

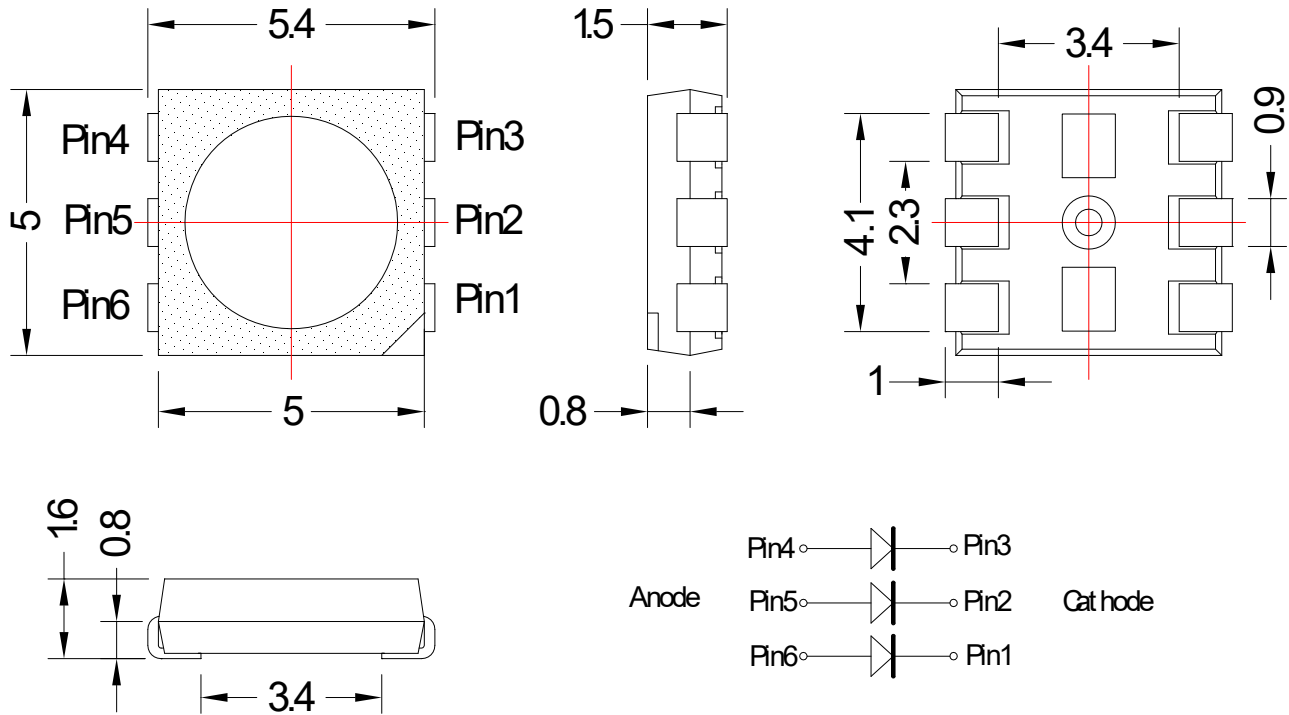


American Opto Plus LED Corp.

L996-MUED-3D

5.4 x 5.0 x 1.5mm Red PLCC-6 Tri Chip Red SMD LED

PACKAGE DIMENSION



Item	Materials
Package	Heat-Resistant Polymer
Encapsulating Resin	Silicone
Electrodes	Ag Plating Copper Alloy
Chip	AllnGaP/Sapphire
Lens	White Diffused
Emitted Color	Red

Notes

1. All dimensions are in millimeters
2. Electrical connection between all cathodes is recommended

TENTATIVE Date: 1/25/2019 Specifications are subject to change without notice.

American Opto Plus LED Corp. 1206 E. Lexington Ave., Pomona CA 91766 Tel: 909-465-0080 Fax: 909-465-0130 www.aopled.com



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

	Symbol	Absolute Maximum Rating	Unit
DC Forward Current	I_F	210	mA
Peak Pulsed Forward Current	I_{FP}	300	mA
Reverse Voltage (Per Chip)	V_R	5	V
Power Dissipation (3 Chips On)	P_d	672	mW
Junction Temperature	T_j	115	°C
Junction / Solder Point	$R_{th J_s}$	150	°C/W
Junction / Ambient	$R_{th J_a}$	200	°C/W
Operating temperature	T_{opr}	-30~+100	°C
Storage temperature	T_{stg}	-40~+100	°C
Solder Temperature	T_{slid}	265°C for 10 sec	--

Notes:

1. I_{fp} = pulse width $\leq 10ms$, Duty Ratio $\leq 1/10$
2. Value for total power dissipation when two or more device are lit simultaneously

OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

	Symbol	Test condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F=150mA$	--	2.5	3.2	V
Luminous Intensity	I_v		4200	6100	9300	mcd
Dominant Wavelength	λ_d		615	625	635	nm
Peak Wavelength	λ_p		--	635	--	nm
Spectral Half Width	$\Delta\lambda_{1/2}$		--	15	--	nm
Viewing Angle	$2\theta_{1/2}$	--	--	120	--	deg
Reverse Current	I_R	$V_R=5V$	--	--	10	μA

Notes: Each dice driving 50mA

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LUMINOUS INTENSITY BIN TABLE

IF=150mA

Rank Name	Min(mcd)	Max(mcd)
V	4200	5500
W	5500	7200
X	7200	9300

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

COLOR BIN TABLE

IF=150mA

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

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

Notes:

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 label: IV Rank + Color Rank. For example, Bin V2B means IV: 5500~7200 mcd and Color: 620~625nm
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 placing an order



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LUMINOUS INTENSITY BIN TABLE

IF=100mA

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

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

COLOR BIN TABLE

IF=100mA

Rank Name	Min(nm)	Max(nm)
1	635	640
2	640	645

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

Notes:

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 label: IV Rank + Color Rank. For example, Bin N2 means IV: 680~880 mcd and Color: 640~645nm
3. AOP has the right to update the information without notice. Please double confirm the spec details before placing an order

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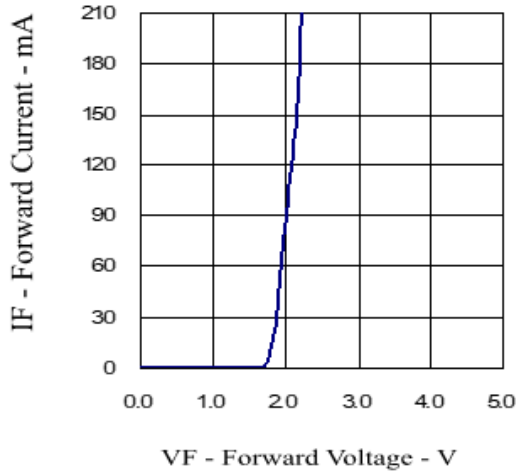
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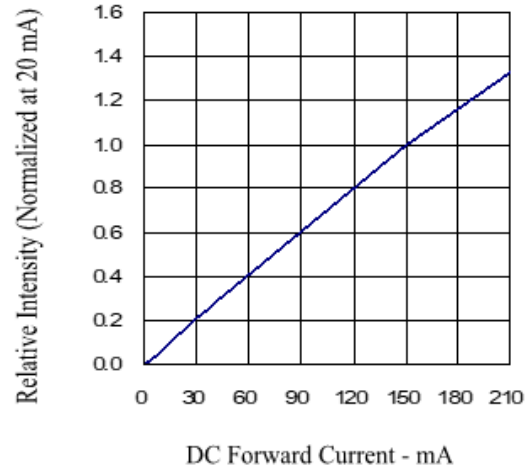
5.4 x 5.0 x 1.5mm Red PLCC-6 Tri Chip Red SMD LED

TYPICAL ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

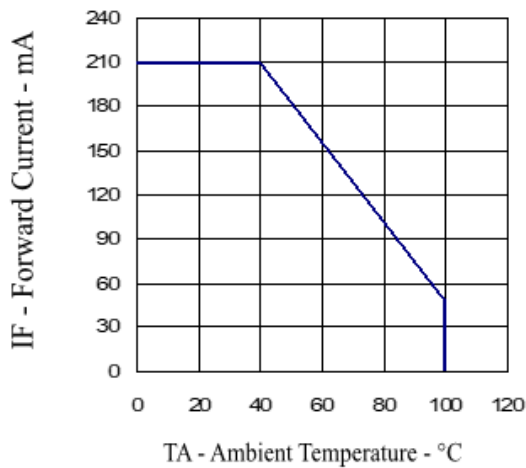
Forward Current vs. Forward Voltage



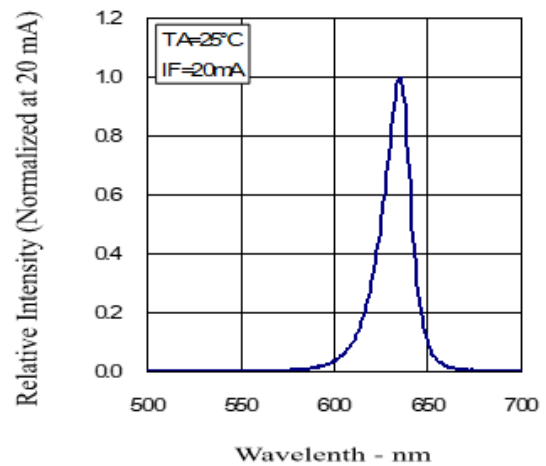
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength



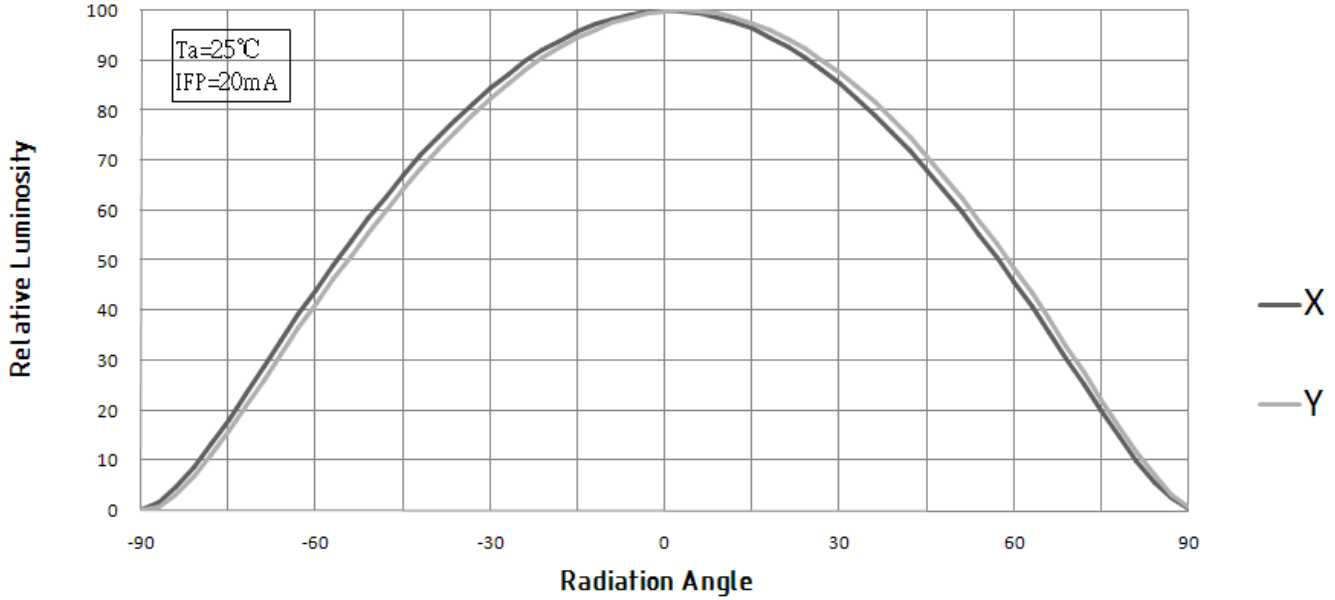


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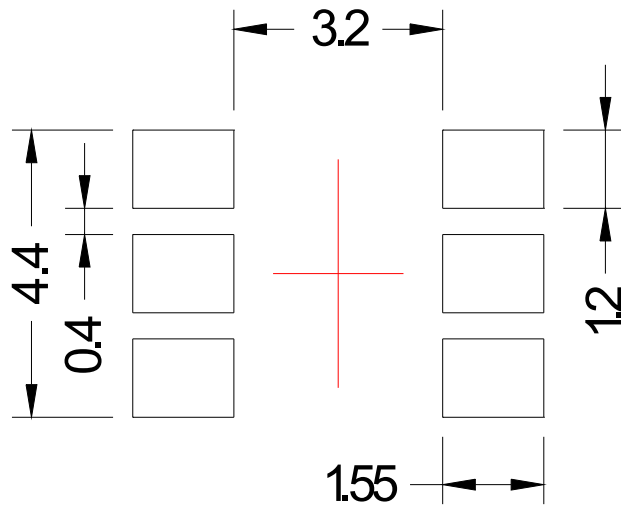
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RADIATION PATTERN



RECOMMENDED SOLDERING PAD PATTERN



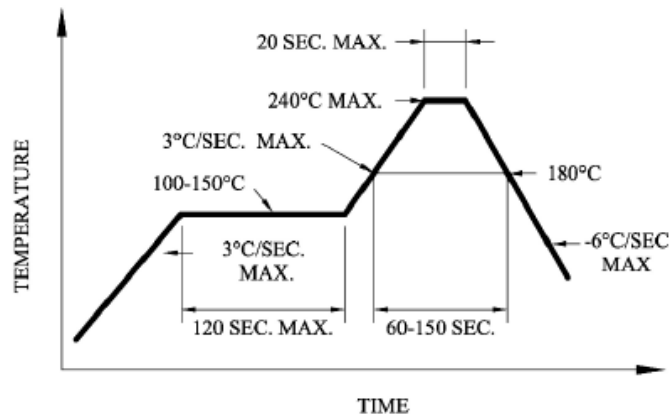
Unit: mm



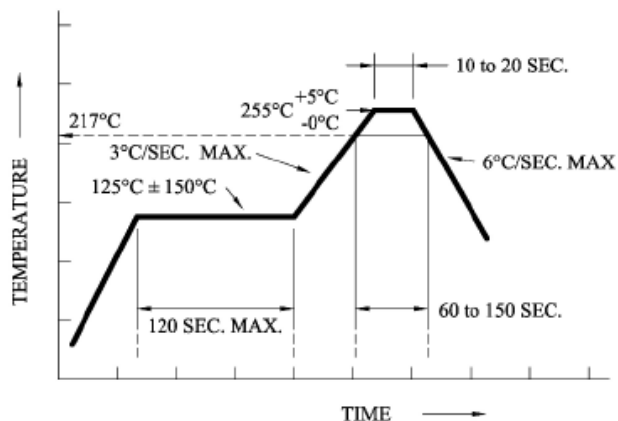
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SOLDERING CONDITIONS



Recommended reflow soldering profile



Recommended Pb-free reflow soldering profile.

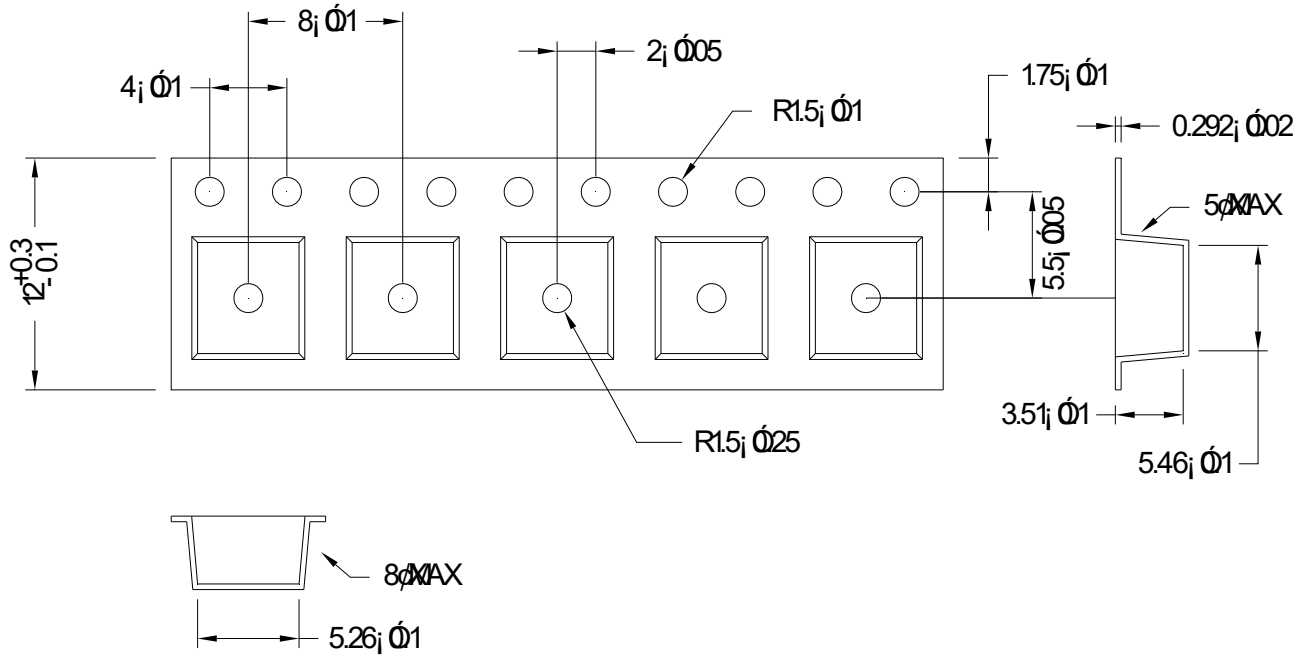
- Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing
- Reflow soldering should not be done more than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



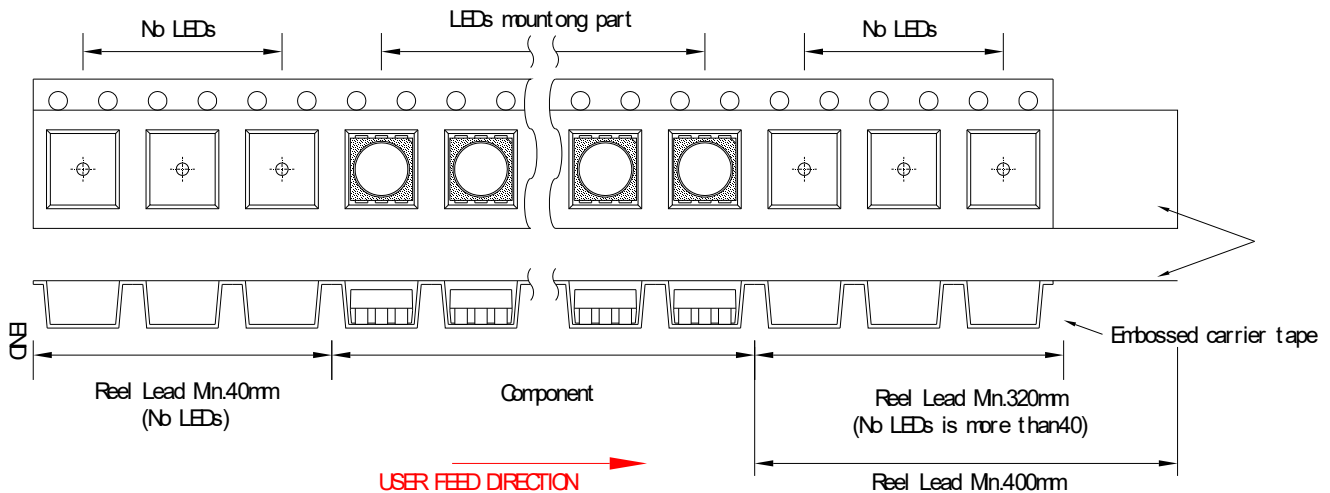
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TAPE DIMENSION



TAPE LEADER AND TRAILER DIMENSION

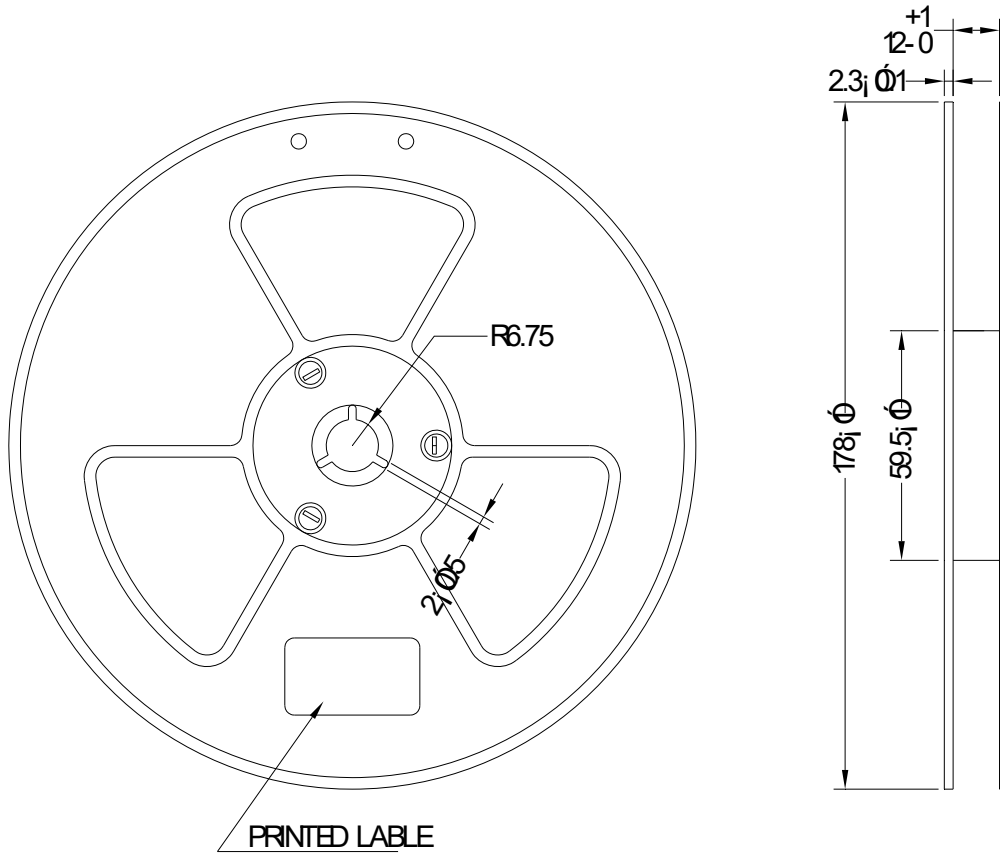




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REEL DIMENSION



Notes:

1. Baking is required under the following conditions:
The pack has been opened for more than four weeks
2. Baking recommended conditions:
 $60 \pm 5^{\circ}\text{C}$ 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	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 detail
- 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