DATA SHEET UPDATE HISTORY:

- Version 1.0 -- March 20, 2011

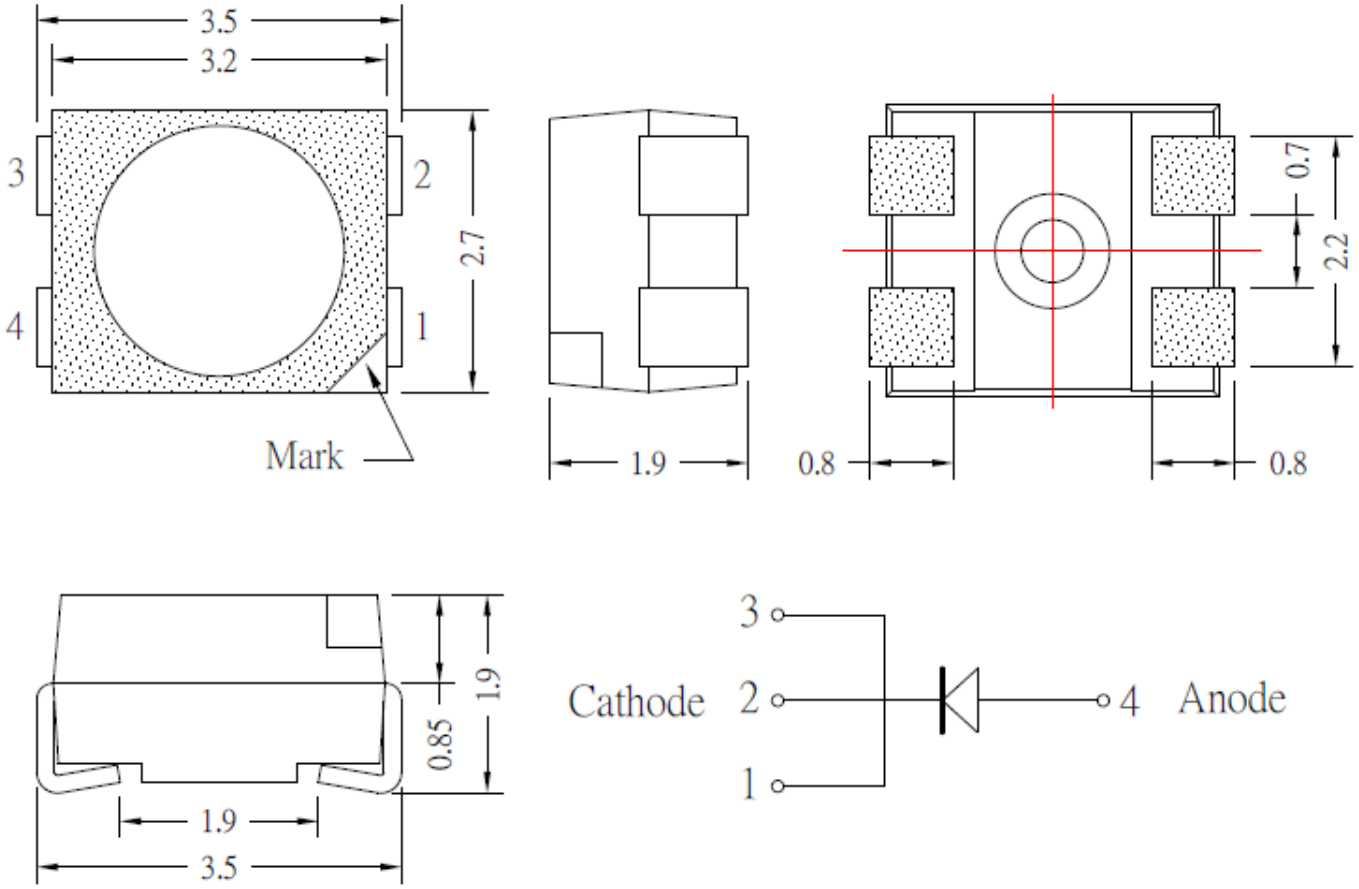
- Version 2.0 – October 22, 2014
  - Power Dissipation updated to 210 mW
  - Junction Temperature, ambient and Solder point added
  - Forward Current vs. Ambient Temperature updated

American Opto Plus LED Corp.

SMP-NEC

3.5 x 2.7 x 1.9 mm Red SMD PLCC-4

PACKAGE OUTLINES



ITEM	MATERIALS
Package	Heat-Resistant Polymer
Encapsulating Resin	Silicone
Electrodes	Ag Plating Copper Alloy

NOTES:

1. All dimensions are in millimeters;
2. Electrical connection between all cathodes is recommended
3. 2000 pcs per reel

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Value	Unit
DC Forward Current	I_F	70	mA
Peak Pulsed Forward Current	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation	Pd	210	mW
Junction Temperature	Tj	115	°C
Junction / Solder Point	$R_{th\ Js}$	185	°C/W
Junction / Ambiet	$R_{th\ Ja}$	200	°C/W
Operating Temperature	T_{OPR}	-30 ~ +100	°C
Storage Temperature	T_{STG}	-40 ~ +100	°C
Solder Temperature	T_{SOL}	265°C for 10 sec	

OPTICAL-ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	I_F = 50mA	--	2.4	3.0	V
Reverse Current	I_R	V_R= 5V	--	--	10	μA
Luminous intensity	I_V	I_F = 50mA	1500	2200	3200	mcd
Luminous Flux	ΦV	I_F = 50mA	--	7000	--	mlm
Dominant Wavelength	λ_D	I_F = 50mA	615	625	635	nm
Peak Wavelength	λ_P	I_F = 50mA	--	635	--	nm
Spectral Half Width	Δλ1/2	I_F = 50mA	--	15	--	nm

*Measurement uncertainty of luminous intensity: ±10%.

LUMINOUS INTENSITY BIN TABLE

I_F = 50mA

Rank Name	Min (mcd)	Max (mcd)
R	1500	1900
S	1900	2500
T	2500	3200

*Tolerance for each bin limit is ±15%

COLOR BIN TABLE

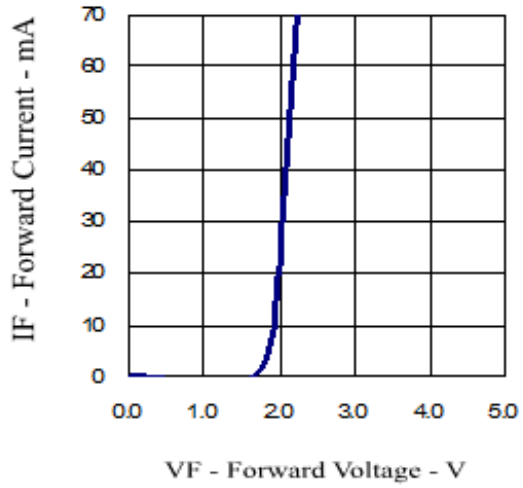
I_F = 50mA

Rank Name	Min (nm)	Max (nm)
1	615	620
2	620	625
3	625	630
4	630	635

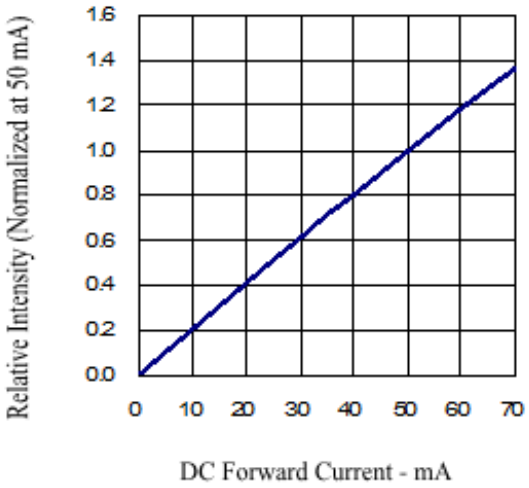
*Tolerance for each bin limit is ±1nm

ELECTRICAL-OPTICAL CHARACTERISTICS

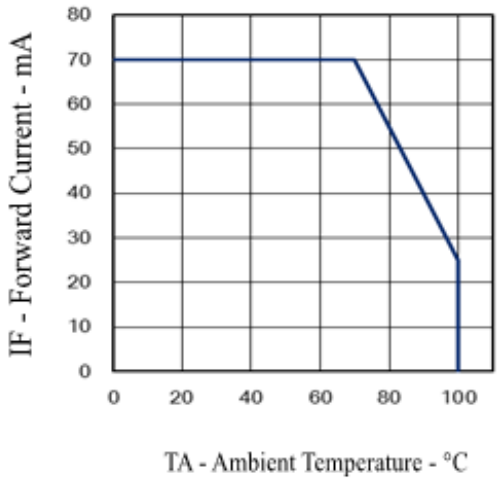
Forward Current vs. Forward Voltage



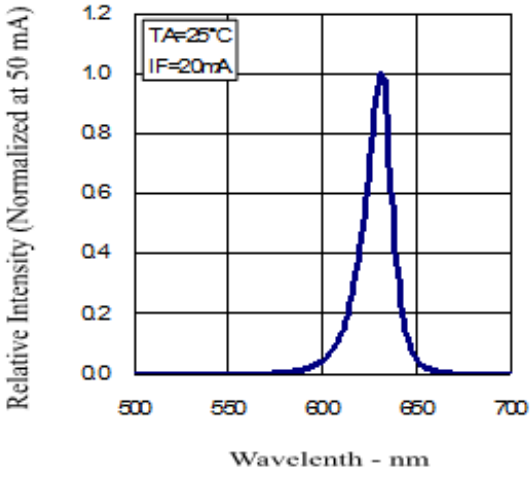
Relative Intensity vs. Forward Current



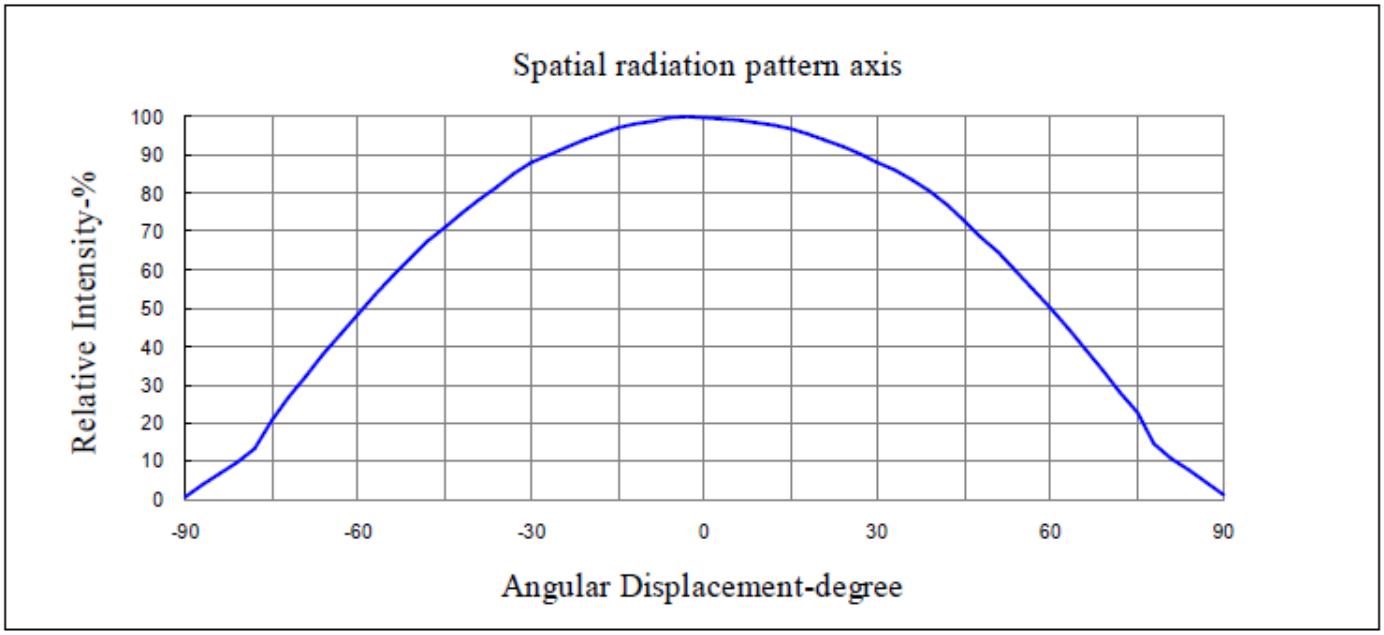
Forward Current vs. Ambient Temperature



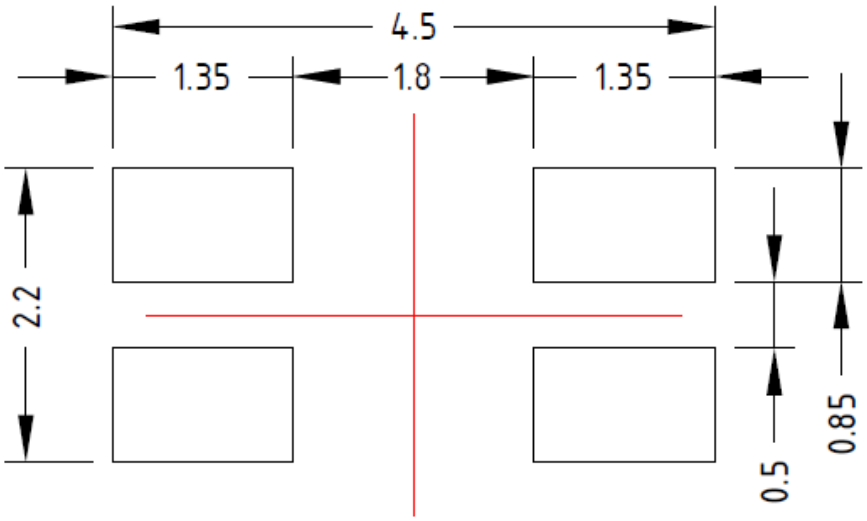
Relative Intensity vs. Wavelength



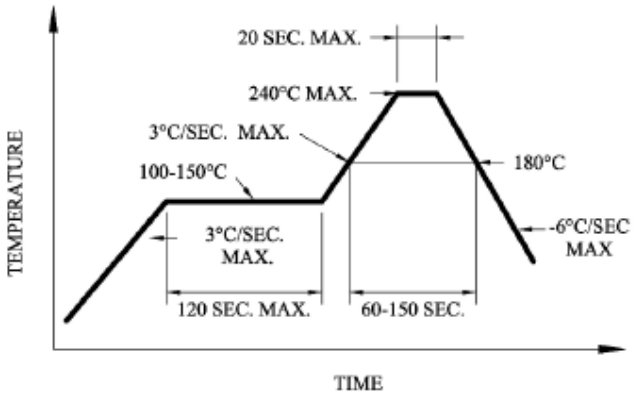
RADIATION PATTERN



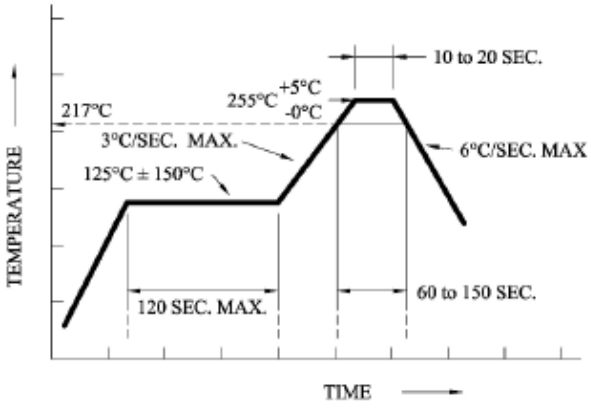
RECOMMENDED SOLDERING PAD PATTERN



SOLDERING CONDITIONS



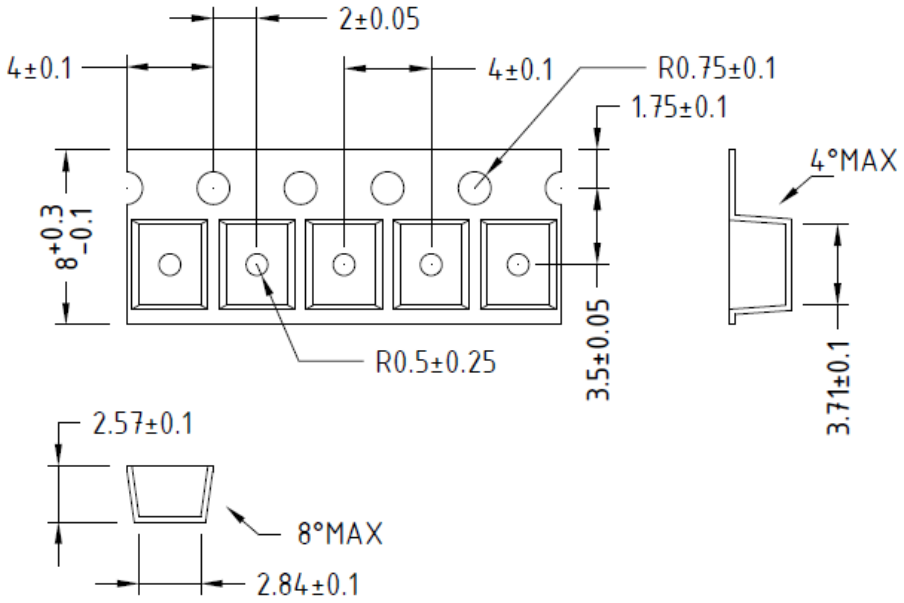
Recommended reflow soldering profile



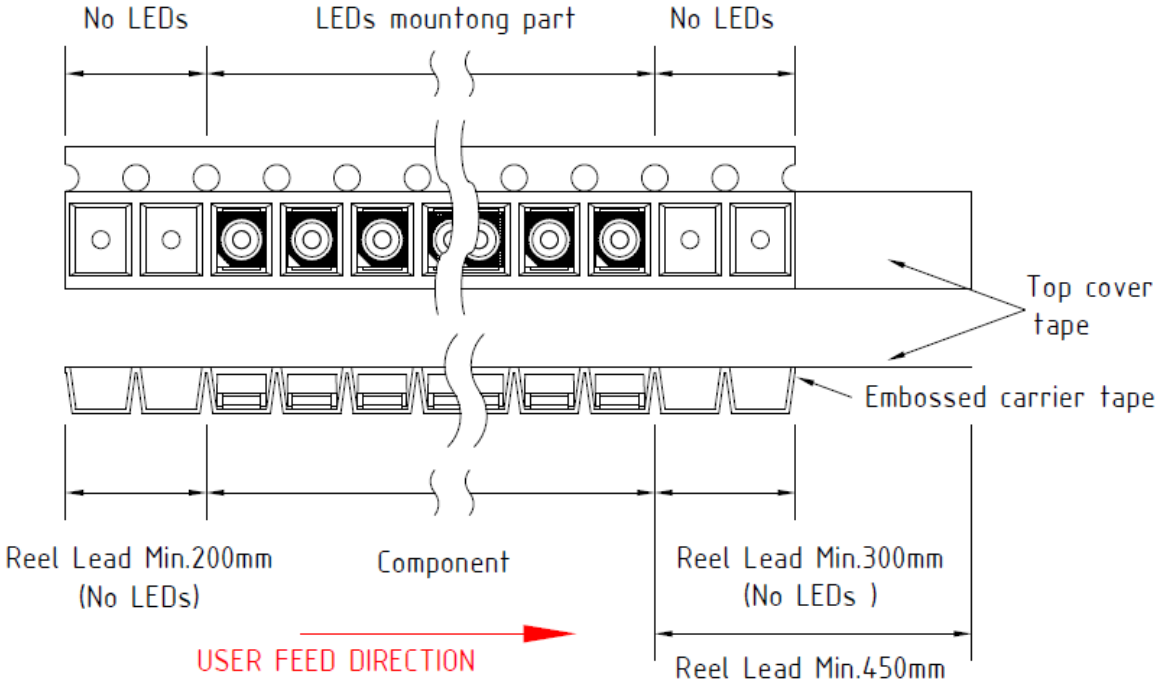
Recommended Pb-free reflow soldering profile.

· 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

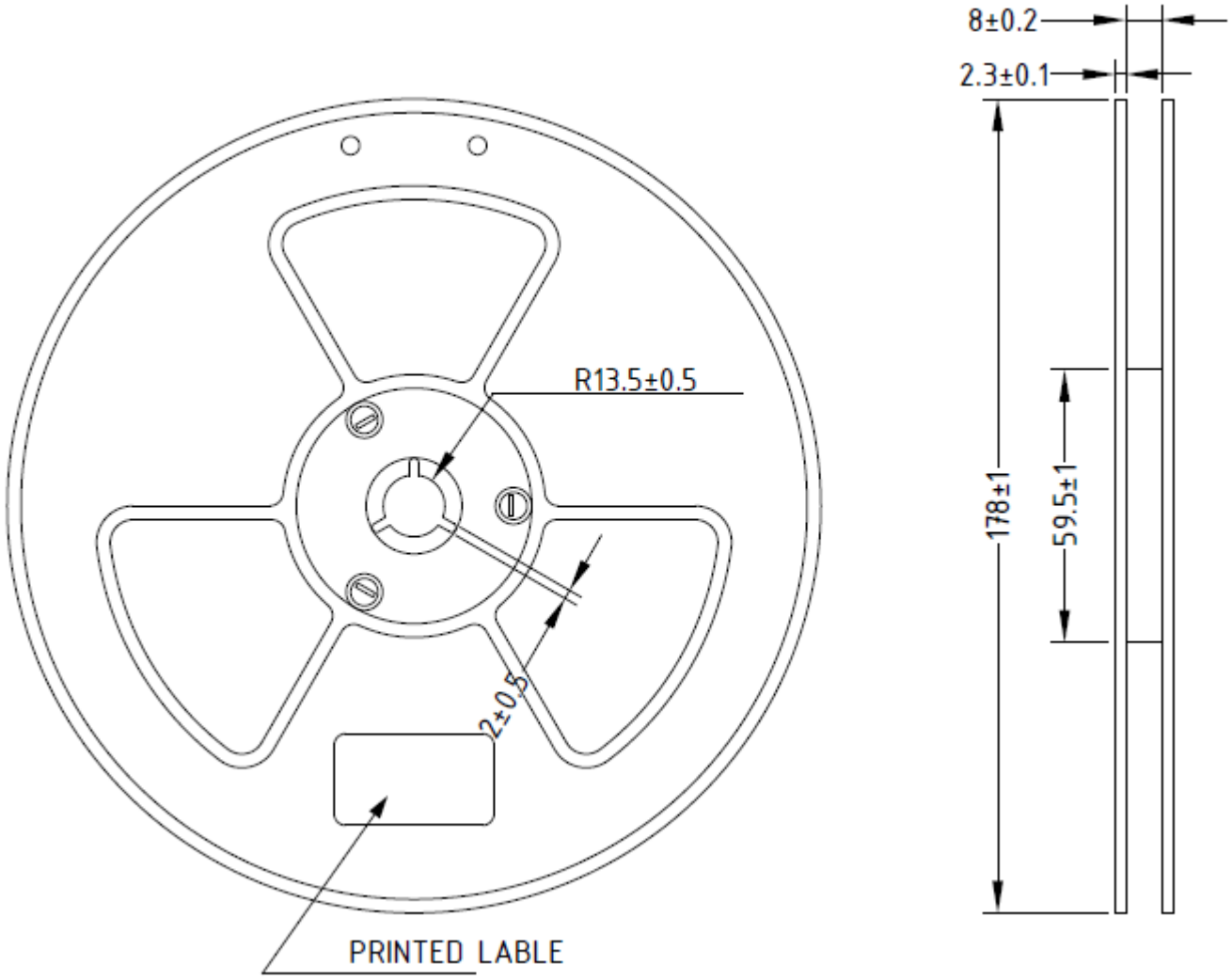
TAPE DIMENSION



TAPE LEADER AND TRAILER DIMENSION



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

Moisture Sensitivity

AOP's SMD LED are shipped in sealed, moisture-barrier bags (MBB) designed for long shelf life. If SMD LED has 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 seem 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 than 24 hours, but not more than 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.