



American Opto Plus LED Corp.

SMP-NEC

3.5 x 2.7 x 1.9 mm Red SMD PLCC-4

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

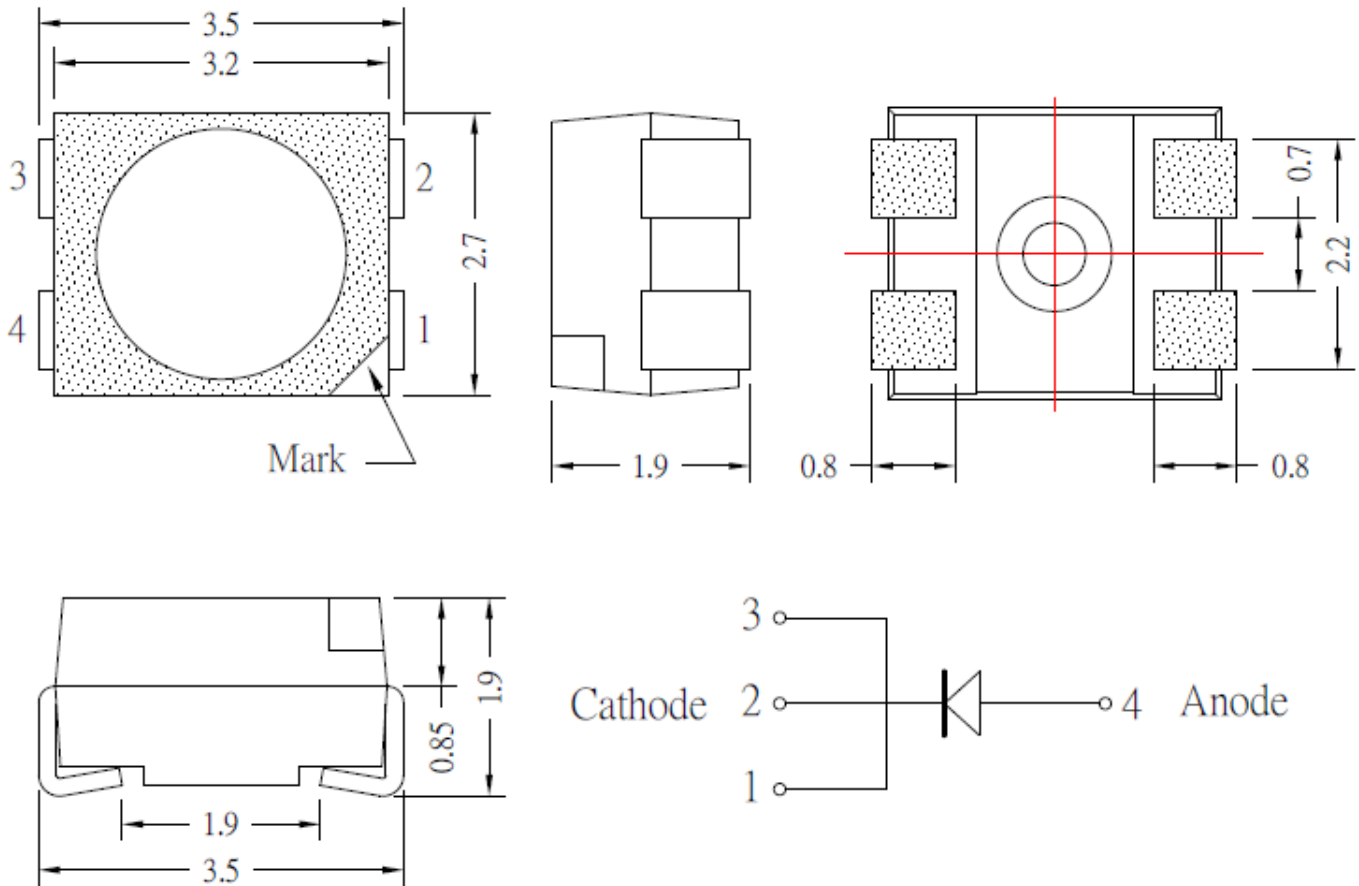


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PACKAGE OUTLINES



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



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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	P _d	210	mW
Junction Temperature	T _j	115	°C
Junction / Solder Point	R _{th Js}	185	°C/W
Junction / Ambient	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	Φ _V	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	Δλ _{1/2}	I _F = 50mA	--	15	--	nm

*Measurement uncertainty of luminous intensity: ±10%.



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LUMINOUS INTENSITY BIN TABLE

$I_F = 50\text{mA}$

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

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

COLOR BIN TABLE

$I_F = 50\text{mA}$

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

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



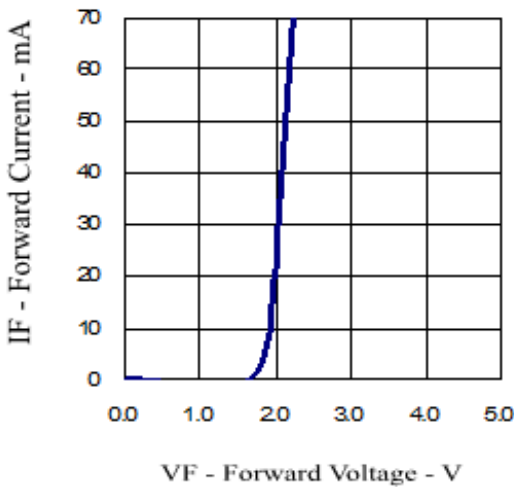
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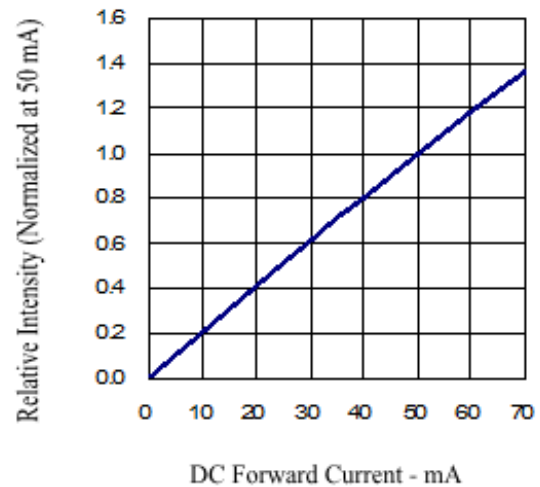
3.5 x 2.7 x 1.9 mm Red SMD PLCC-4

ELECTRICAL-OPTICAL CHARACTERISTICS

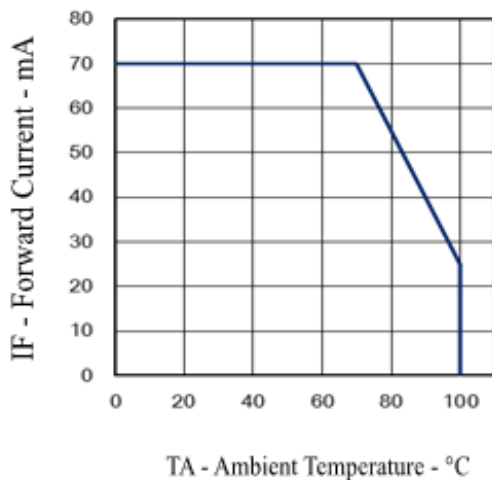
Forward Current vs. Forward Voltage



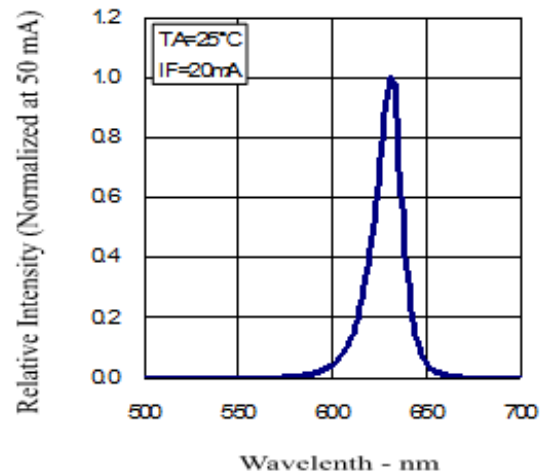
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength



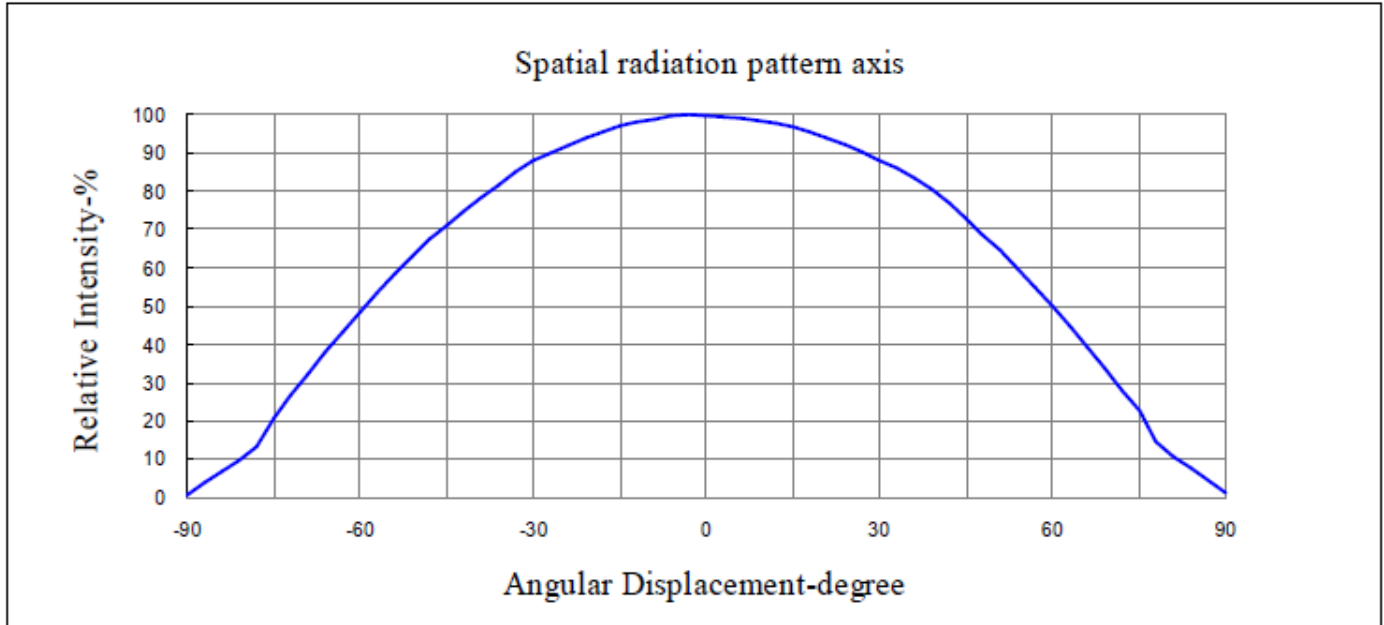


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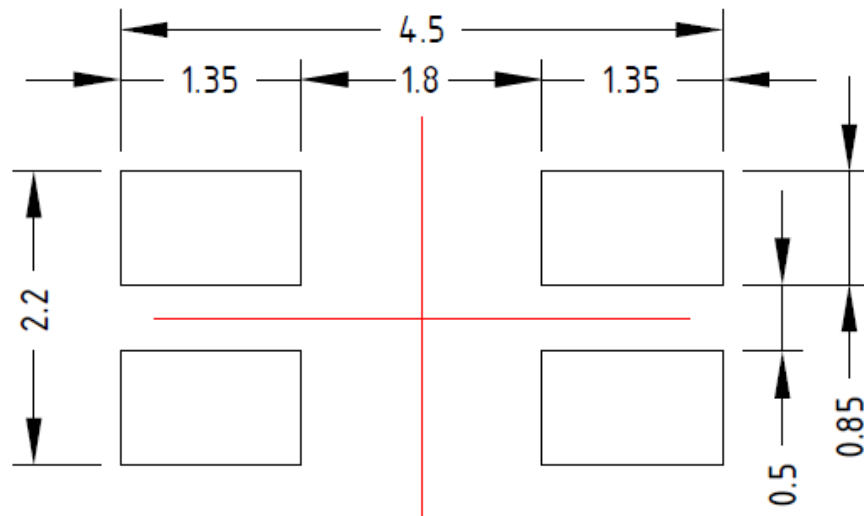
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RADIATION PATTERN



RECOMMENDED SOLDERING PAD PATTERN



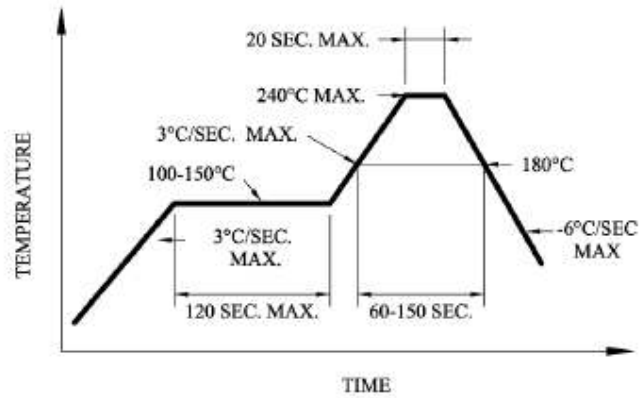


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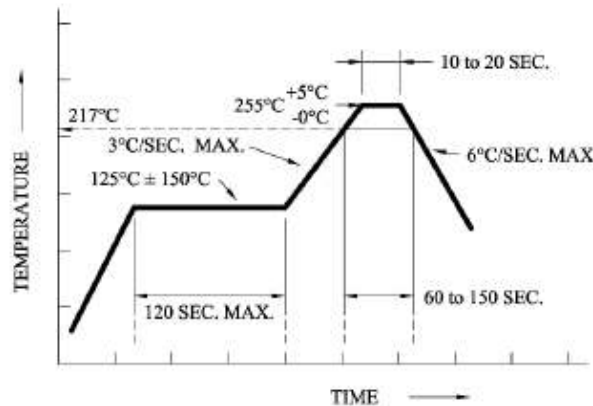
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SOLDERING CONDITIONS



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

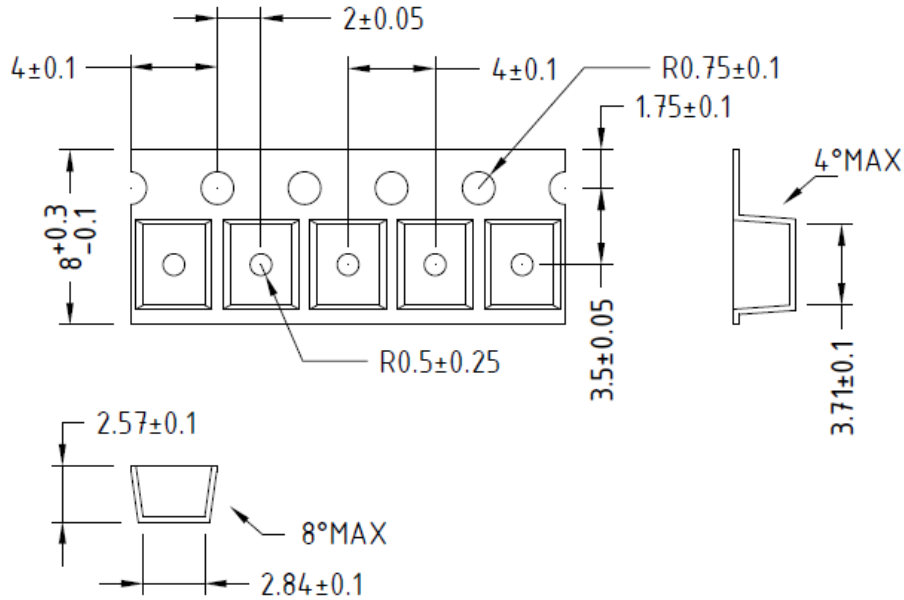


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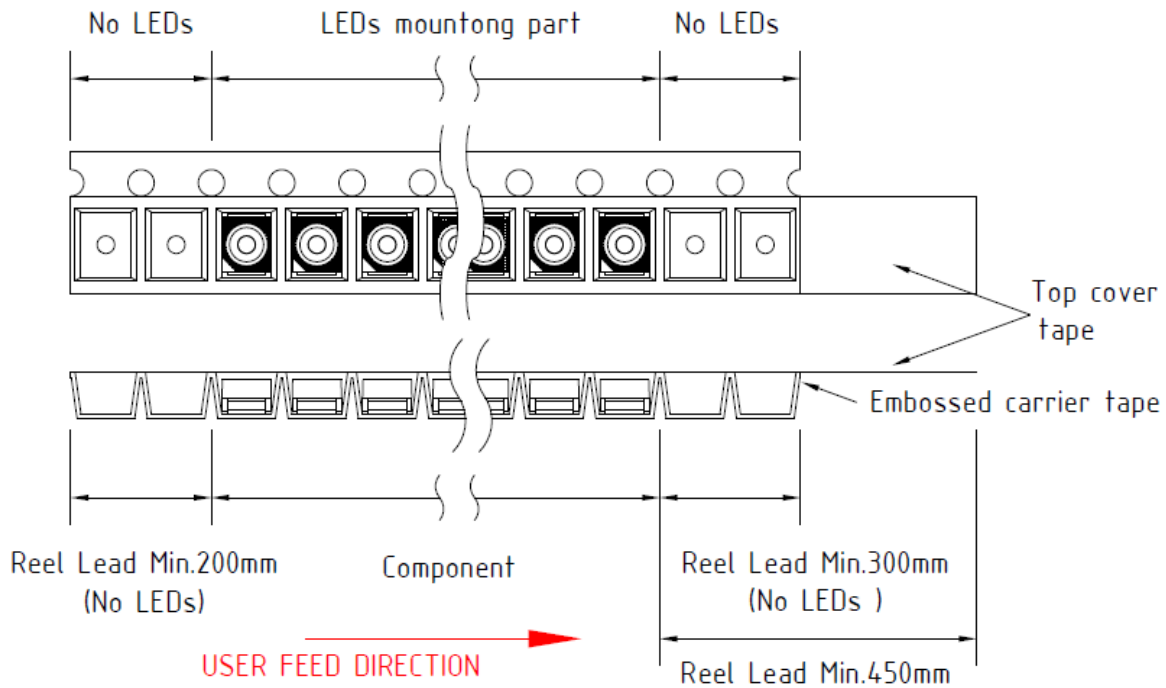
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TAPE DIMENSION



TAPE LEADER AND TRAILER DIMENSION



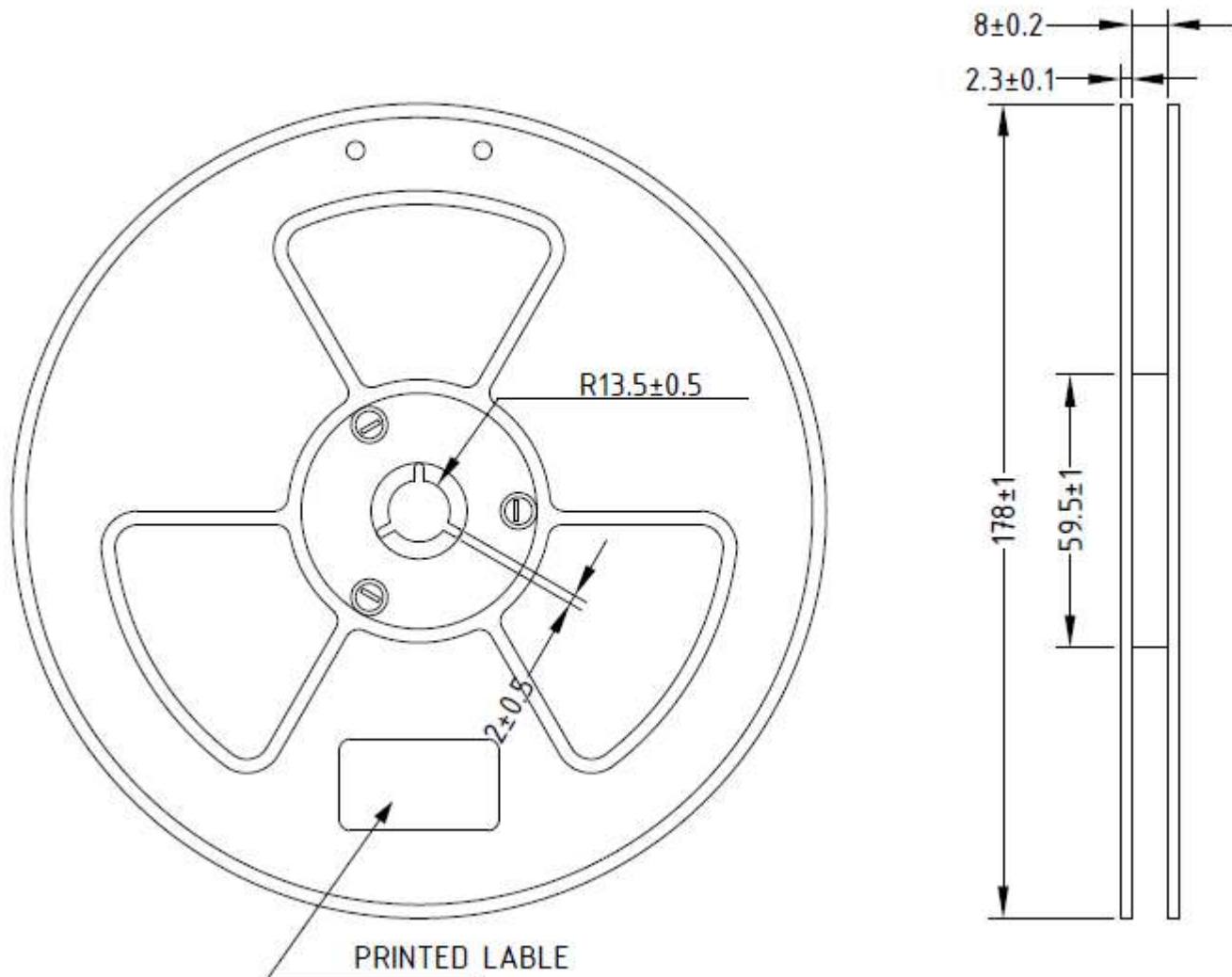


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REEL DIMENSION



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 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 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 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.