



# American Opto Plus LED Corp.

**L955MBC-ZS**

**3.5 X 2.8 X 1.9mm Blue PLCC2**

## MAIN FEATURES:

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

## DATA SHEET UPDATE HISTORY:

- **Version 1.2 – August 14, 2013**
- **Version 1.3 – July 7, 2014**
  - Package outline dimensions revised
  - Absolut max ratings updated
    - Power dissipation revised to 105 mW
    - Junction Temperature, solder point, ambient added
  - Electrical/Optical Characteristics updated
    - Luminous intensity typ value revised to 300 mcd
    - Luminous Flux (mlm) and reverse current added
    - Tolerance for each bin limit revised to  $\pm 15\%$
  - Color bin table adjusted
  - Forward Current vs. Ambient Temperature curve updated
- **Version 1.4 – December 19, 2014**
  - Operating Temperature revised to -40 ~ +100 °C



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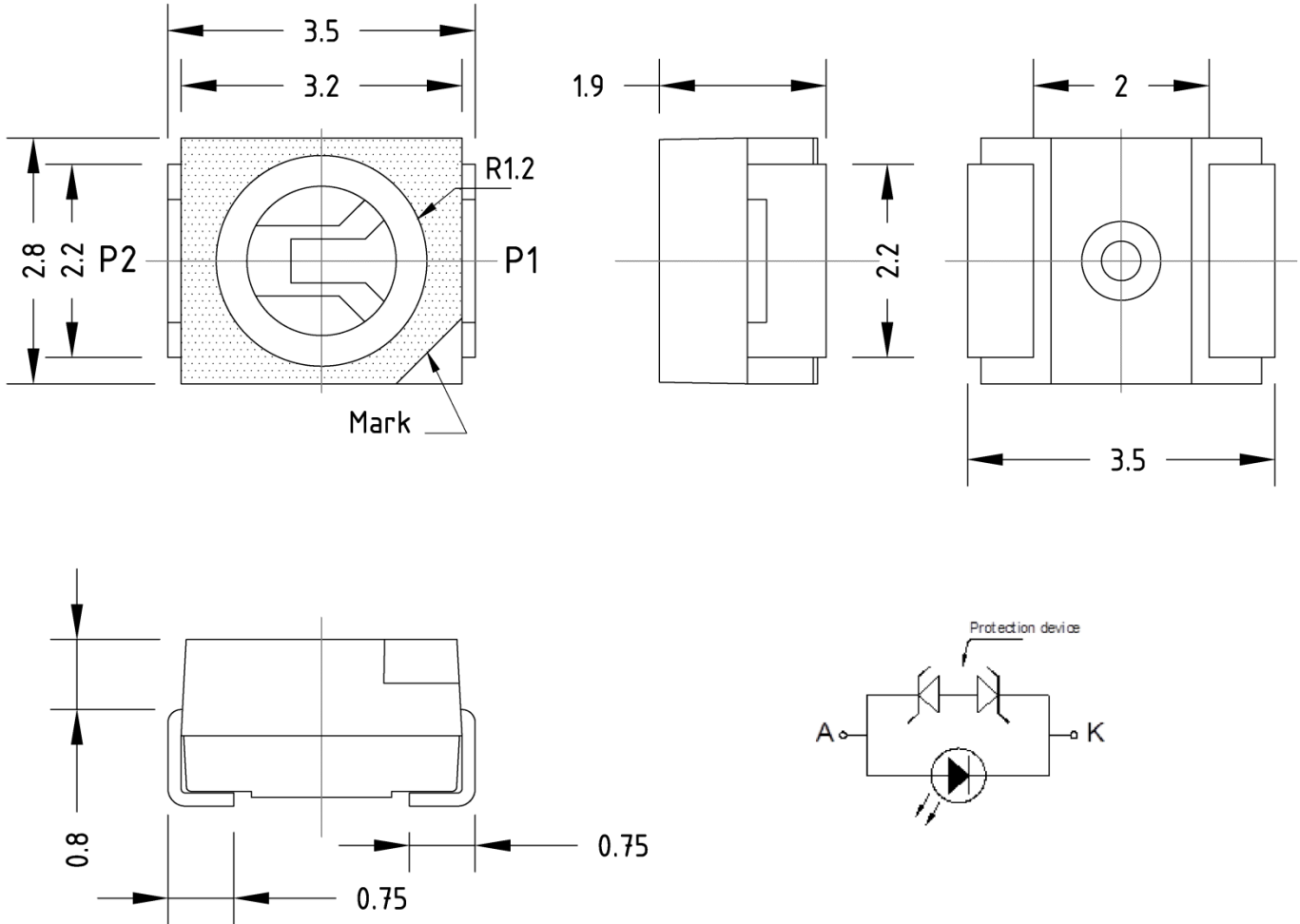
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### PACKAGE OUTLINES:



Chip Material	Chip Emitted	Lens Color	Viewing Angle
InGaN	Blue	Clear	120°

### NOTES:

1. All dimensions are in millimeters (inches);
2. Electrical Connection between all Cathodes is Recommended
3. 2,000 pcs per reel
4. Specification is preliminary



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## ABSOLUTE MAXIMUM RATINGS

Ta = 25°C

Item	Symbol	Absolute Maximum Rating	Unit
DC Forward Current	I <sub>F</sub>	30	mA
Peak Pulsed Forward Current	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Power Dissipation	P <sub>d</sub>	105	mW
Junction Temperature	T <sub>J</sub>	115	°C
Junction / Solder Point	R <sub>th Js</sub>	370	°C/W
Junction / Ambient	R <sub>th Ja</sub>	425	°C/W
Operating Temperature	T <sub>opr</sub>	-40 ~ +100	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C
Solder Temperature	T <sub>sol</sub>	265°C for 10sec	

## ELECTRICAL/OPTICAL CHARACTERISTICS

Ta = 25°C

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	--	3.2	3.5	V
Reverse Current	I <sub>R</sub>		--	--	50	μA
Luminous Flux	Φ <sub>V</sub>		--	1200	--	mlm
Luminous Intensity	I <sub>v</sub>		180	300	520	mcd
Dominant Wavelength	λ <sub>d</sub>		460	470	480	nm
Peak Wavelength	λ <sub>p</sub>		--	465	--	nm
Spectral Half Width	Δλ <sub>1/2</sub>		--	20	--	nm

Measurement Uncertainty of Luminous Intensity: ±10%



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### LUMINOUS INTENSITY BIN CODE TABLE (IF=20mA)

Rank name	Min (mcd)	Max (mcd)
H	180	240
J	240	310
K	310	400
L	400	520

Tolerance for each bin limit is  $\pm 10\%$

### COLOR BIN CODE TABLE (IF=20mA)

Rank name	Min (nm)	Max (nm)
1	466	468
2	468	470
3	470	472
4	472	474

Tolerance for each bin limit is  $\pm 1$  nm

### VF BIN CODE TABLE (IF=20mA)

Rank name	Min (nm)	Max (nm)
A	2.9	3.0
B	3.0	3.1
C	3.1	3.2
D	3.2	3.3
E	3.3	3.4
F	3.4	3.5

Tolerance for each bin limit is  $\pm 0.05$  V

#### Note

1. One delivery will include several color ranks and  $I_v$  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.  
For Example, **BIN K2 Means IV: 310~400mcd , Color: 465nm~470nm**
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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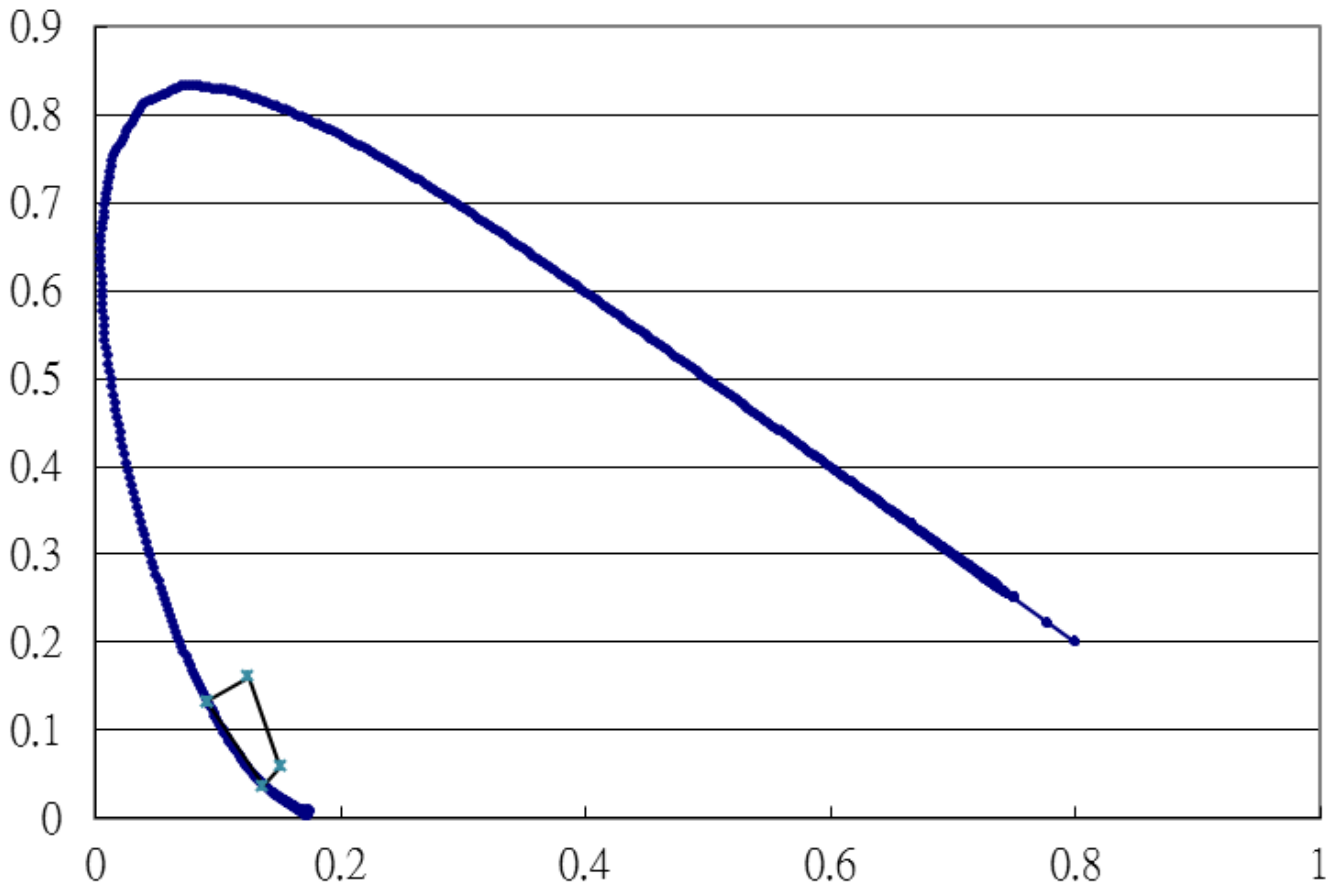
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**COLOR BIN on CIE 1931 CHROMATICITY DIAGRAM**



<b>x</b>	0.091	0.125	0.151	0.137
<b>y</b>	0.133	0.161	0.058	0.037



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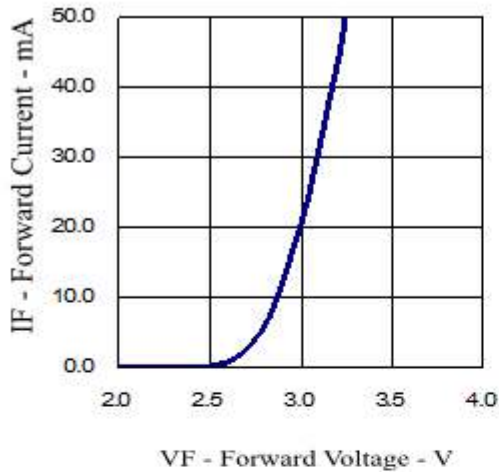
3.5 X 2.8 X 1.9mm Blue PLCC2

### MAIN FEATURES:

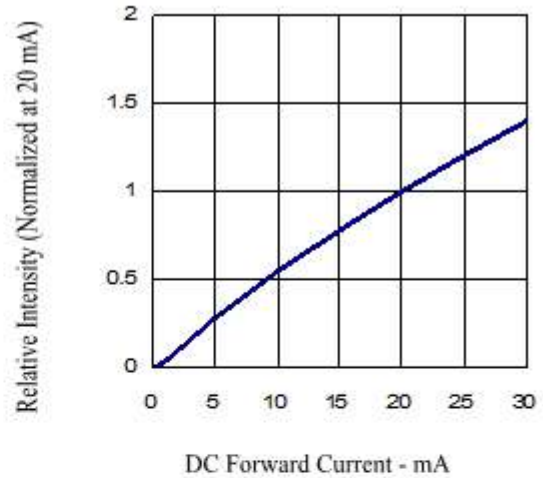
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## OPTICAL CHARACTERISTIC CURVES:

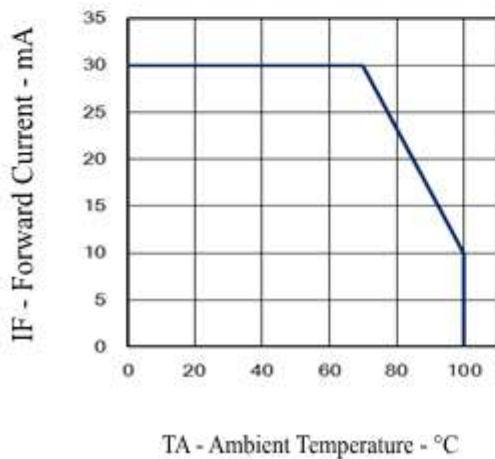
Forward Current vs. Forward Voltage



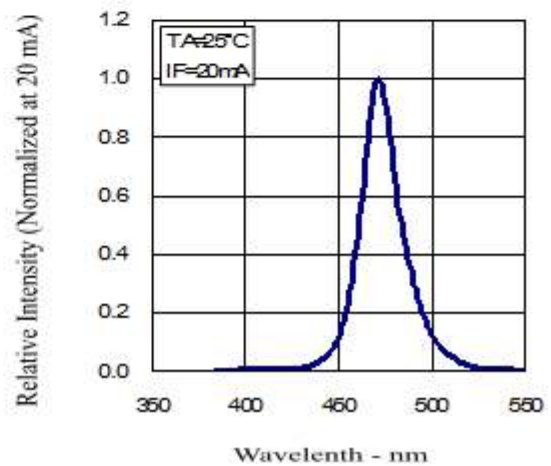
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength





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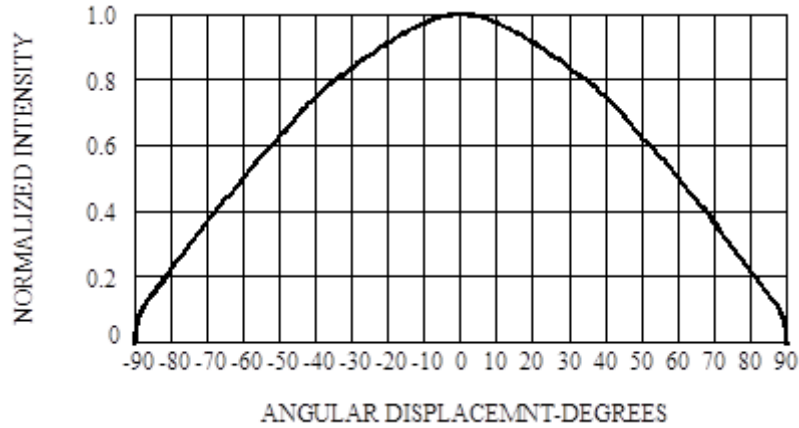
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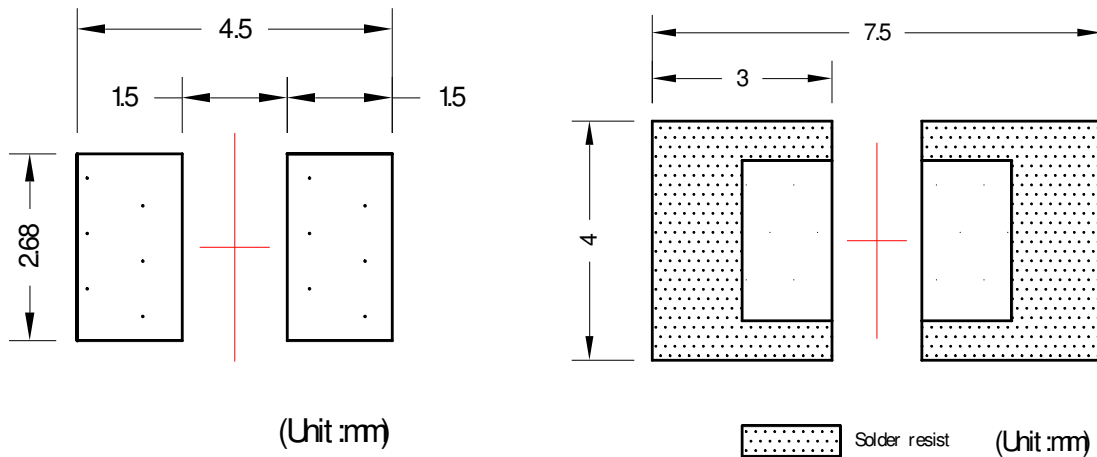
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## RADIATION PATTERN



## RECOMMENDED SOLDERING PATTERN





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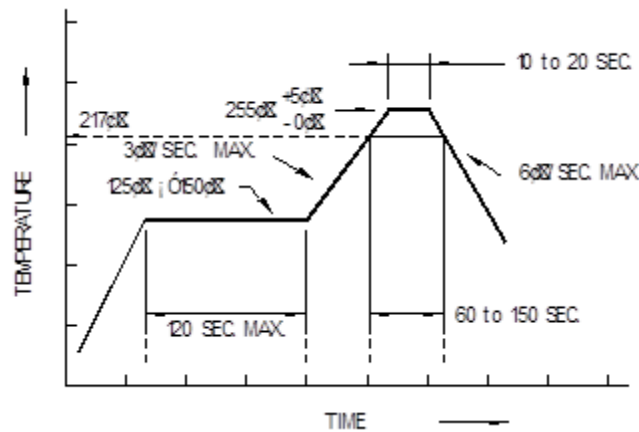
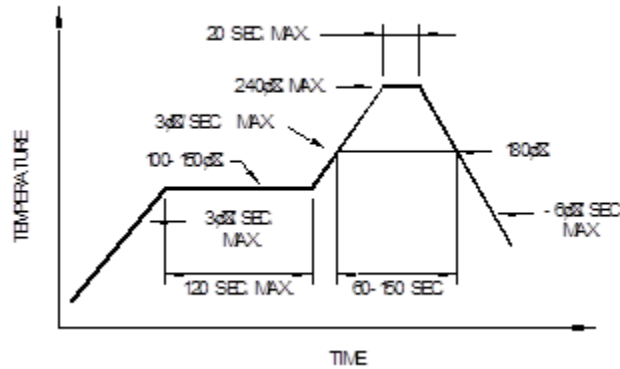
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## Soldering Conditions:



- 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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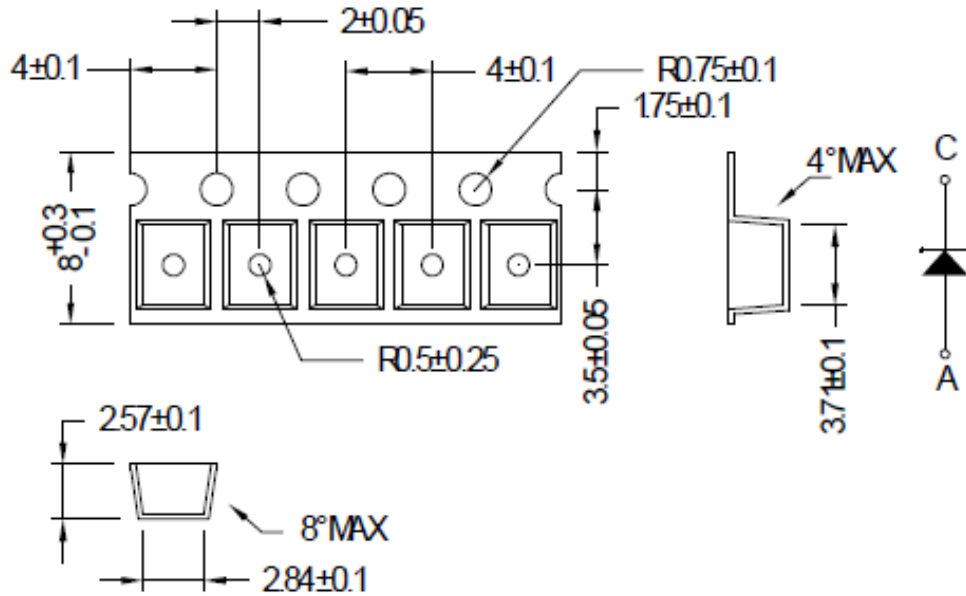
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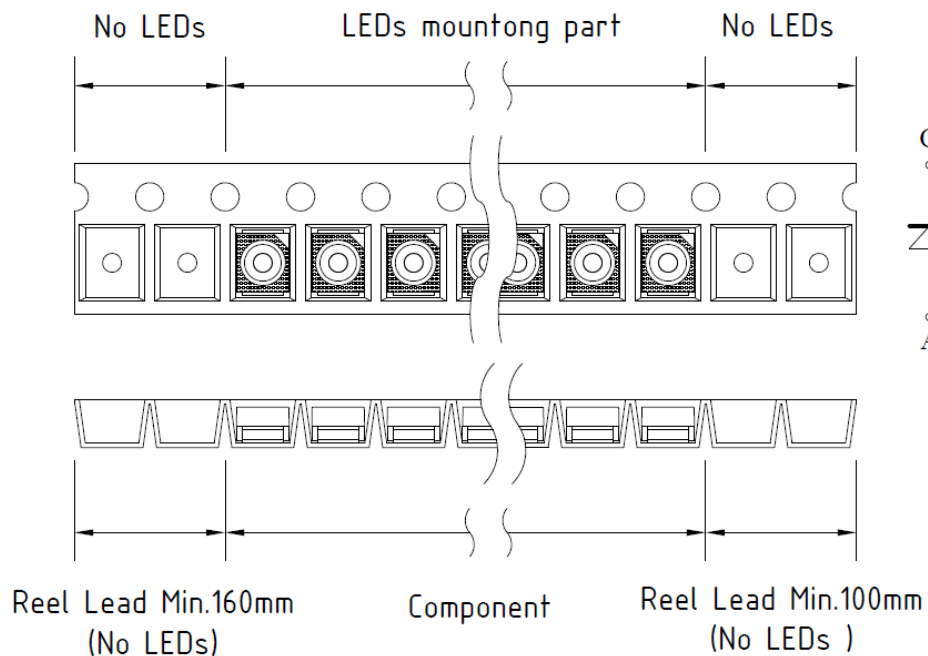
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## TAPE DIMENSION



## TAPE LEADER AND TRAILER DIMENSION



USER FEED DIRECTION



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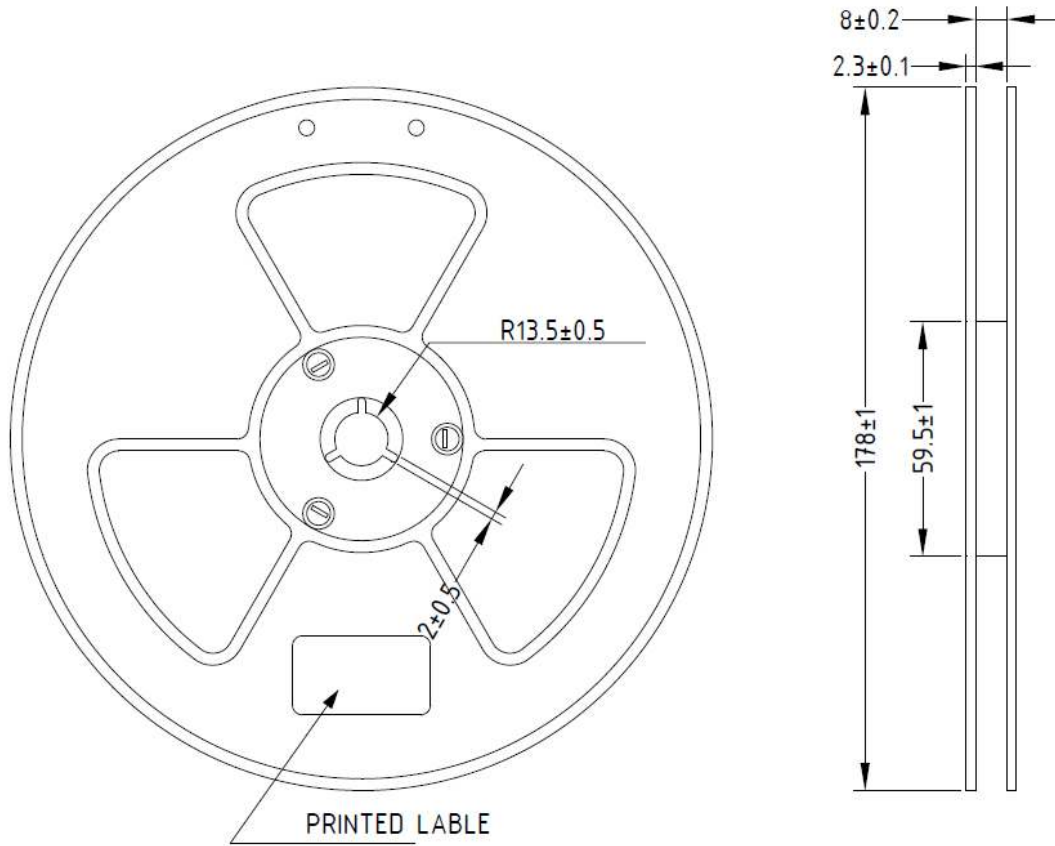
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**REEL DIMENSION:**



Note: Baking is required under the following conditions:

The pack has been opened for more than four weeks.

Baking recommended conditions:

60 ± 5 °C for 20 hours.



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## MOISTURE SENSITIVITY

AOP's SMD LED are shipped in sealed, moisture-barrier bags(MBB) designed for long shelf life.

If SMD LED is 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	6 month from shipping date
After Open	30	60	Within 48 hours

- ⊗ MSL of this product are MSL4, please see IPC/JEDEC STD020D for more details.
- ⊗ LEDs reach floor time may be damaged while soldering/reflow processing, please discard the LED.
- ⊗ 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.