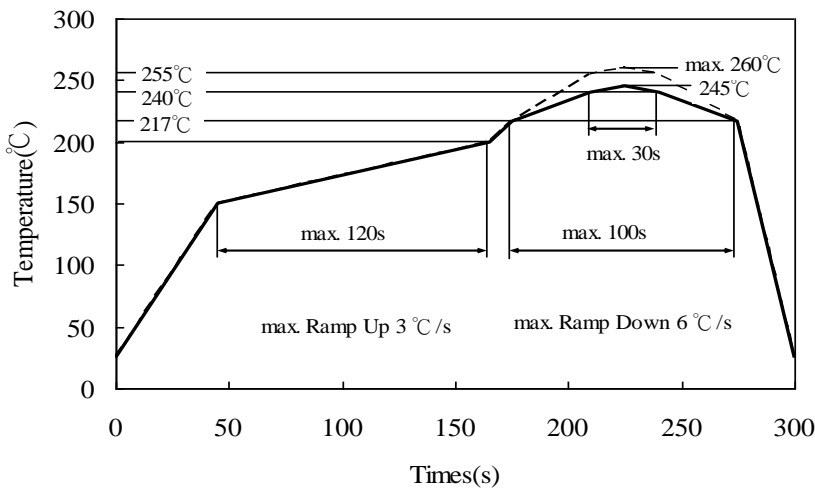
**Moisture Resistant Packing Process**



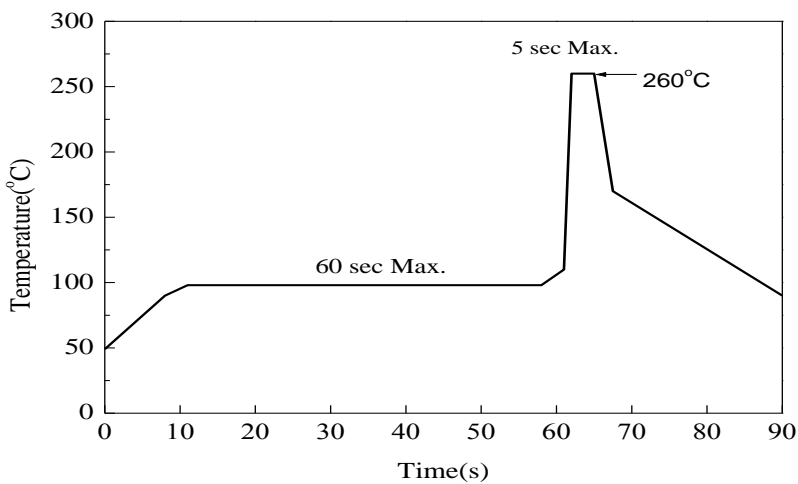
Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

**Precautions for Use**

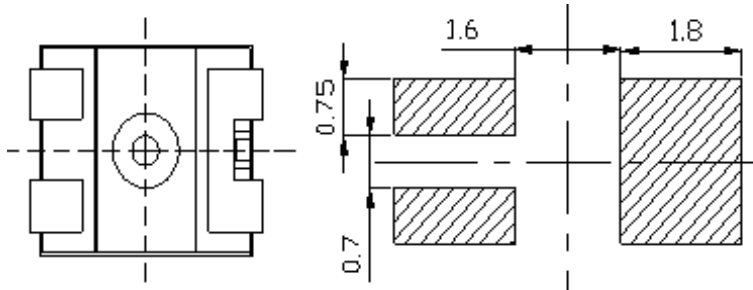
1. **Soldering Condition (Reference: IPC/JEDEC J-STD-020D)**
  - a. **IR reflow**



- b. **Wave soldering reflow**



(B) Recommend soldering pad



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

## 2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

## 3. Storage

3.1 Moisture proof bag should only be opened immediately prior to usage.

3.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

3.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

3.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg  $\pm 5$ deg for 24 hours.

## 4. Iron Soldering

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350°C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

## 5. Usage

Do not exceed the values given in this specification.