



# WRP161504-CTC2

## Dual Wavelength SMD Type Emitter

### Features

- Top view 1615 package
- Viewing Angle =  $\pm 65^\circ$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- RoHS compliance

### Applications

- Optical indicator.
- Switch and Symbol Display.

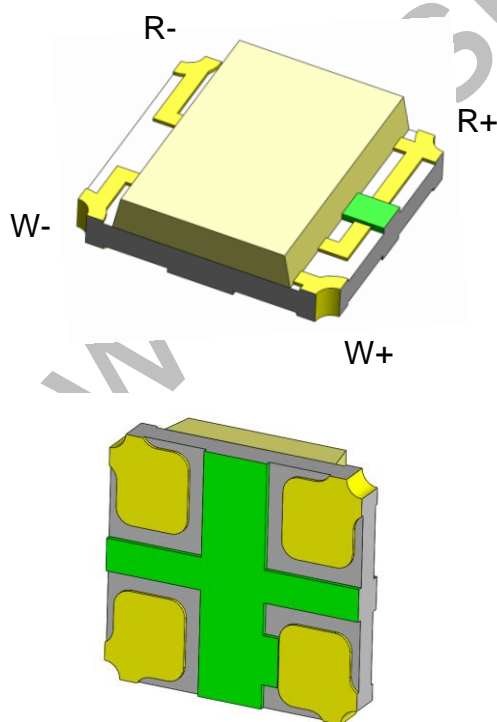
### Description

The WRP161504-CTC2 is a double LED housed in a miniature SMD package. The device has a Red and White LED.

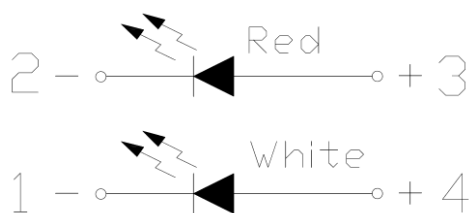
Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

### Package Outline



### Schematic



**Absolute Maximum Rating at 25°C**

Symbol	Parameters		Ratings	Units	Notes
I <sub>F</sub>	Continuous Forward Current	W	25	mA	
		R	25		
I <sub>FP</sub>	Peak Forward Current	W	60	mA	1
		R	60		
V <sub>R</sub>	Reverse Voltage		5	V	
T <sub>opr</sub>	Operating Temperature		-40 ~ +85	°C	
T <sub>stg</sub>	Storage Temperature		-40 ~ +100	°C	
T <sub>sol</sub>	Soldering Temperature		260	°C	2
P <sub>D</sub>	Power Dissipation at(or below) 25°C Free Air Temperature	W	95	mW	
		R	60		

**Electro-Optical Characteristics** *TA = 25°C (unless otherwise specified)***Optical Characteristics (White)**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	180	-	360	mcd	3
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

**Electrical Characteristics**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	2.6	-	3.2	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	

**Optical Characteristics (Red)**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	36	-	90	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	-	621	-	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

**Electrical Characteristics**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	1.6	-	2.3	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	

**Notes:**

1. I<sub>FP</sub> Conditions--Pulse Width ≤ 100μs and Duty ≤ 10%.
2. Soldering time ≤ 10 seconds.
3. Bin Range of Luminous Intensity

White				
Bin Code	Min	Max	Unit	Condition
S1	180	225	mcd	I <sub>F</sub> =5mA
S2	225	285		
T1	285	360		
Red				
NA	36	57	mcd	I <sub>F</sub> =5mA
PA	57	90		

Tolerance of: Luminous Intensity ±10%

4. Tolerance of Dominant Wavelength: ±1nm
5. Tolerance of Forward Voltage ±0.1V.



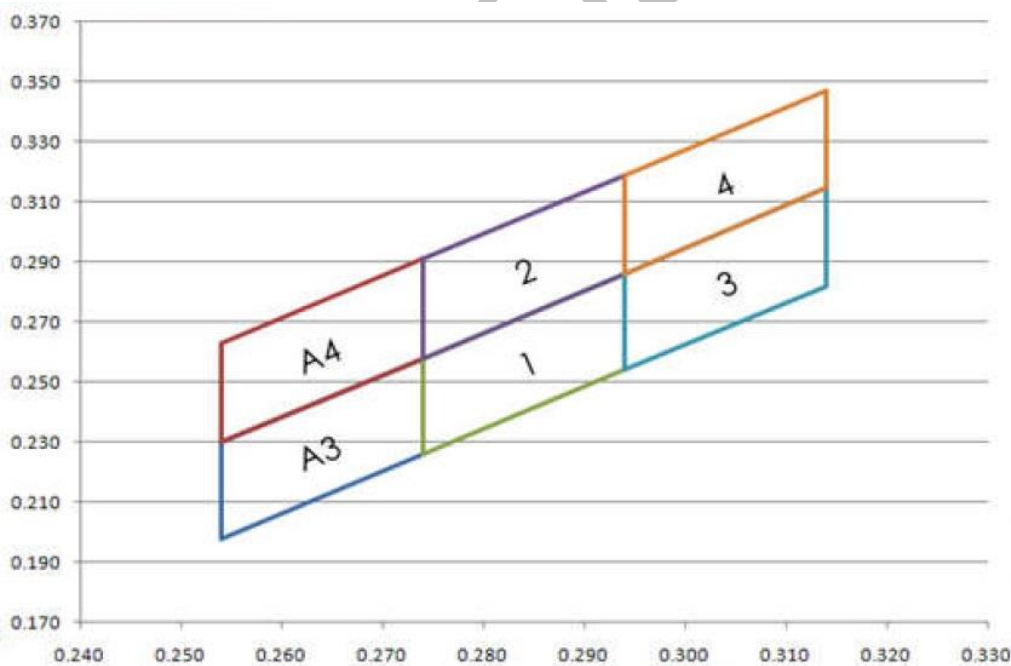
6. Bin Range of Chromaticity Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
A3	0.254	0.230	A4	0.254	0.198
	0.254	0.263		0.254	0.230
	0.274	0.291		0.274	0.258
	0.274	0.258		0.274	0.226
1	0.274	0.226	2	0.274	0.258
	0.274	0.258		0.274	0.291
	0.294	0.286		0.294	0.319
	0.294	0.254		0.294	0.286
3	0.294	0.254	4	0.294	0.286
	0.294	0.286		0.294	0.319
	0.314	0.315		0.314	0.347
	0.314	0.282		0.314	0.315

The value is based on driving current by 5mA

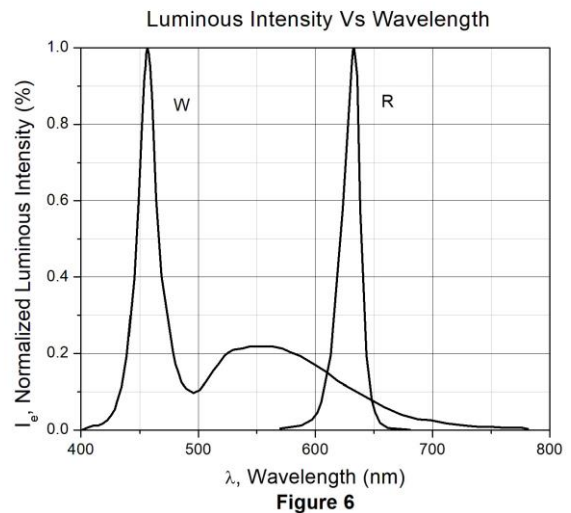
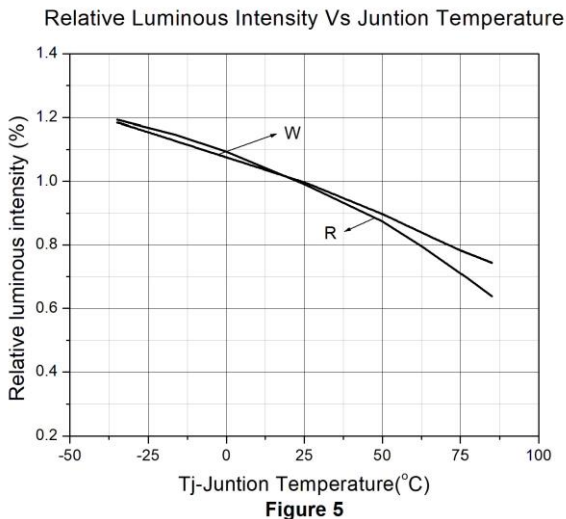
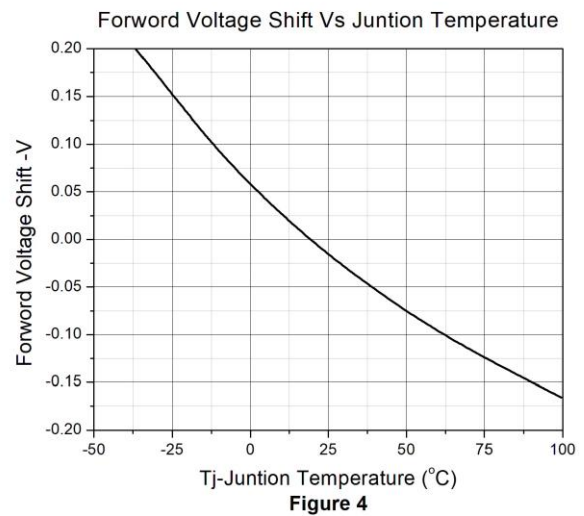
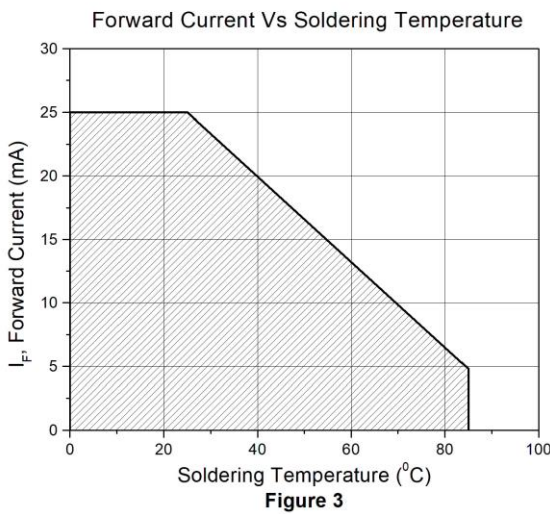
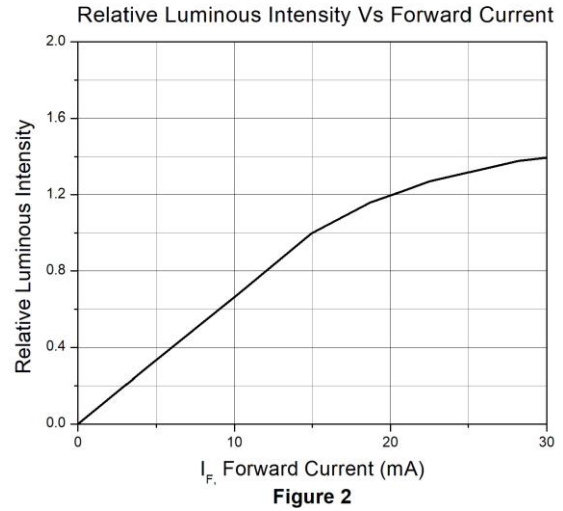
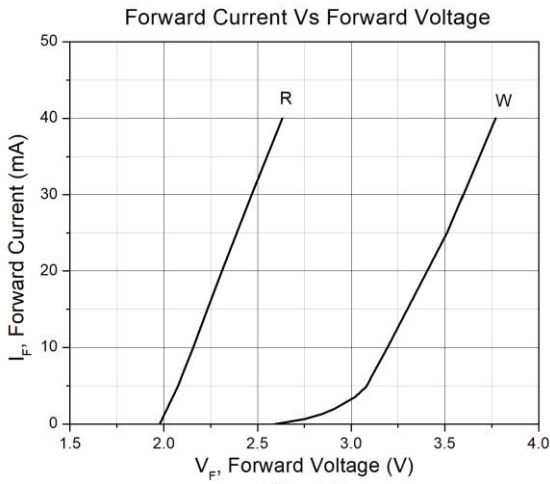
Tolerance of Chromaticity Coordinates  $\pm 0.01$

**The C.I.E. 1931 Chromaticity Diagram**





### Typical Characteristic Curves





### Typical Characteristic Curves

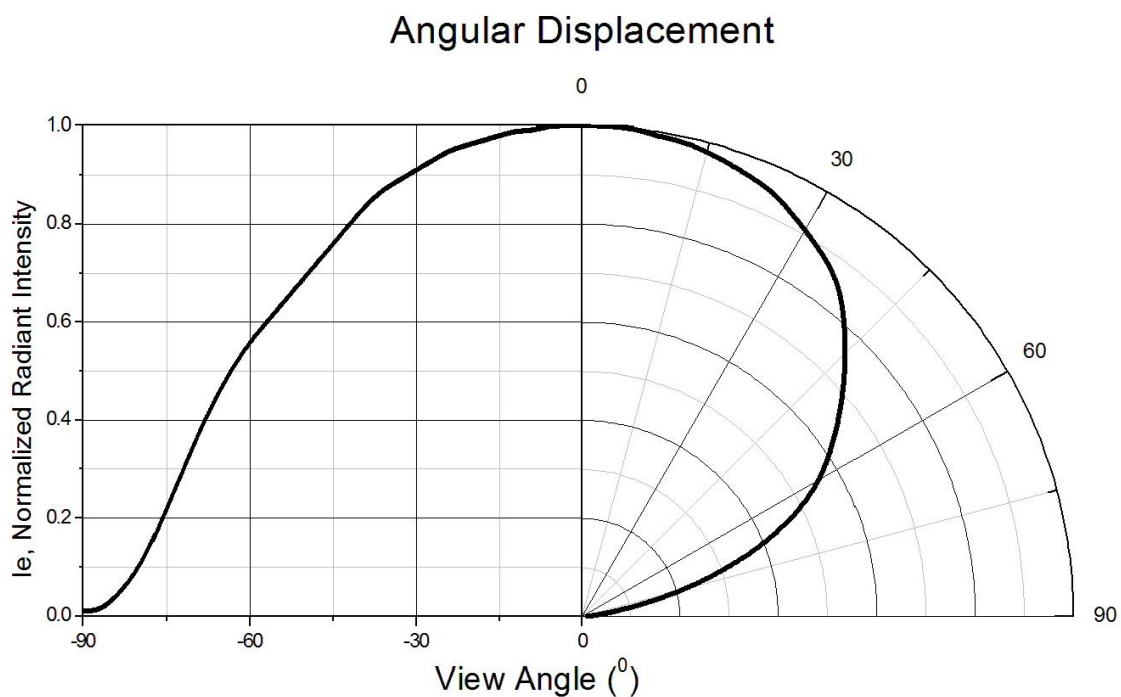
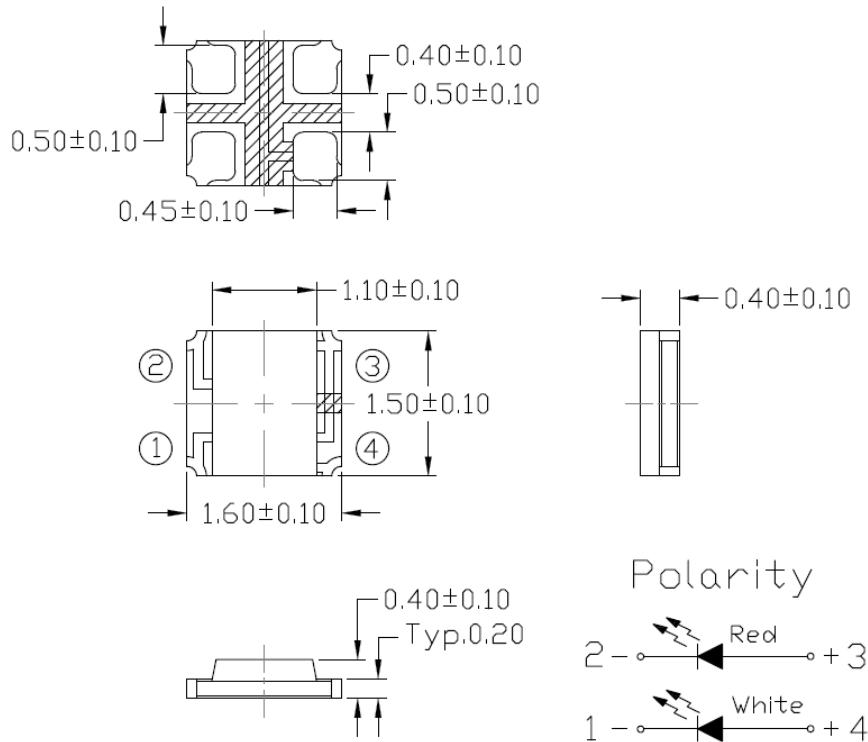


Figure 7

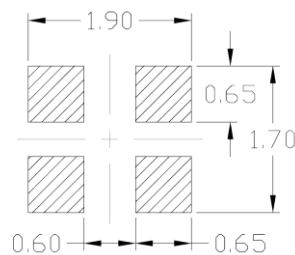


**Package Dimension** *All dimensions are in mm, unless otherwise stated*



Note: Tolerance unless mentioned is  $\pm 0.1$ mm.

**Recommended Soldering Mask** *All dimensions are in mm, unless otherwise stated*



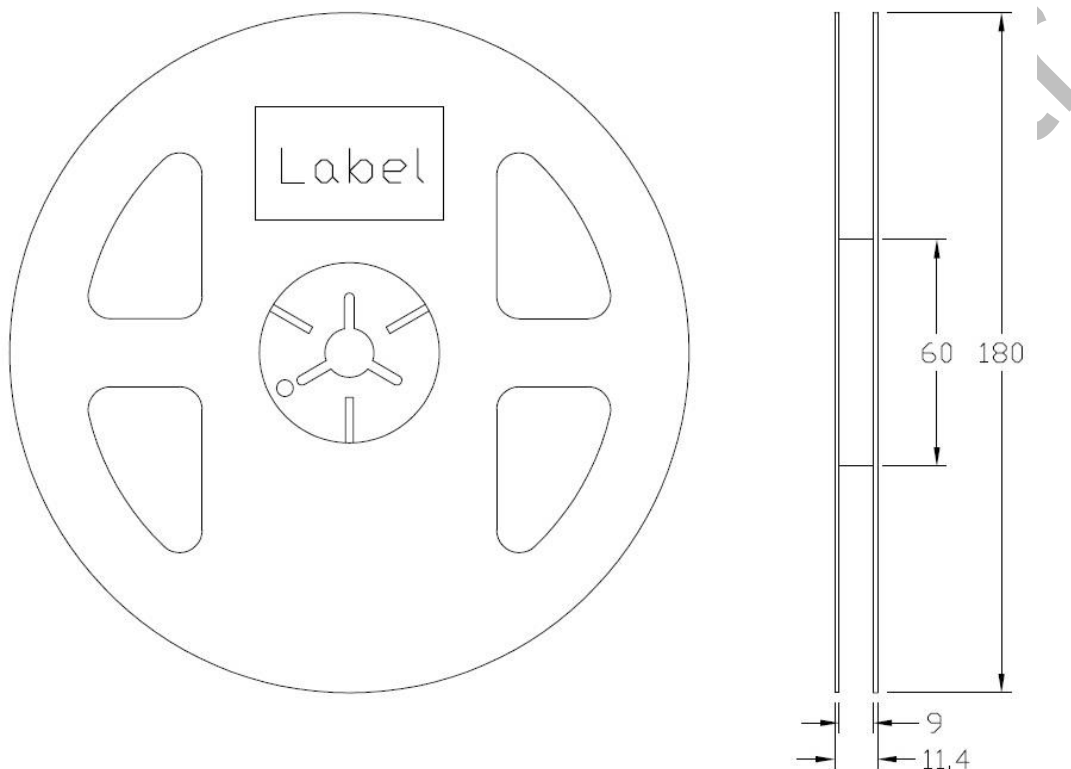
Note: Tolerance unless mentioned is  $\pm 0.1$ mm.

**Ordering Information**

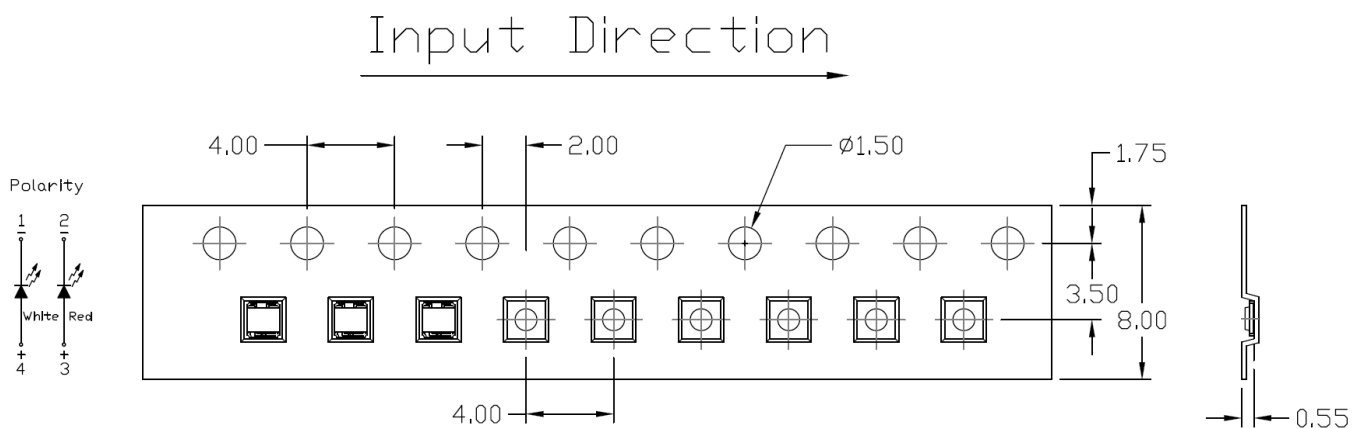
Part Number	Description	Quantity
WRP161504-CTC2	Tape & Reel	2000 pcs



**Reel Dimension** *All dimensions are in mm, unless otherwise stated*



**Tape Dimension** *All dimensions are in mm, unless otherwise stated*

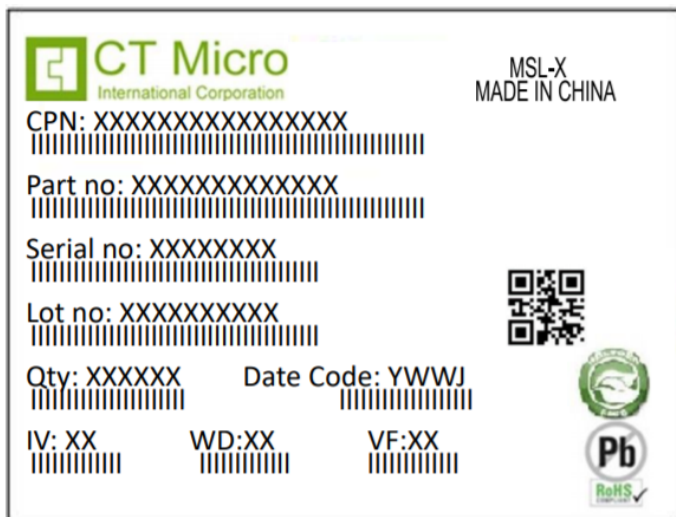


Note: Tolerance unless mentioned is  $\pm 0.1$ mm.





### Label Form Specification



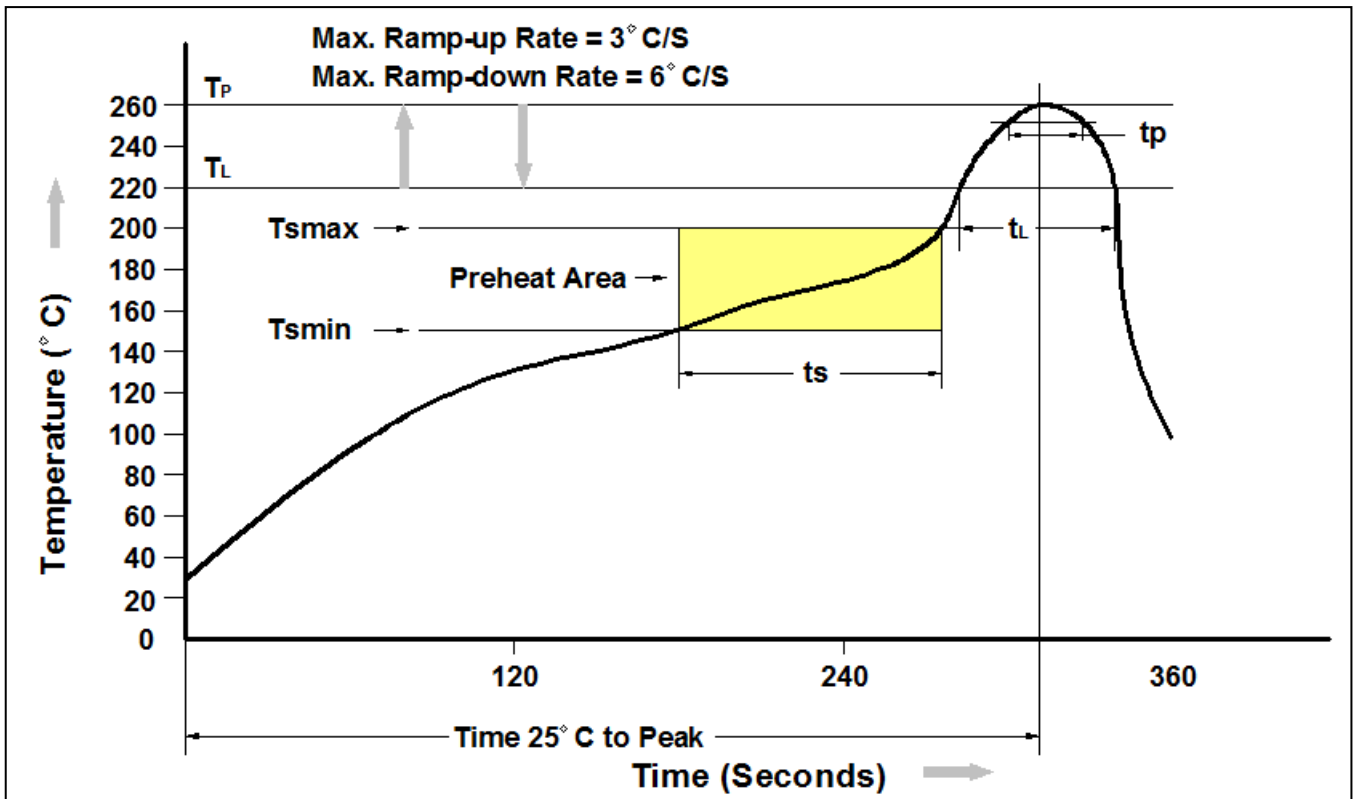
CPN : Customer Part Number  
Part no: CTM Production Number  
Serial no: Production Number  
Lot no: Lot number  
Q'ty: Packing Quantity  
Date Code: Manufacture Date  
IV : Bin Code of Luminous Intensity  
WD : Bin Code of Dominant Wavelength  
VF : Bin Code of Forward Voltage  
MADE IN CHINA: Production Place

### Storage Condition

1. Do not open moisture proof bag before the products are ready to use.
2. The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening.  
Shelf life of non-opened bag is 12 months after the bag sealing date.
3. After opening the moisture barrier bag floor life is 1 year at 30°C/60%RH. max. Unused LEDs should be resealed into moisture barrier bag. (Refer to J-STD-020 Standard)
4. If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the J-STD-033 Standard conditions.



Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmmin)	150°C
Temperature Max. (Tsmmax)	200°C
Time (ts) from (Tsmmin to Tsmmax)	60-120 seconds
Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of 260°C	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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