



# American Opto Plus LED Corp.

## L955B-MWMC-Z

### 3.5 X 2.8 X 1.9mm PLCC-2

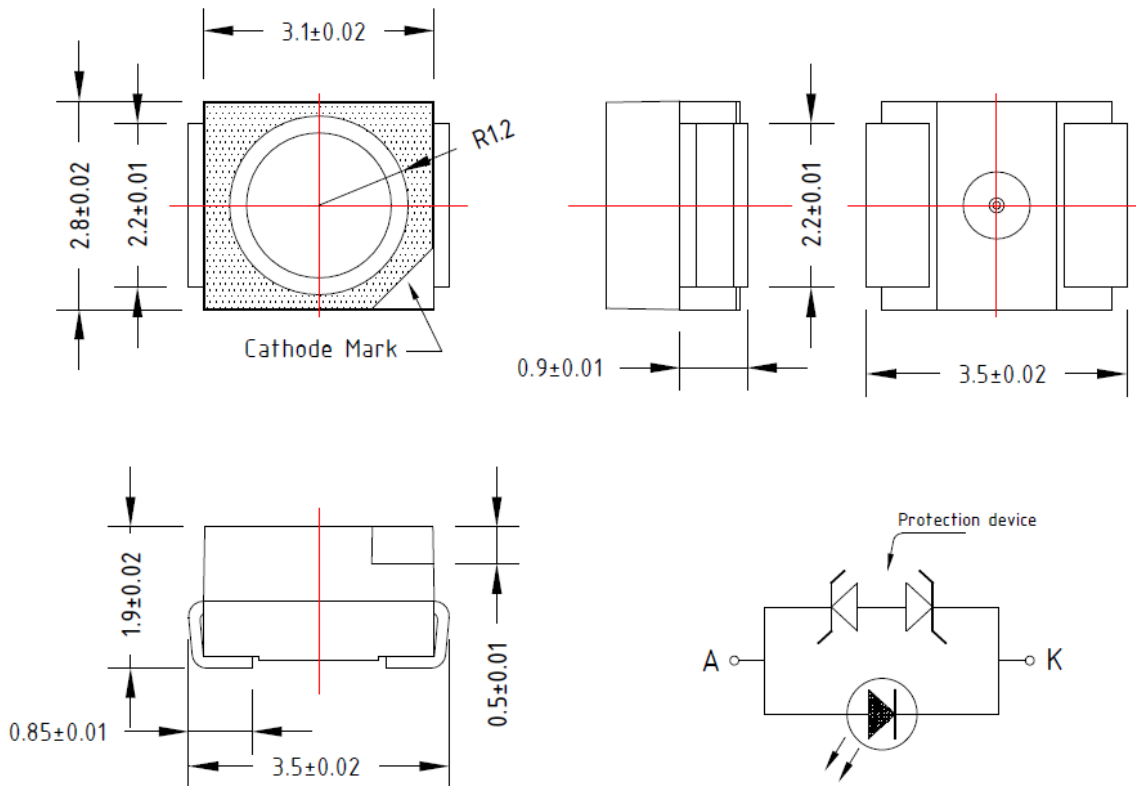
#### MAIN FEATURES:

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

### Features:

- High Luminous Output Warm White SMD LED Lamp (InGaN)
- PLCC-2 3.5 x 2.8mm standard package with Protection Device
- High reliability package
- Wide viewing angle 120 degree
- Available in 8mm carrier tape on 7 inch reel (2000 pieces)

### Package Outlines:



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

#### NOTES:

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



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**ABSOLUTE MAXIMUM RATINGS**

(Ta=25°C)

Parameter	Symbol	Max 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>	600	°C/W
Junction / Ambient	R <sub>th Ja</sub>	735	°C/W
Operating Temperature Range	T <sub>OPR</sub>	-30~+100	°C
Storage Temperature	T <sub>STG</sub>	-40~+100	°C
Solder Temperature	T <sub>SOL</sub>	265°C for 10 sec	

\*IFP Conditions: Pulse Width ≤ 10msec and Duty ≤ 1/10

\* R<sub>th Ja</sub> results from mounting on PC board FR4 (PCB size 16\*10mm)

**OPTICAL-ELECTRICAL CHARACTERISTICS**

(Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Luminous Intensity	I <sub>v</sub>	I <sub>F</sub> = 20mA	1800	2300	2800	mcd
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	3.1	3.5	V
Chromaticity Coordinate	X	I <sub>F</sub> = 20mA	--	0.43	--	
Chromaticity Coordinate	Y	I <sub>F</sub> = 20mA	--	0.40	--	

\* Luminous intensity tolerance is ±10%



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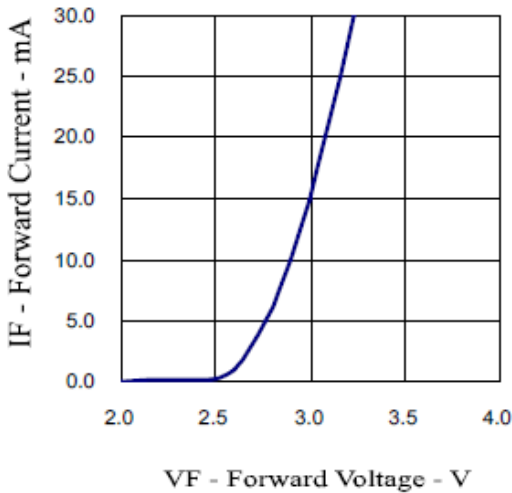
3.5 X 2.8 X 1.9mm PLCC-2

### MAIN FEATURES:

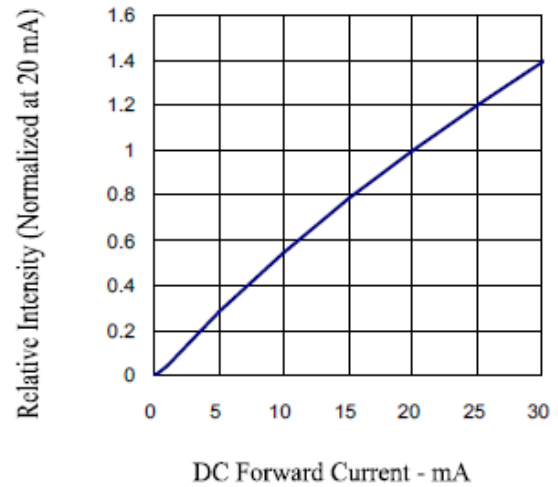
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## OPTICAL CHARACTERISTIC CURVES:

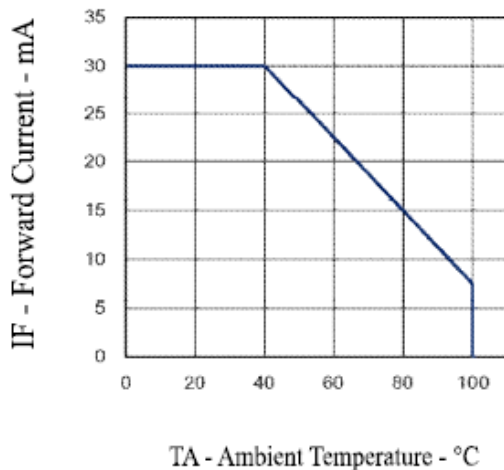
Forward Current vs. Forward Voltage



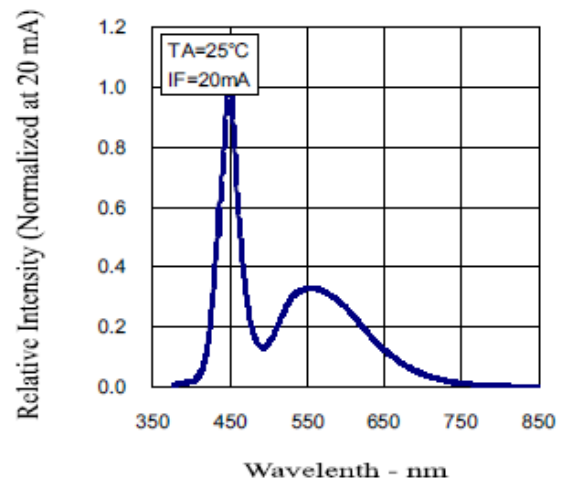
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength





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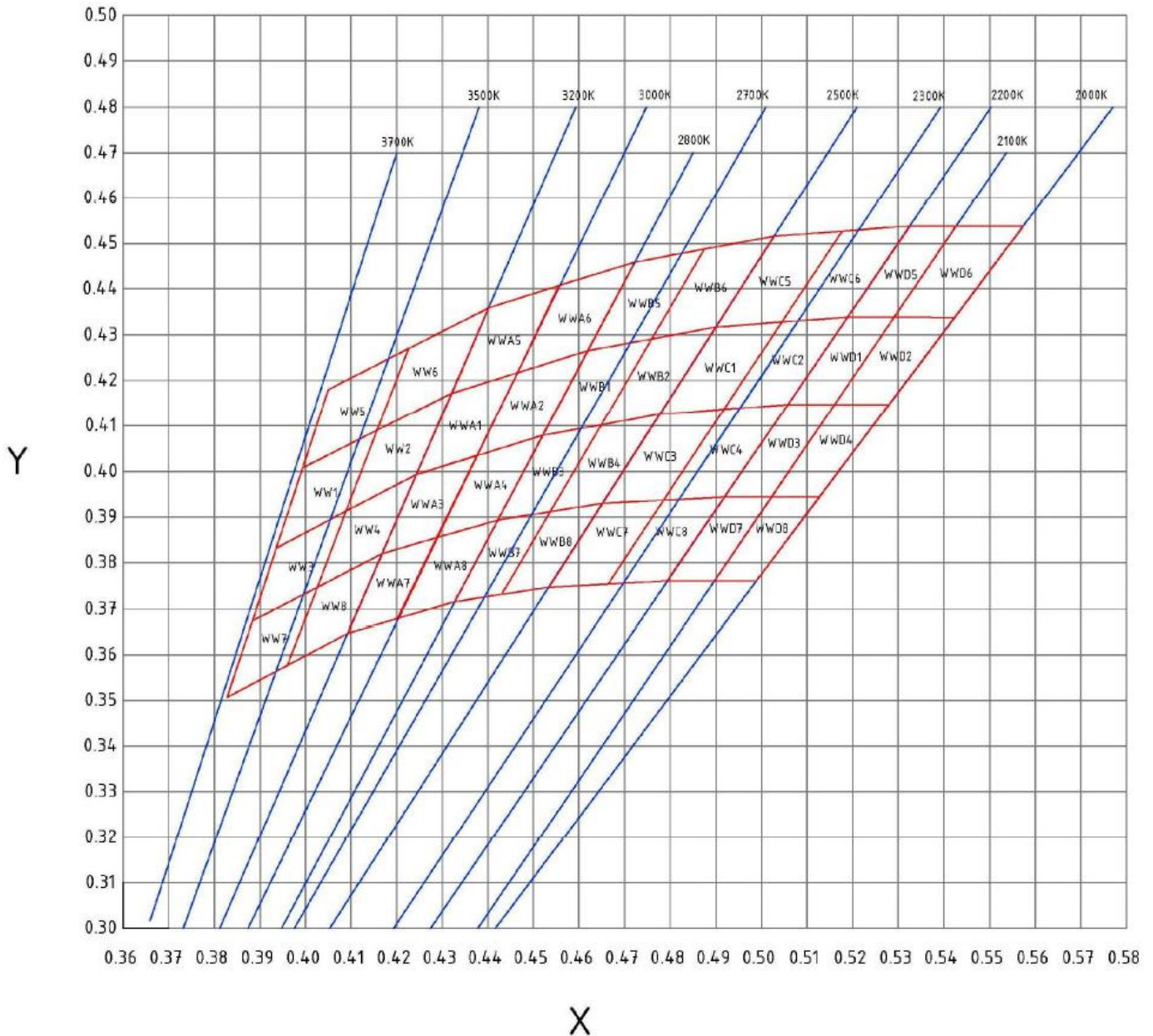
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## Chromaticity Diagram





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## Color Ranks

<b>BIN WW1</b>					<b>Bin WW2</b>				
<b>x</b>	0.39360	0.39940	0.41570	0.40890	<b>x</b>	0.40890	0.41570	0.43210	0.42430
<b>y</b>	0.38320	0.40080	0.40900	0.39130	<b>y</b>	0.39130	0.40900	0.41720	0.39930
<b>BIN WW3</b>					<b>Bin WW4</b>				
<b>x</b>	0.38840	0.39360	0.40890	0.40260	<b>x</b>	0.40260	0.40890	0.42430	0.41680
<b>y</b>	0.36740	0.38320	0.39130	0.37470	<b>y</b>	0.37470	0.39130	0.39930	0.38200
<b>BIN WW5</b>					<b>Bin WW6</b>				
<b>x</b>	0.39940	0.40500	0.42260	0.41570	<b>x</b>	0.41570	0.42260	0.44020	0.43210
<b>y</b>	0.40080	0.41800	0.42700	0.40900	<b>y</b>	0.40900	0.42700	0.43590	0.41720
<b>BIN WW7</b>					<b>Bin WW8</b>				
<b>x</b>	0.38280	0.38840	0.40260	0.39600	<b>x</b>	0.39600	0.40260	0.41680	0.40930
<b>y</b>	0.35070	0.36740	0.37470	0.35770	<b>y</b>	0.35770	0.37470	0.38200	0.36470
<b>BIN WWA1</b>					<b>Bin WWA2</b>				
<b>x</b>	0.42430	0.43210	0.44650	0.43760	<b>x</b>	0.43760	0.44650	0.46190	0.45200
<b>y</b>	0.39930	0.41720	0.42170	0.40340	<b>y</b>	0.40340	0.42170	0.42650	0.40790
<b>BIN WWA3</b>					<b>Bin WWA4</b>				
<b>x</b>	0.41680	0.42430	0.43760	0.42880	<b>x</b>	0.42880	0.43760	0.45200	0.44220
<b>y</b>	0.38200	0.39930	0.40350	0.38550	<b>y</b>	0.38550	0.40350	0.40790	0.38940
<b>BIN WWA5</b>					<b>Bin WWA6</b>				
<b>x</b>	0.43210	0.44020	0.45560	0.44650	<b>x</b>	0.45560	0.44650	0.46190	0.47220
<b>y</b>	0.41720	0.43590	0.44080	0.42170	<b>y</b>	0.44080	0.42170	0.42650	0.44590
<b>BIN WWA7</b>					<b>Bin WWA8</b>				
<b>x</b>	0.40930	0.41680	0.42880	0.42020	<b>x</b>	0.42020	0.42880	0.44220	0.43270
<b>y</b>	0.36470	0.38200	0.38550	0.36790	<b>y</b>	0.36790	0.38550	0.38940	0.37150
<b>BIN WWB1</b>					<b>Bin WWB2</b>				
<b>x</b>	0.45200	0.46190	0.47595	0.46485	<b>x</b>	0.46485	0.47595	0.49000	0.47770
<b>y</b>	0.40790	0.42650	0.42910	0.41025	<b>y</b>	0.41025	0.42910	0.43170	0.41260
<b>BIN WWB3</b>					<b>Bin WWB4</b>				
<b>x</b>	0.44220	0.45200	0.46485	0.45365	<b>x</b>	0.45365	0.46485	0.47770	0.46510
<b>y</b>	0.38940	0.40790	0.41025	0.39120	<b>y</b>	0.39120	0.41025	0.41260	0.39300
<b>BIN WWB5</b>					<b>Bin WWB6</b>				
<b>x</b>	0.46190	0.47220	0.48750	0.47595	<b>x</b>	0.47595	0.48750	0.50280	0.49000
<b>y</b>	0.42650	0.44590	0.44875	0.42910	<b>y</b>	0.42910	0.44875	0.45160	0.43170



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BIN WWB7					Bin WWB8				
x	0.43270	0.44220	0.45365	0.44305	x	0.44305	0.45365	0.46510	0.45340
y	0.37150	0.38940	0.39120	0.37310	y	0.37310	0.39120	0.39300	0.37470
BIN WWC1					Bin WWC2				
x	0.47770	0.49000	0.50445	0.49175	x	0.49175	0.50445	0.51890	0.50580
y	0.41260	0.43170	0.43280	0.41365	y	0.41365	0.43280	0.43390	0.41470
BIN WWC3					Bin WWC4				
x	0.46510	0.47770	0.49175	0.47850	x	0.47850	0.49175	0.50580	0.49190
y	0.39300	0.41260	0.41365	0.39370	y	0.39370	0.41365	0.41470	0.39440
BIN WWC5					Bin WWC6				
x	0.49000	0.50280	0.51770	0.50445	x	0.50445	0.51770	0.53260	0.51890
y	0.43170	0.45160	0.45270	0.43280	y	0.43280	0.45270	0.45380	0.43390
WWC7					WWC8				
x	0.45340	0.46510	0.47850	0.46635	x	0.46635	0.47850	0.49190	0.47930
y	0.37470	0.39300	0.39370	0.37540	y	0.37540	0.39370	0.39440	0.37610
WWD1					WWD2				
x	0.50580	0.51890	0.52910	0.51600	x	0.51600	0.52910	0.54240	0.52800
y	0.41470	0.43390	0.43390	0.41470	y	0.41470	0.43390	0.43380	0.41470
WWD3					WWD4				
x	0.49190	0.50580	0.51600	0.50220	x	0.50220	0.51600	0.52790	0.51270
y	0.39440	0.41470	0.41470	0.39440	y	0.39440	0.41470	0.41470	0.39440
WWD5					WWD6				
x	0.51890	0.53260	0.54270	0.52910	x	0.52910	0.54270	0.55740	0.54240
y	0.43390	0.45380	0.45380	0.43390	y	0.43390	0.45380	0.45380	0.43380
WWD7					WWD8				
x	0.47930	0.49190	0.50220	0.48970	x	0.48970	0.50220	0.51270	0.49890
y	0.37610	0.39440	0.39440	0.37610	y	0.37610	0.39440	0.39440	0.37610



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## Luminous Intensity Bin Table

**IF=20mA**

Rank name	Min (mcd)	Max (mcd)
1	1800	2000
2	2000	2200
3	2200	2400
4	2400	2600
5	2600	2800

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

## Voltage Bin Table

**IF=20mA**

Rank name	Min (V)	Max (V)
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  $\pm 0.5V$



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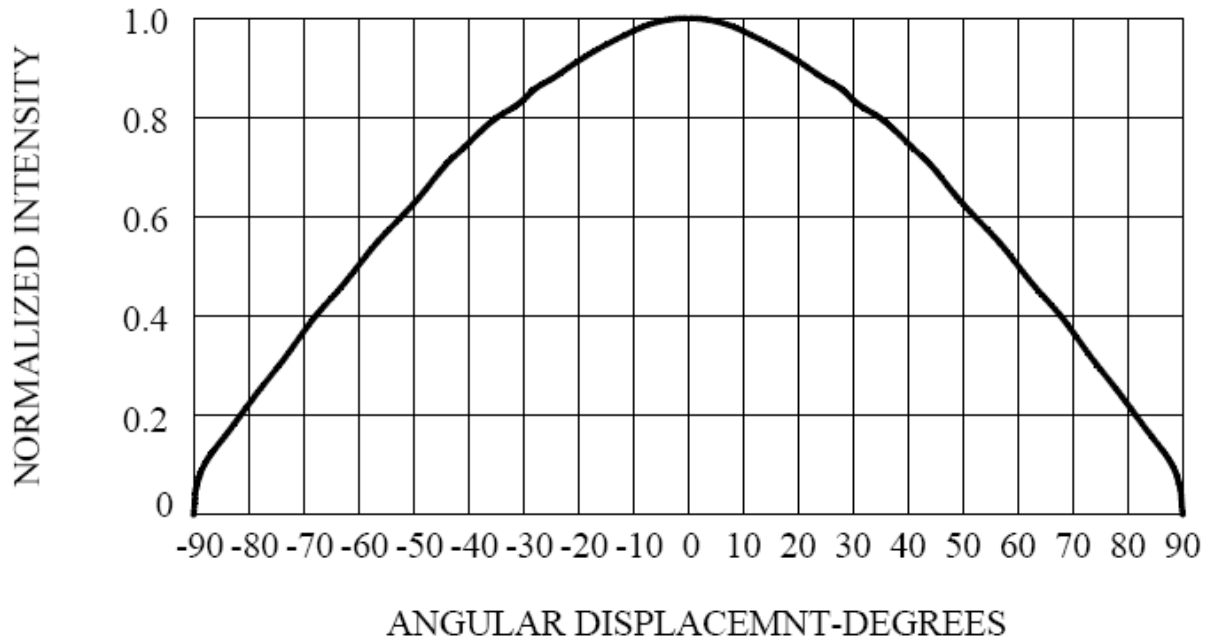
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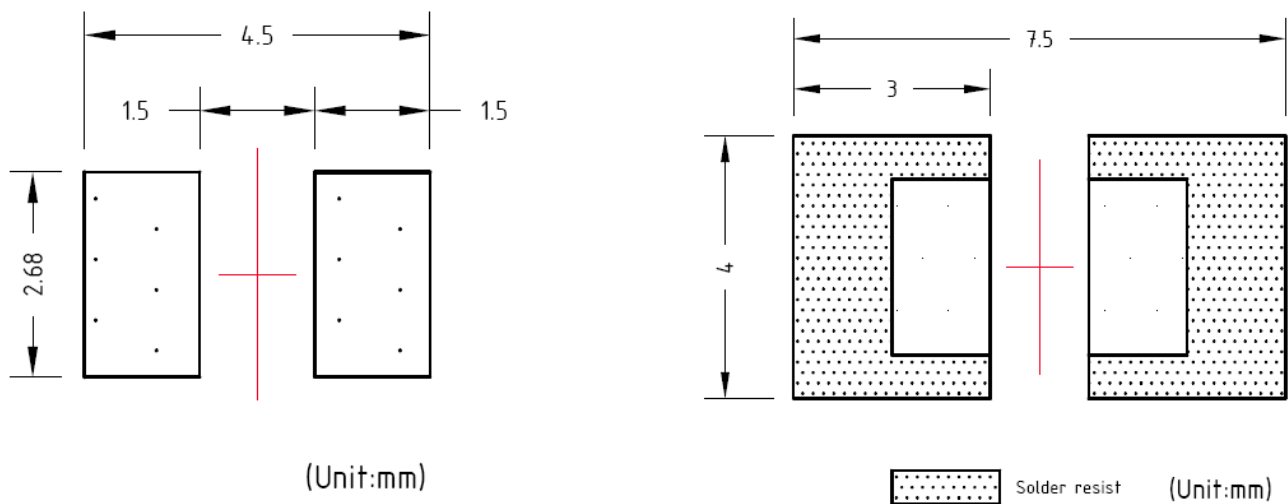
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## Radiation Pattern



## Recommended Soldering Pad Pattern





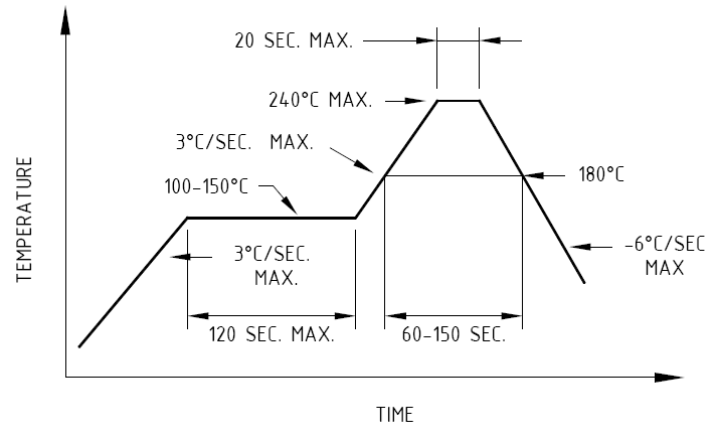


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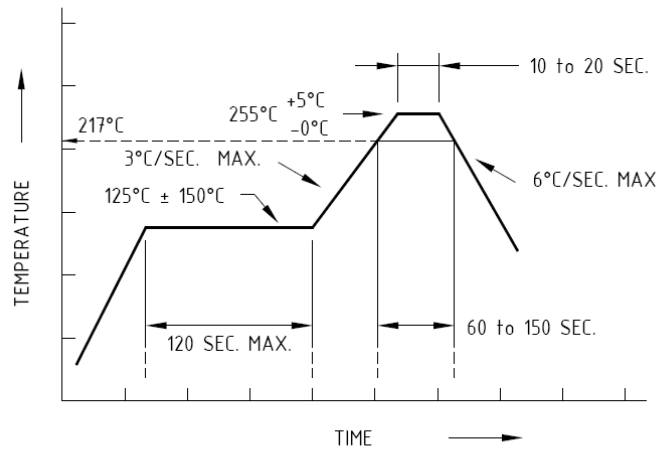
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**Soldering Conditions:**



**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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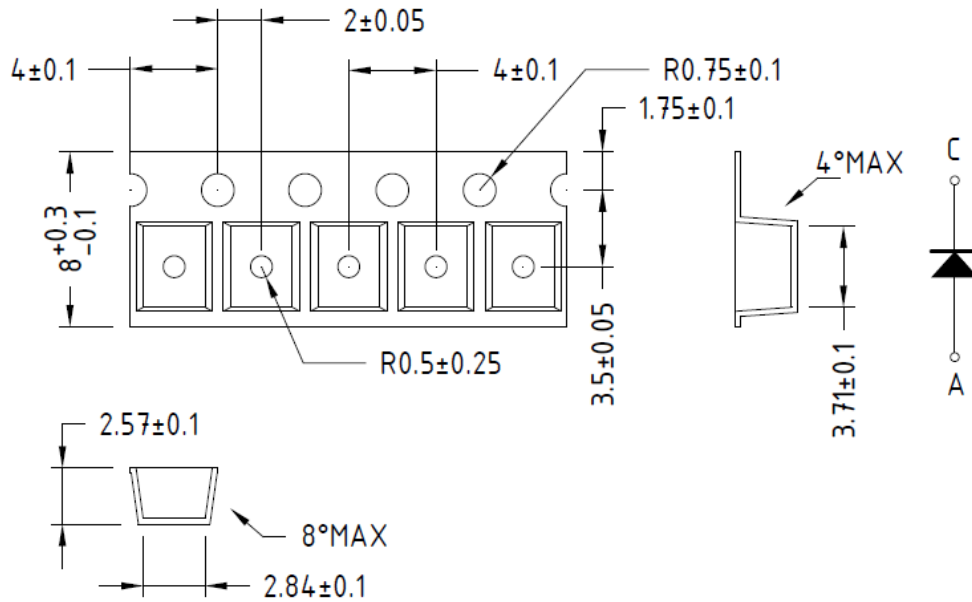
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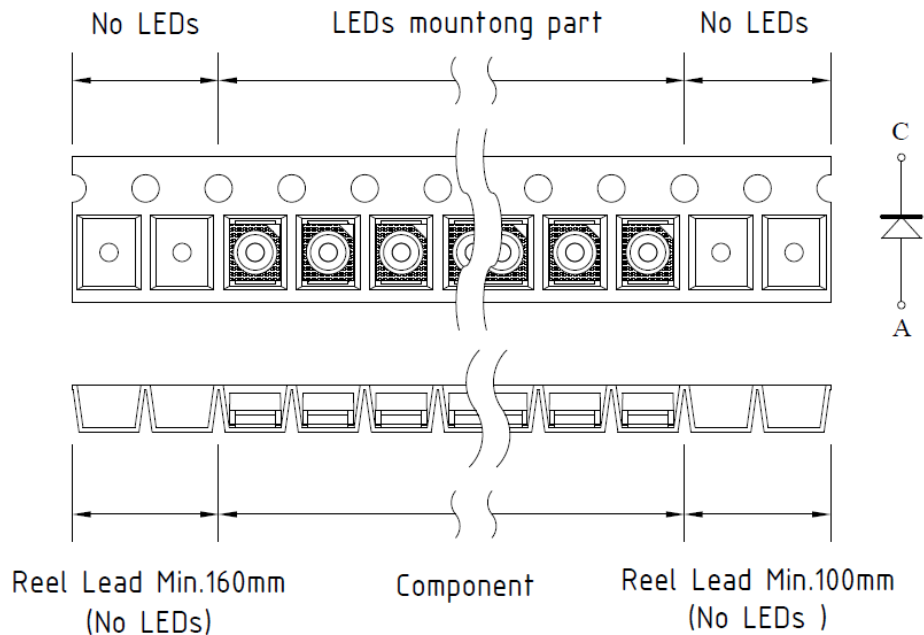
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## Tape Dimension



## Tape Leader and Trailer Dimension



USER FEED DIRECTION

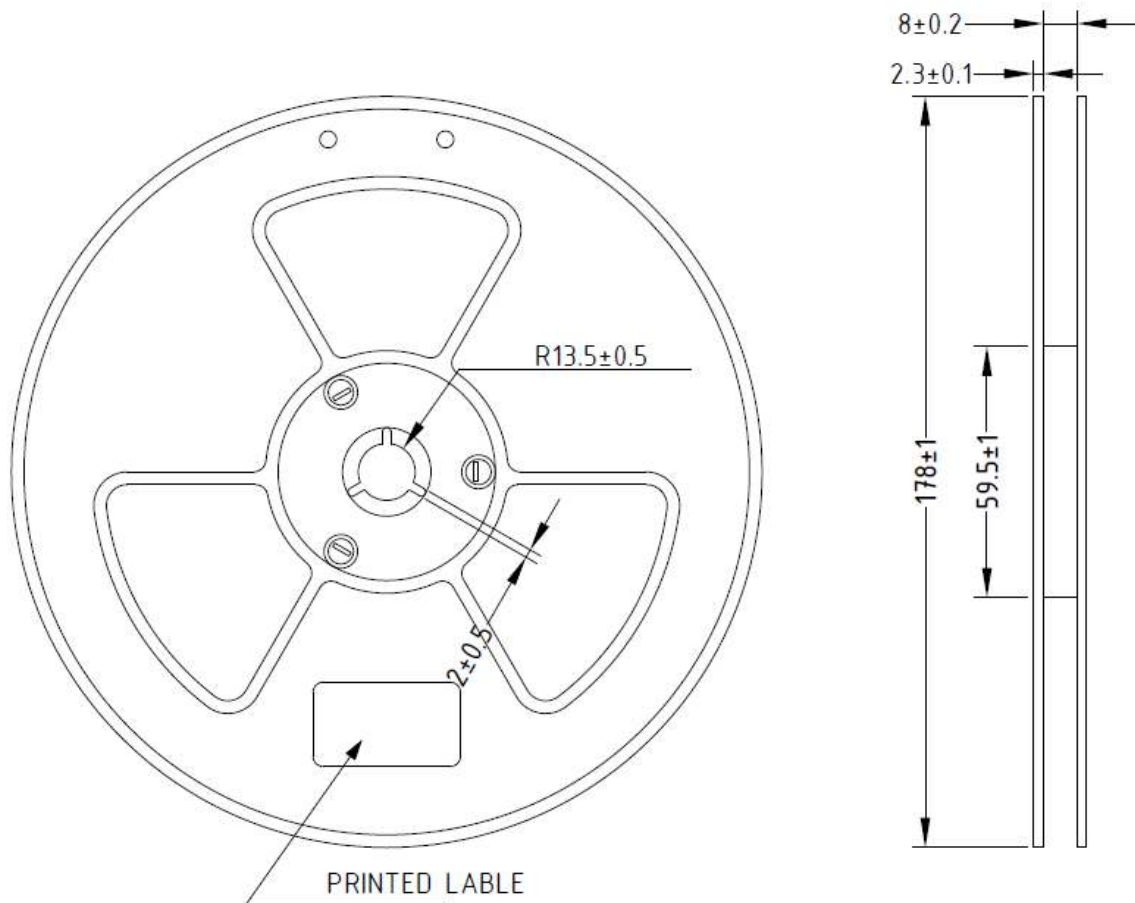


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**Reel Dimension**



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.