



# GBRP161504-NCTC2

## Multi-Wavelength SMD Type

### Features

- Top view 1615 package
- Wide viewing angle
- RGB individual control
- High reliability
- RoHS compliance

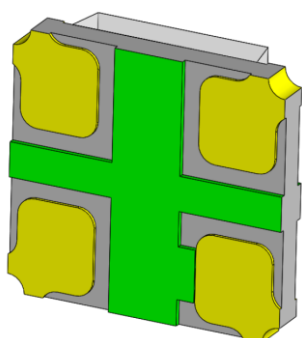
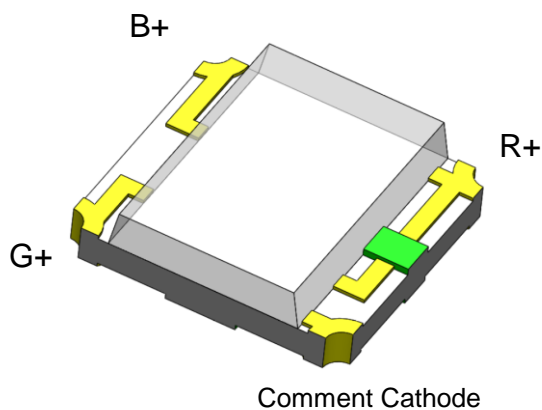
### Applications

- General lighting
- Indoor signage display applications
- Switch light
- Decorative and Entertainment lighting

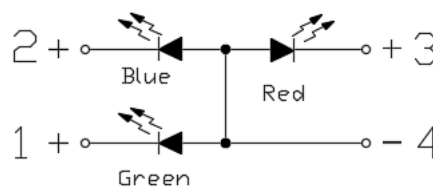
### Description

The GBRP161504-NCTC2 is a high brightness device designed for demanding applications in efficiency and reduced space. An ideal device in emphasizing visual effects, advertisement, decoration as well as general backlighting needs.

### Package Outline



### Schematic





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### Absolute Maximum Rating at 25°C

Symbol	Parameters		Ratings	Units	Notes
I <sub>F</sub>	Continuous Forward Current	G	25	mA	
		B	25		
		R	25		
I <sub>FP</sub>	Peak Forward Current	G	60	mA	1
		B	60		
		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	G	95	mW	
		B	95		
		R	60		

### Electro-Optical Characteristics *T<sub>A</sub> = 25°C (unless otherwise specified)*

#### Optical Characteristics (Green)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	140	-	360	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	520	-	535	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

#### Electrical Characteristics (Green)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	2.5	-	3.1	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	



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## Multi-Wavelength SMD Type

### Optical Characteristics (Blue)

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	22.5	-	90	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	465	-	475	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

### Electrical Characteristics (Blue)

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	2.5	-	3.1	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	

### Optical Characteristics (Red)

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
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	-	622	-	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

### Electrical Characteristics (Red)

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	1.6	-	2.1	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.



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### 3. Bin Range of Luminous Intensity

Green				
Bin Code	Min	Max	Unit	Condition
RA	140	225	mcd	I <sub>F</sub> =5mA
SA	225	360		
Blue				
MA	22.5	36.0	mcd	I <sub>F</sub> =5mA
NA	36.0	57.0		
PA	57.0	90.0		
Red				
NA	36	57	mcd	I <sub>F</sub> =5mA
PA	57	90		

Tolerance of Luminous Intensity  $\pm 10\%$

### 4. Bin Range of Dominant Wavelength

Green				
Bin Code	Min	Max	Unit	Condition
A5	520	525	nm	I <sub>F</sub> =5mA
A6	525	530		
A7	530	535		
Blue				
A6	465	470	nm	I <sub>F</sub> =5mA
A7	470	475		

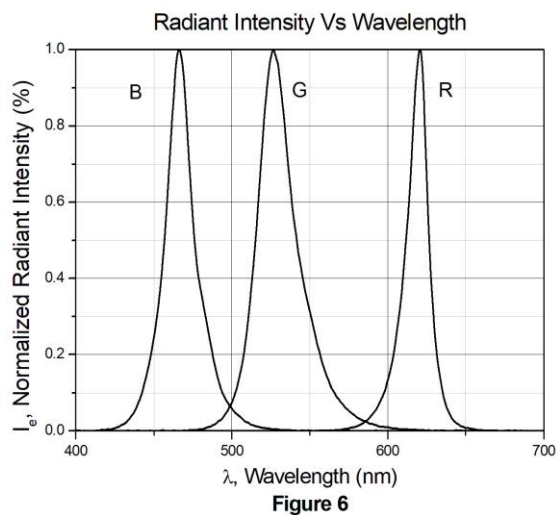
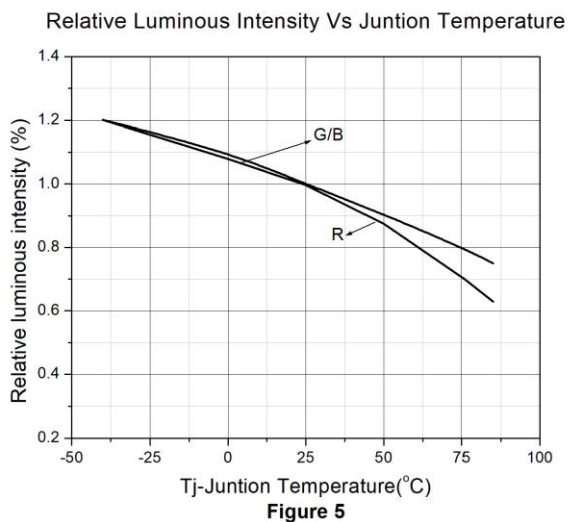
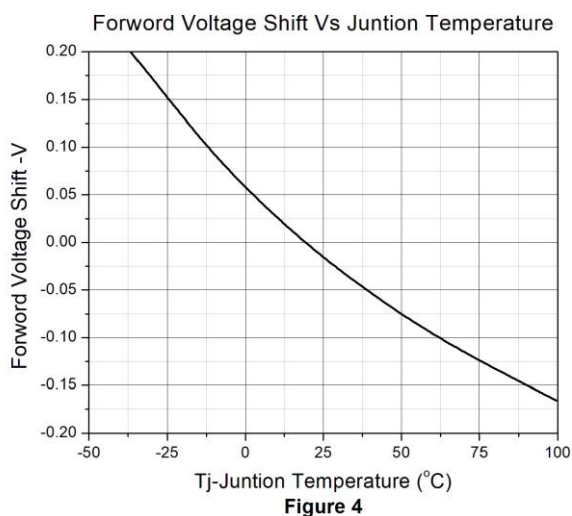
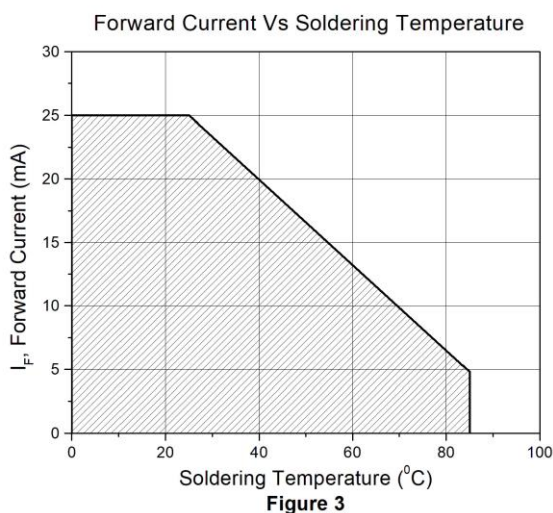
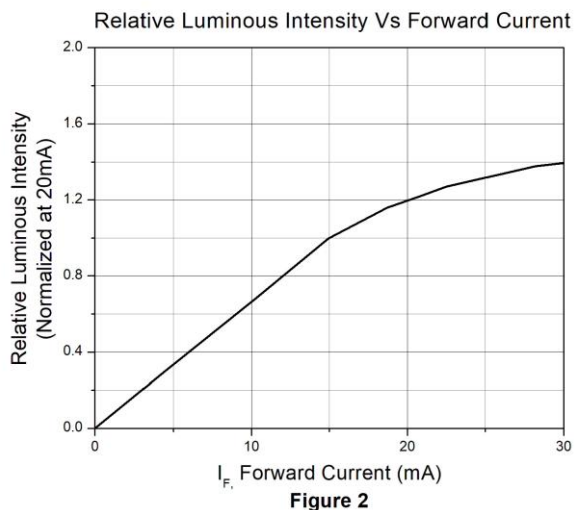
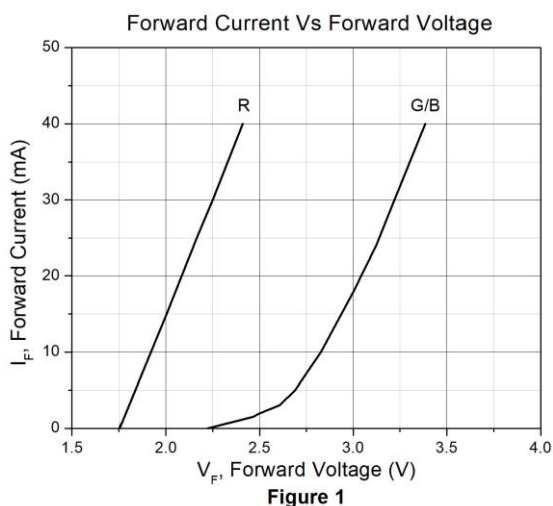
Tolerance of Dominant Wavelength:  $\pm 1\text{nm}$ .



# GBRP161504-NCTC2

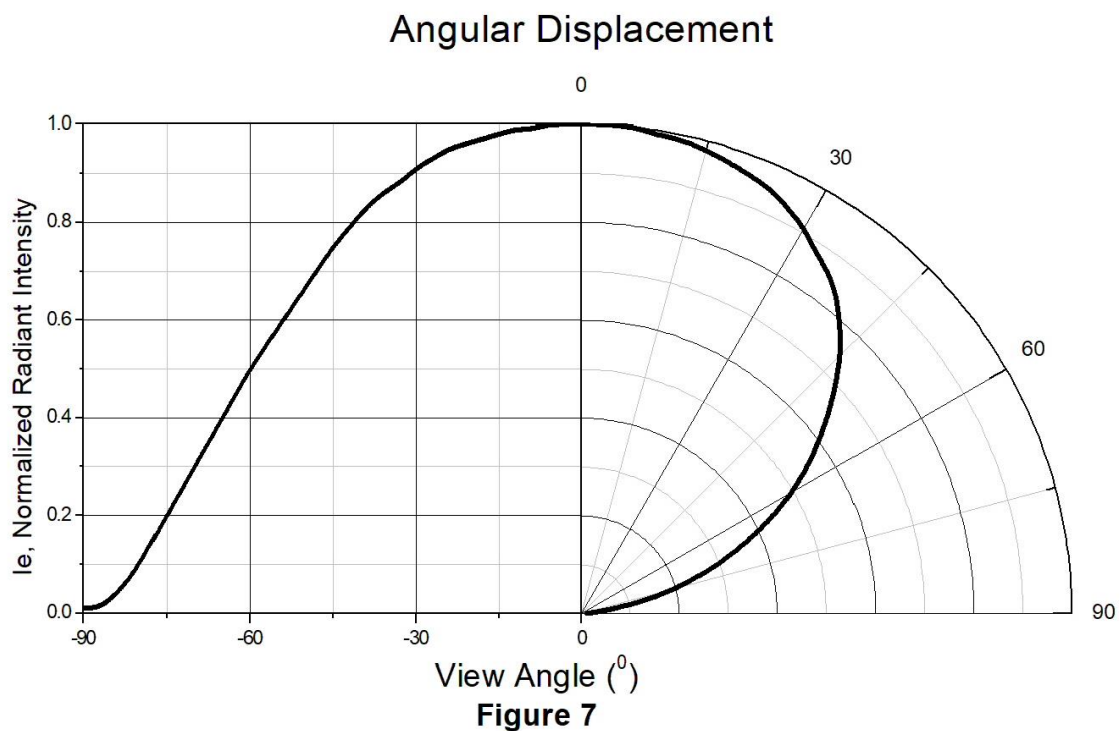
## Multi-Wavelength SMD Type

### Typical Characteristic Curves





## Typical Characteristic Curves

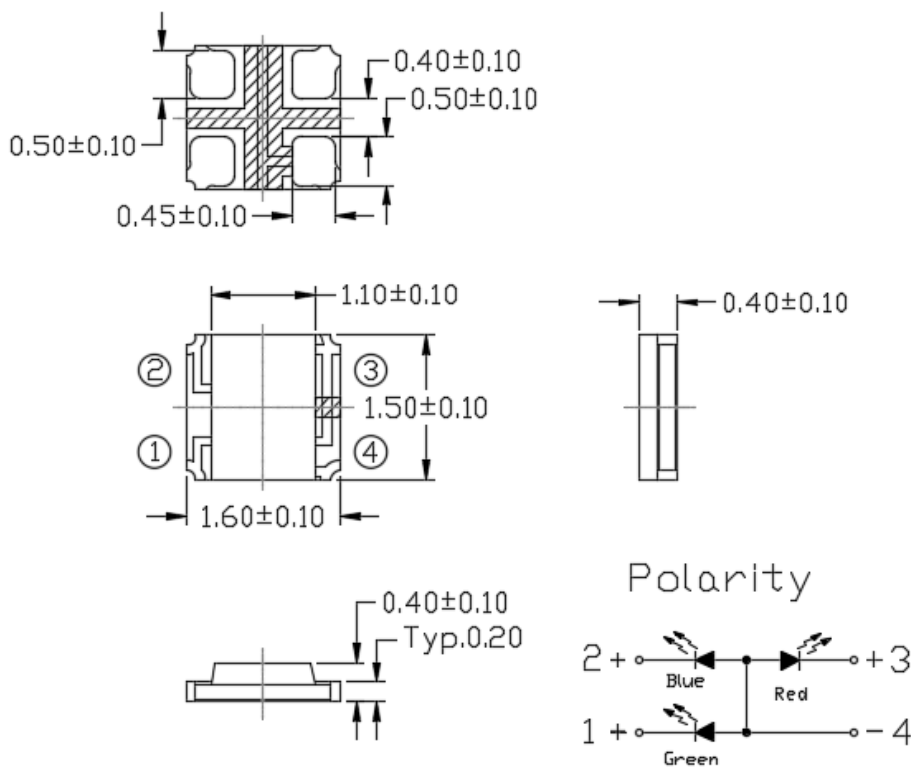




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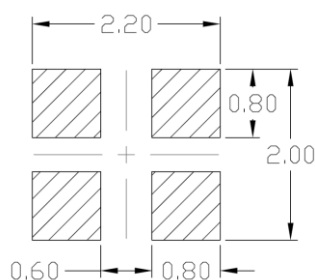
## Multi-Wavelength SMD Type

### 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
GBRP161504-NCTC2	Tape & Reel	2000 pcs

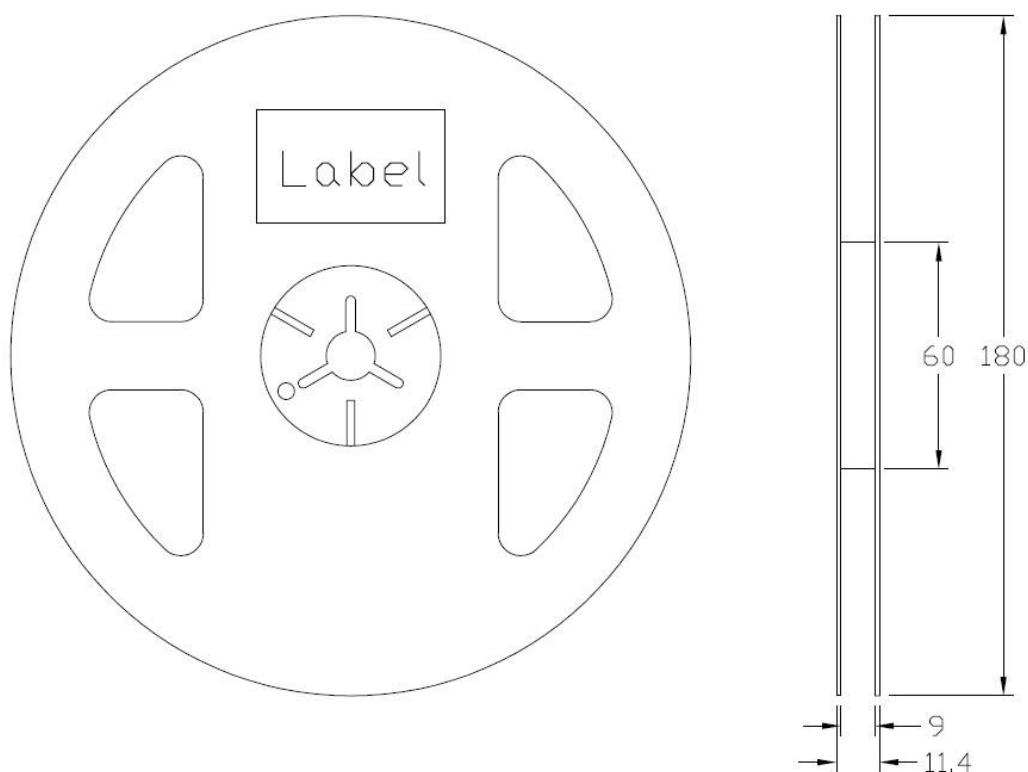


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## Multi-Wavelength SMD Type

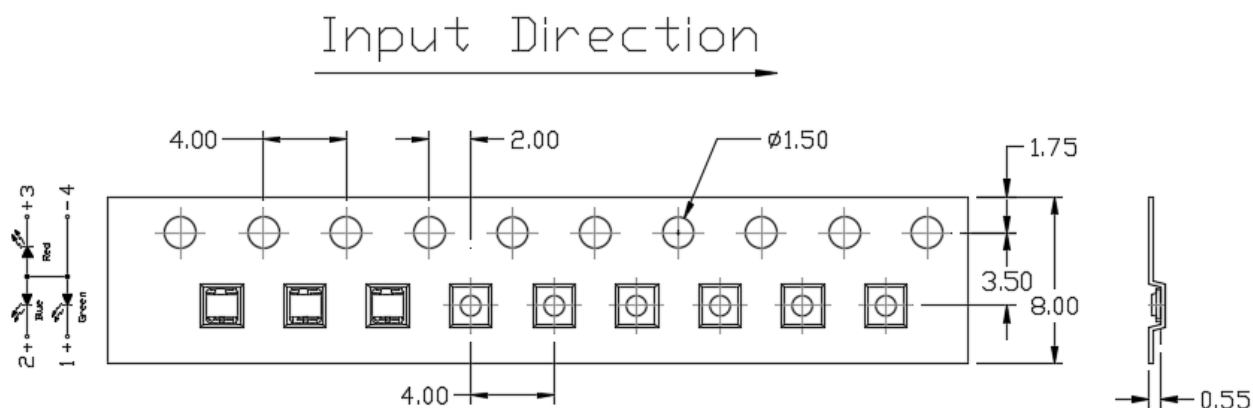
### Reel Dimension

All dimensions are in mm, unless otherwise stated



### Tape Dimension

All dimensions are in mm, unless otherwise stated

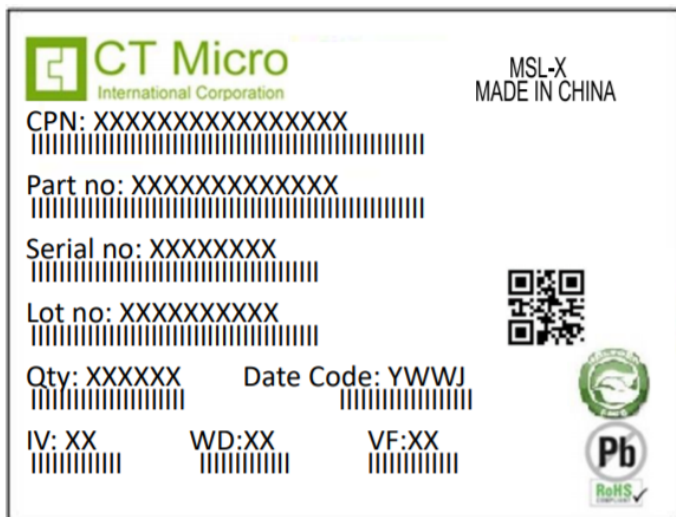


Note: Tolerance unless mentioned is  $\pm 0.1$ mm





### 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

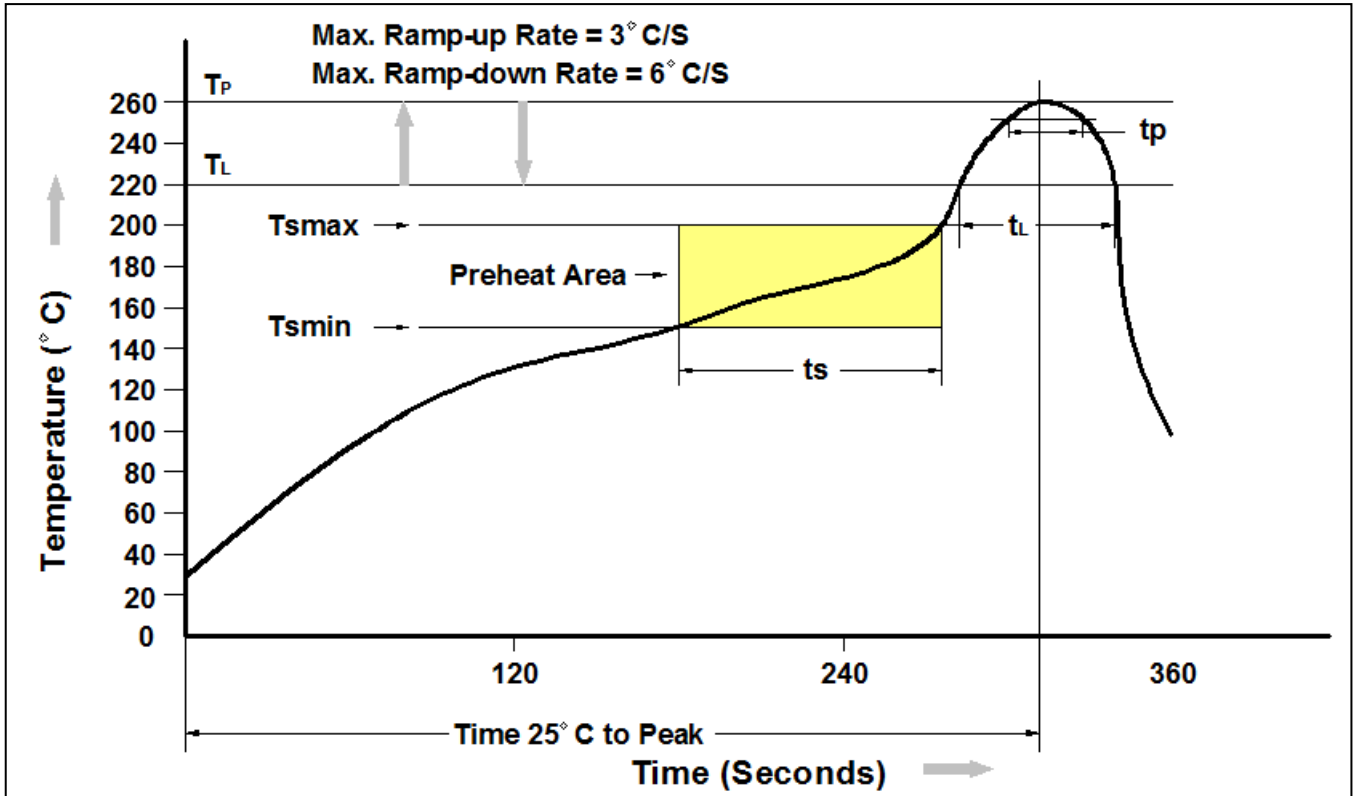
1. Do not open moisture proof bag before the products are ready to use.
2. The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening.  
Shelf life of non-opened bag is 12 months after the bag sealing date.
3. After opening the moisture barrier bag floor life is 1 year at 30°C/60%RH. 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.



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### Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T Amin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (T Amin to Tsmax)	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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