



# American Opto Plus LED Corp.

## L955MOC-S

3.5 x 2.8 x 1.9mm Orange PLCC2

### MAIN FEATURES:

- Low current requirement
- Wide viewing angle
- IR Reflow Soldering
- I.C. compatible

### DATA SHEET UPDATE HISTORY:

- **VERSION 1.0 – February 6, 2014**
- **VERSION 1.1 – February 10, 2014**
- **VERSION 1.2 – February 24, 2014**
- **REVISION 1.0 – July 9, 2014**
  - Package dimensions updated
  - Absolute Max Ratings
    - DC Forward Current revised to 30 mA
    - Power Dissipation adjusted to 125 mW
    - Junction Temperature, Solder Point, and Ambient added
  - Color bin code 3 removed from table
  - Chromaticity Diagram CIE 1931 added
  - Forward Current vs. Ambient Temperature curve revised



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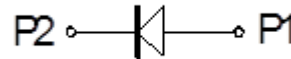
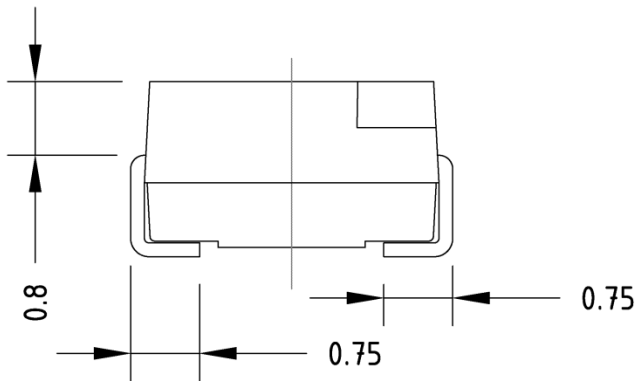
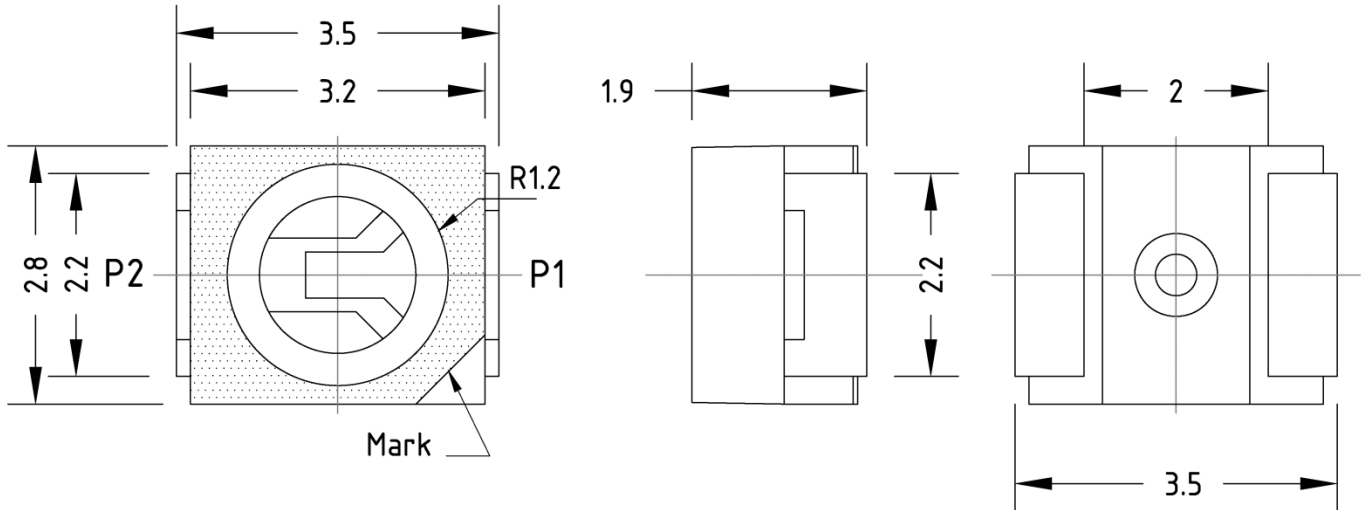
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### PACKAGE OUTLINES:



Item	Materials
Package	Heat-Resistant Polymer
Encapsulating Resin	Silicone
Electrodes	Ag Plating Copper Alloy

Chip Material	Chip Emitted	Lens Color	Viewing Angle
AllnGaP/Si	Orange	Clear	120

### NOTES:

1. All dimensions are in millimeters (inches);
2. Electrical Connection between all Cathodes is Recommended

### ABSOLUTE MAXIMUM RATINGS



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Parameter	Symbol	Value	Unit
DC Forward current	I <sub>f</sub>	30	mA
Reverse voltage	V <sub>r</sub>	5	V
Power dissipation	P <sub>d</sub>	125	mW
Junction Temperature	T <sub>j</sub>	115	°C
Junction / Solder Point	R <sub>th Js</sub>	600	°C/W
Junction / Ambient	R <sub>th JA</sub>	500	°C/W
Operating temperature range	T <sub>op</sub>	-30~+100	°C
Storage temperature range	T <sub>stg</sub>	-40~+100	°C
Peak Pulsed Forward Current*	I <sub>fp</sub>	100	mA
Solder Dipping Temperature	T <sub>sld</sub>	260°C for 5 sec	

## OPTICAL-ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Peak Wavelength	λ <sub>peak</sub>	I <sub>F</sub> = 20mA	--	610	--	nm
Spectral half bandwidth	Δλ <sub>1/2</sub>	I <sub>F</sub> = 20mA	--	20	--	nm
Dominant Wavelength	λ <sub>dom</sub>	I <sub>F</sub> = 20mA	600	605	610	nm
Forward Voltage	V <sub>f</sub>	I <sub>F</sub> = 20mA	--	2.1	2.4	V
Luminous intensity	I <sub>v</sub>	I <sub>F</sub> = 20mA	520	800	--	mcd
Reverse current	I <sub>r</sub>	V <sub>r</sub> =5V	--	--	50	μA



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## LUMINOUS INTENSITY BIN TABLE

IF=20mA

Rank Name	Min (mcd)	Max (mcd)
M	520	680
N	680	880
P	880	1150

Tolerance for each bin limit is  $\pm 15\%$

## COLOR BIN TABLE

IF=20mA

Rank Name	Min (mcd)	Max (mcd)
1	600	605
2	605	610

Tolerance for each bin limit is  $\pm 1\text{nm}$

1					2				
x	0.6119	0.6269	0.6481	0.6322	x	0.6322	0.6481	0.6656	0.6489
y	0.3704	0.3725	0.3514	0.3503	y	0.3503	0.3514	0.3341	0.3339

### Note

1. One delivery will include several color ranks and Iv ranks of products. The quantity-ratio of the different rank is decided by AOP.
2. Bin Name typed on the Label: IV RANK + Color Rank + VF RANK For Example, BIN P2 Means IV: 880~1150mcd, Color: 605~610nm
3. Static Electricity or Surge Voltage damages the LEDs. It is recommended to use a wrist band or Anti- Electrostatic glove when handling the LEDs.
4. AOP has the right to update the information without notice. Please double confirm the Spec details before place an order.



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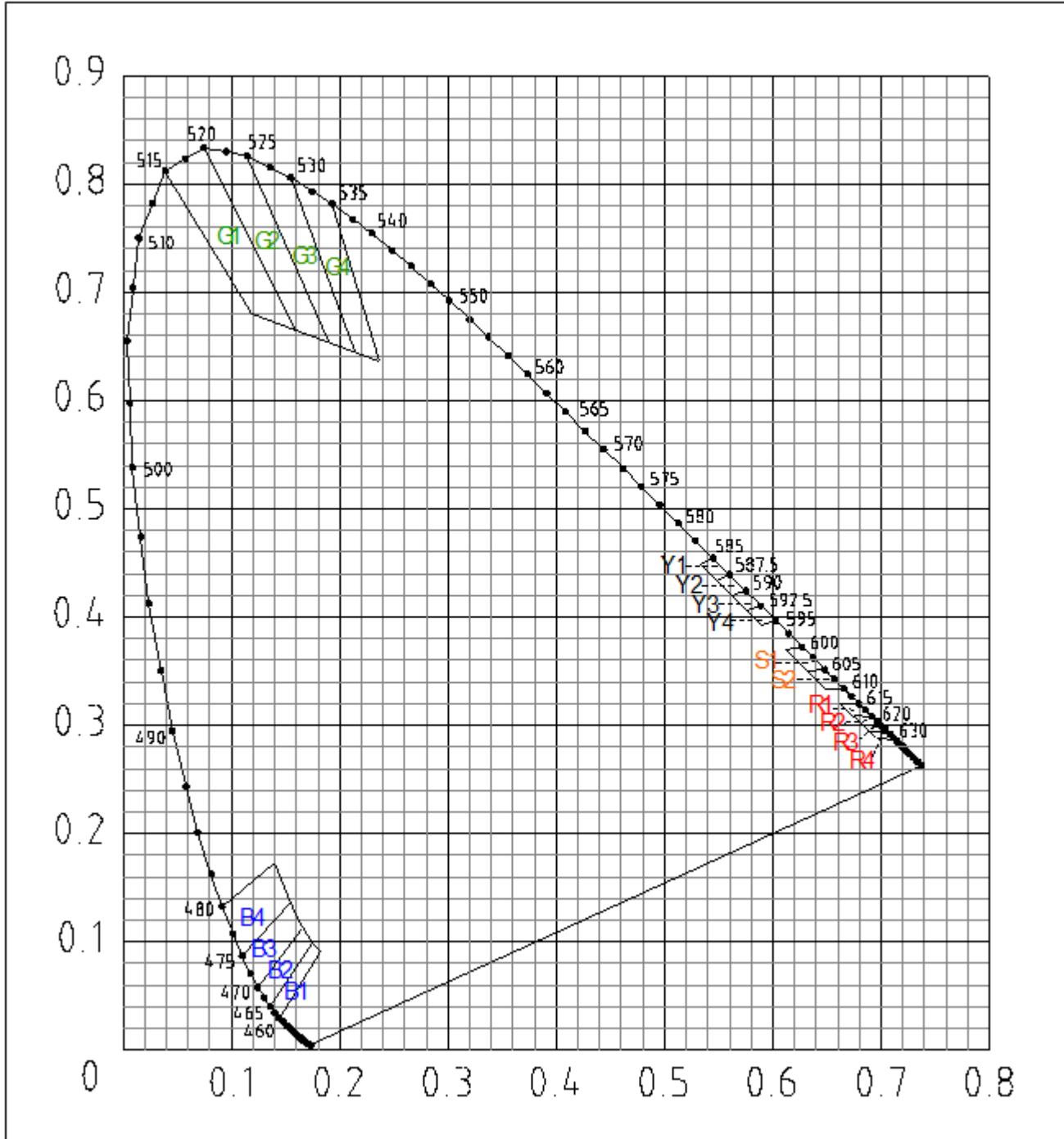
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## COLOR BIN ON CIE 1931 CHROMATICITY DIAGRAM





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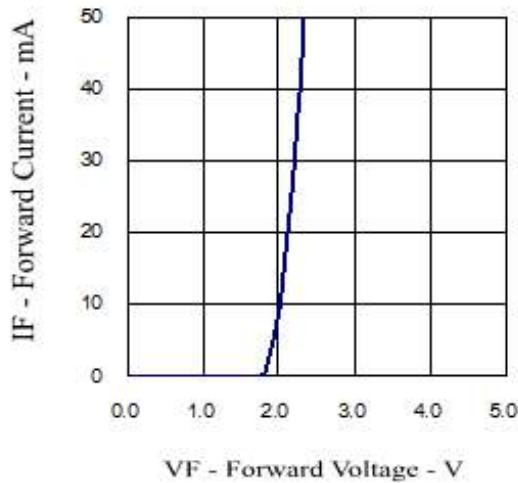
3.5 x 2.8 x 1.9mm Orange PLCC2

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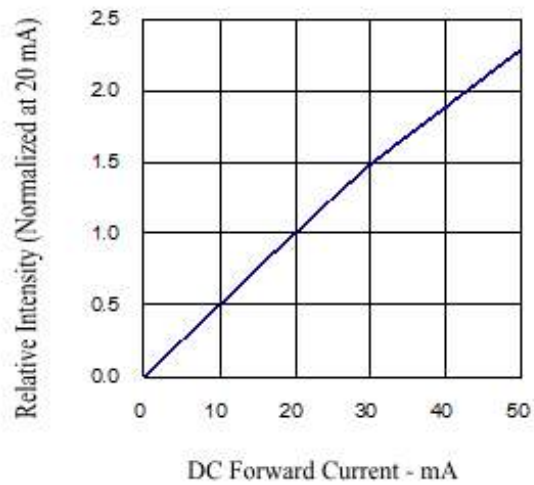
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## OPTICAL CHARACTERISTIC CURVES:

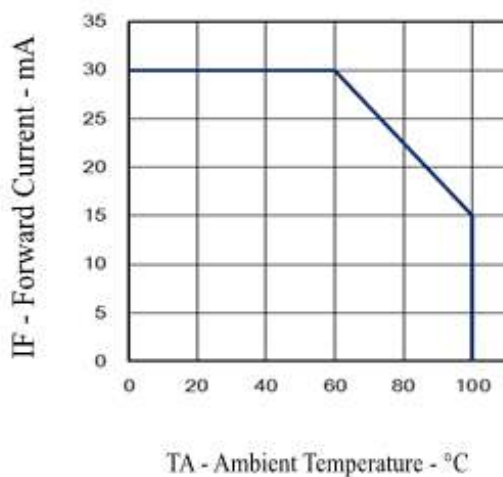
Forward Current vs. Forward Voltage



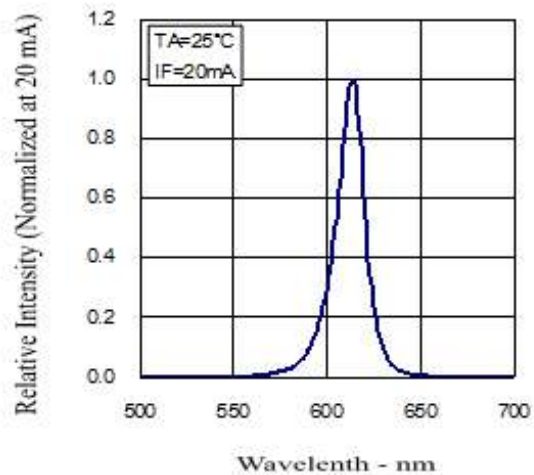
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength





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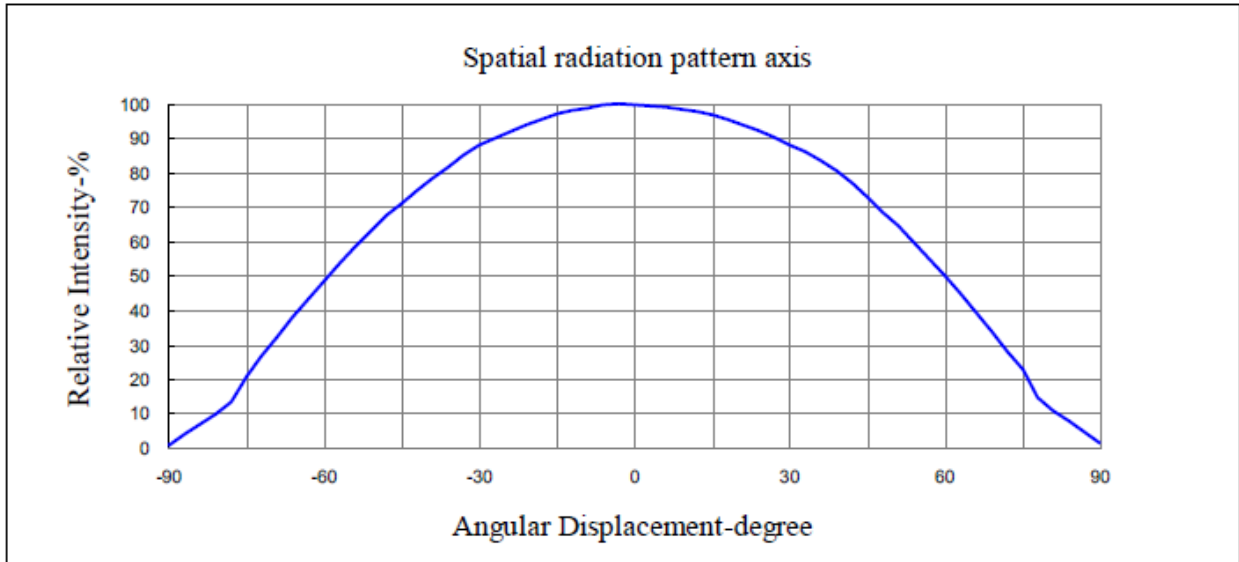
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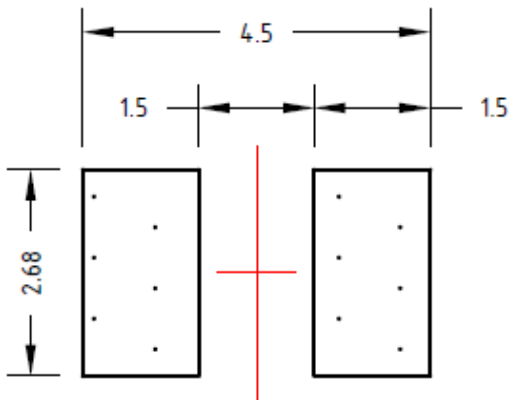
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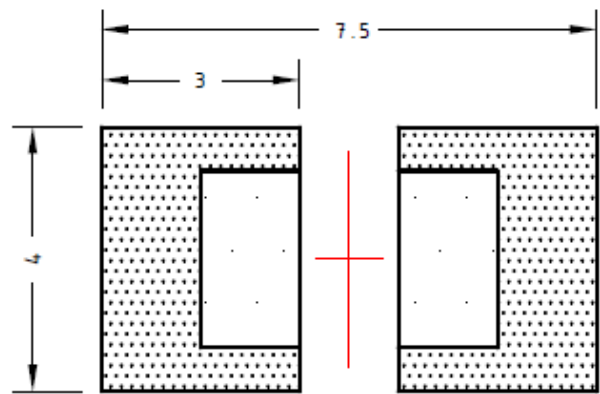
## RADIATION PATTERN




## RECOMMENDED SOLDERING PATTERN



(Unit:mm)



 Solder resist(Unit:mm)



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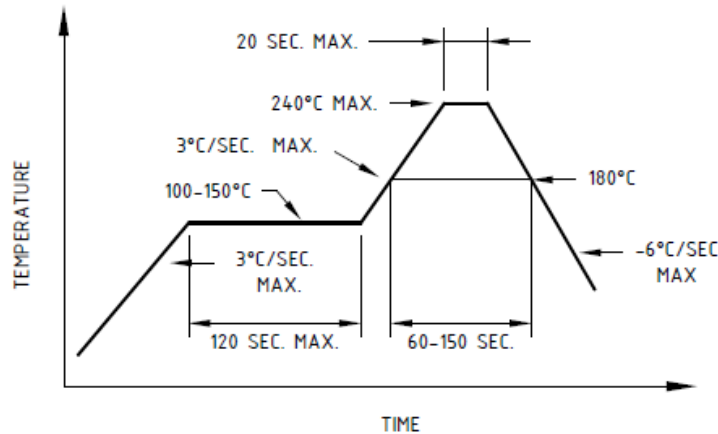
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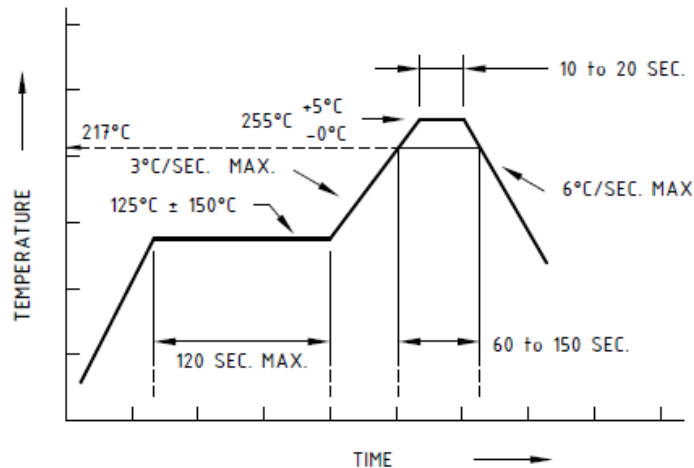
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## SOLDERING CONDITIONS



**Recommended reflow soldering profile**



**Recommended Pb-free reflow soldering profile**

- Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
- Reflow soldering should not be done more than two times.
- When soldering, do not put stress on the LEDs during heating.
- After soldering, do not warp the circuit board.





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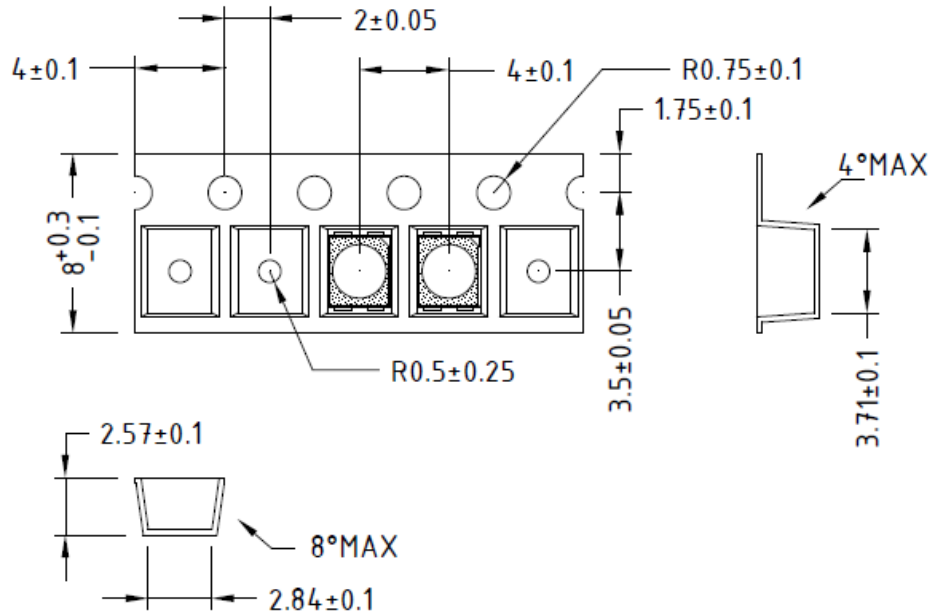
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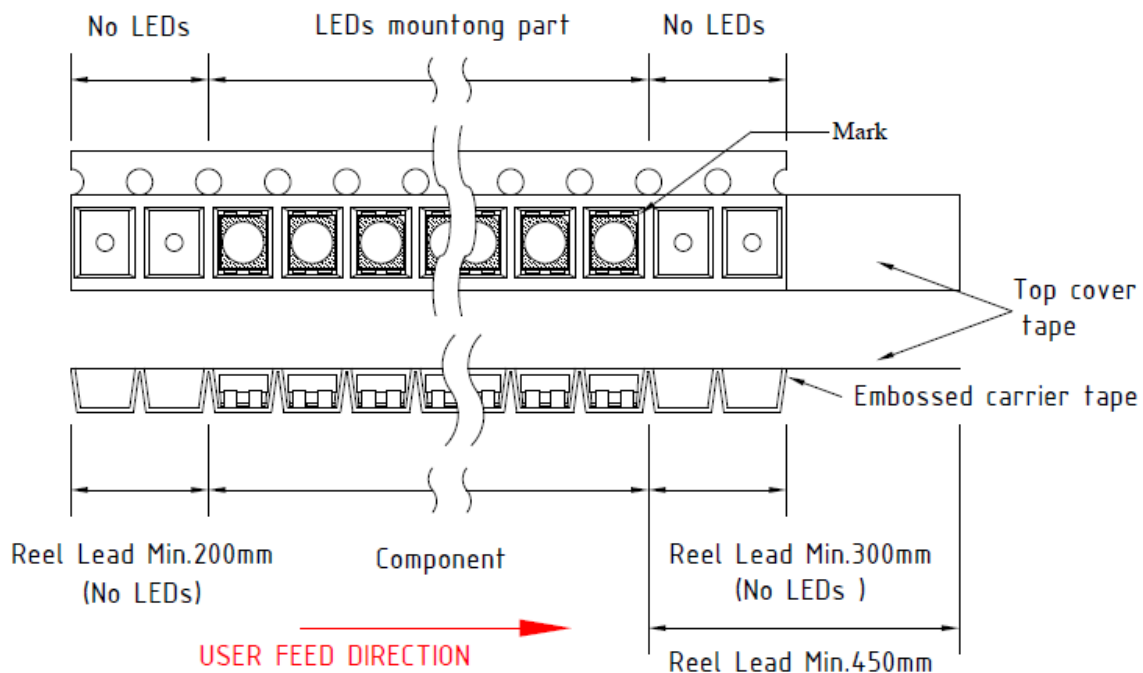
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## TAPE DIMENSION



## TAPE LEADER AND TRAILER DIMENSION





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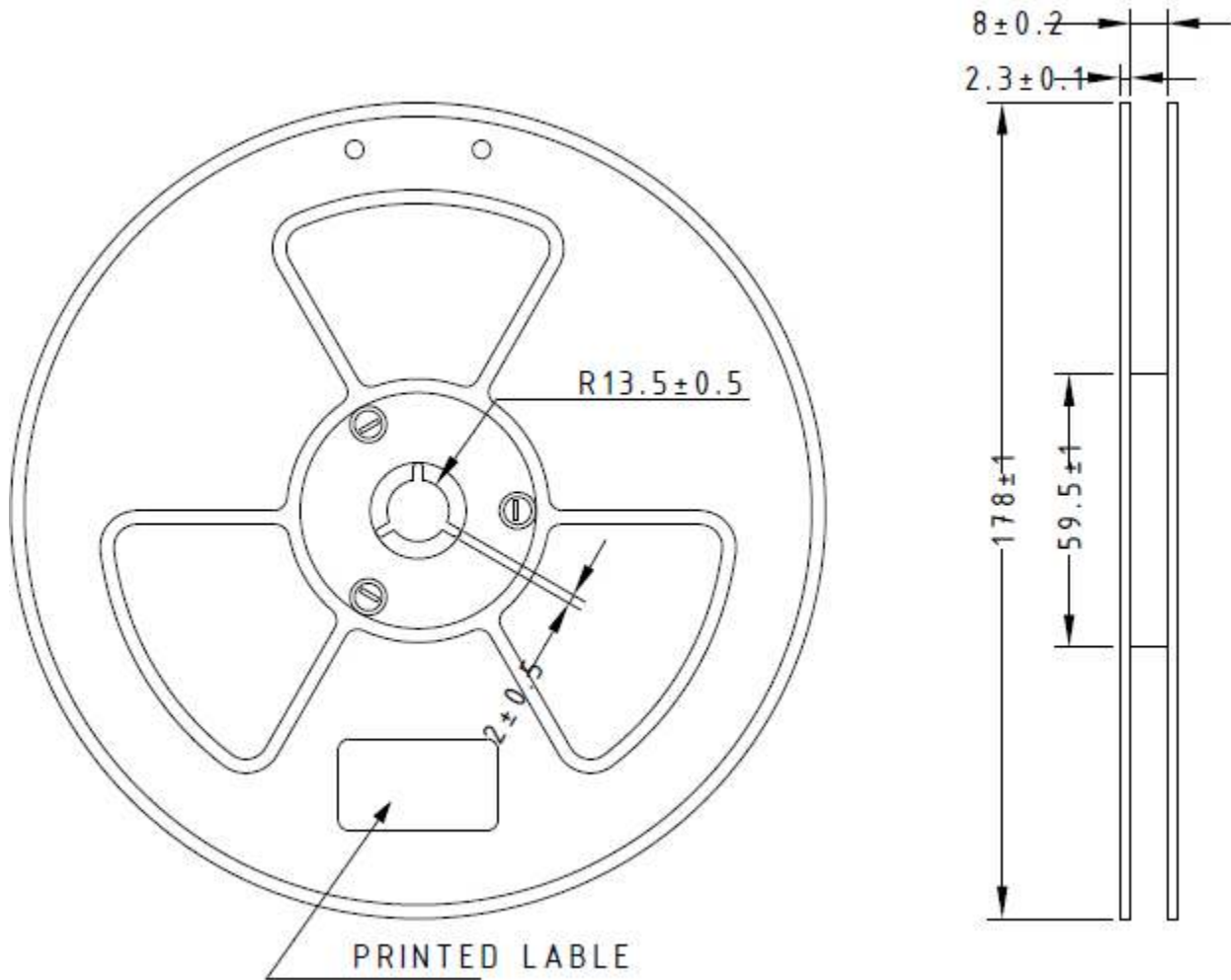
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## REEL DIMENSION



Note: Baking is required under the following conditions:

The pack has been opened for more than four weeks.

Baking recommended conditions:

$60 \pm 5$  °C for 20 hours.



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## MOISTURE SENSITIVITY

AOP's SMD LED is shipped in sealed, moisture-barrier bags (MBB) designed for long shelf life. If SMD LED are exposed with moist environments before soldering, this may cause damage to SMD LED during soldering (reflow) operation.

## STORAGE / FLOOR TIME

Condition	Temperature(C)	Humidity(RH)	Period of Time
Before Open	30	60	1 year from shipping date
After Open	30	60	Within 72 hours

-MSL of this product are MSL4, please see IPC/JEDEC STD020D for more detail.

-LEDs reach floor time may be damaged while soldering/reflow processing, please baking the LEDs before use.

-If RH indicator card show 60%RH when unseal the package, please bake/discard the LED.

## RESEAL

-AOP's aluminum MBB may reuse as to reseal the unused LED if MBB has not damaged or had any holes on it.

-Moisture absorbent material (Silica gel) may be reuse if it does not become pink.

-Proper resealed LED's Floor time will NOT RESET, only stop counting until open.

-If RH indicator card show 60%RH when open the package, please bake/discard the LED.

## BAKING

Condition	Temperature(C)	Period of Time
With Reel	60	More then 24 hours, but not more then 48 hours
Without Reel	90	24 hours

-Baking of LED available ONCE only, more than once may damage the LEDs while baking.

-Baking only required when LED reach its floor time.