



# BP160804-ATC4

## SMD Type Blue Emitter

### Features

- Top view 0603 package
- Viewing Angle =  $\pm 60^\circ$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- Ultra bright Blue
- RoHS compliance

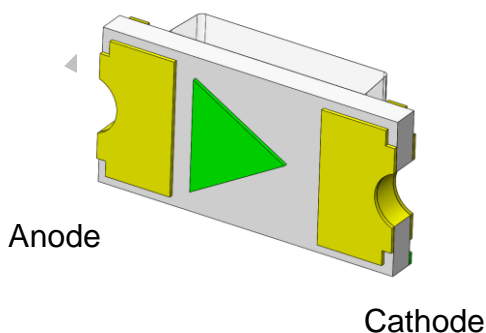
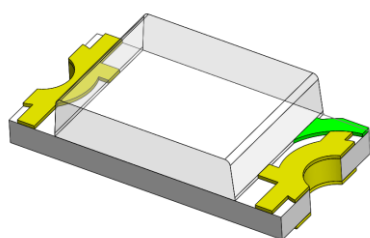
### Applications

- Optical indicator.
- Switch and Symbol Display.

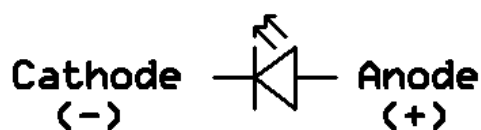
### Description

The BP160804-ATC4 is an InGaN Blue LED housed in a miniature SMD package. The device has a dominant wavelength of 465nm LED.

### 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	25	mA	
I <sub>FP</sub>	Peak Forward Current	60	mA	1
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	95	mW	

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

#### Optical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =20mA	72	-	180	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =20mA	457.5	-	470	nm	4
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =20mA	-	±60	-	deg	

#### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =20mA	2.9	-	3.4	V	5
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

Bin Code	Min	Max	Unit	Condition
Q1	72	90	mcd	I <sub>F</sub> =20mA
Q2	90	112		
R1	112	140		
R2	140	180		

Tolerance of Luminous Intensity ±10%



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### 4. Bin Range of Dominant Wavelength

Bin Code	Min	Max	Unit	Condition
B4	457.5	460.0	nm	$I_F=20\text{mA}$
B5	460.0	462.5		
B6	462.5	465.0		
B7	465.0	467.5		
B8	467.5	470.0		

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

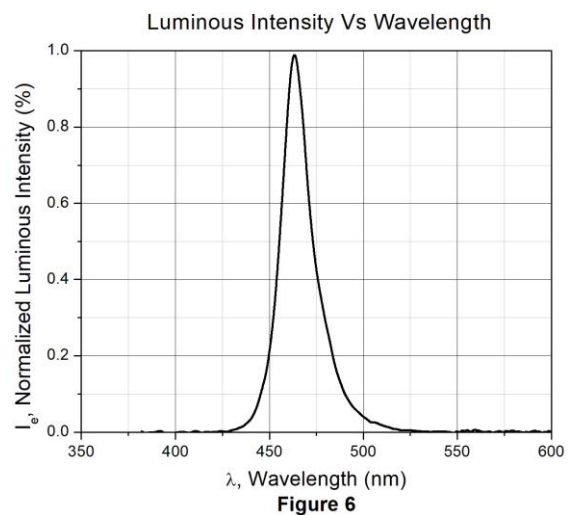
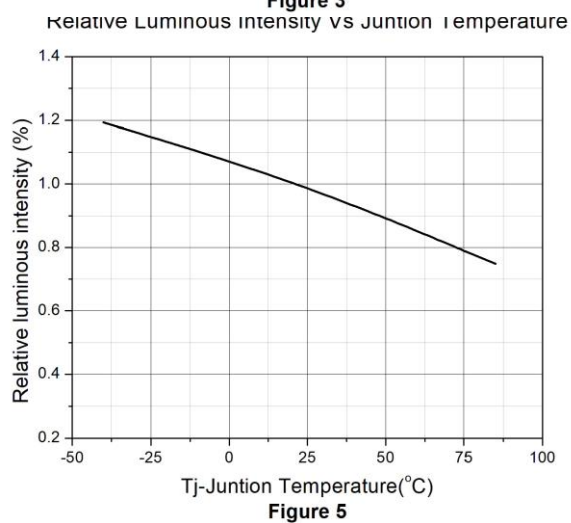
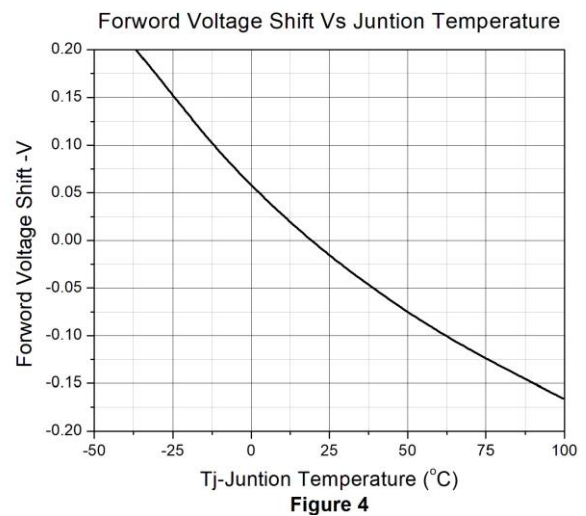
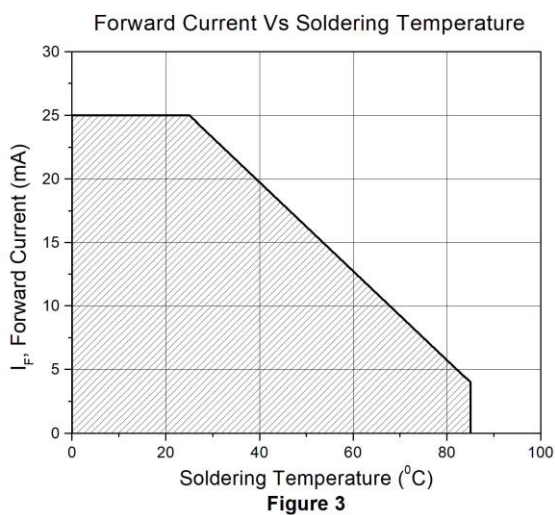
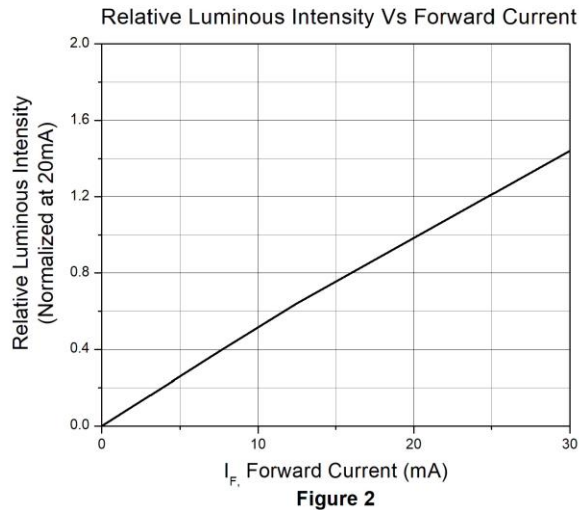
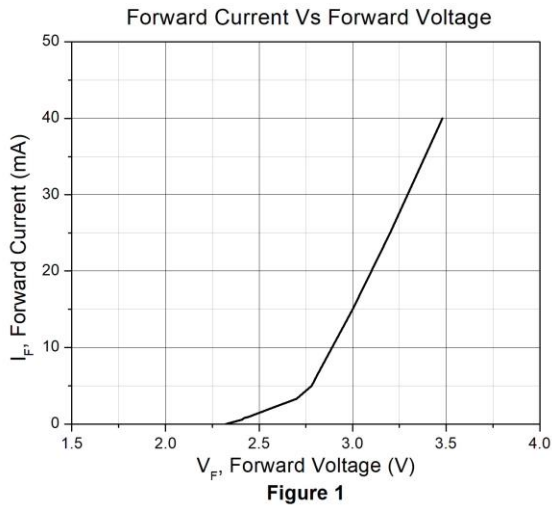
### 5. Bin Range of Forward Voltage

Bin Code	Min	Max	Unit	Condition
36	2.9	3.0	V	$I_F=20\text{mA}$
37	3.0	3.1		
38	3.1	3.2		
39	3.2	3.3		
40	3.3	3.4		

Tolerance of Forward Voltage  $\pm 0.05\text{V}$ .



## Typical Characteristic Curves





## Typical Characteristic Curves

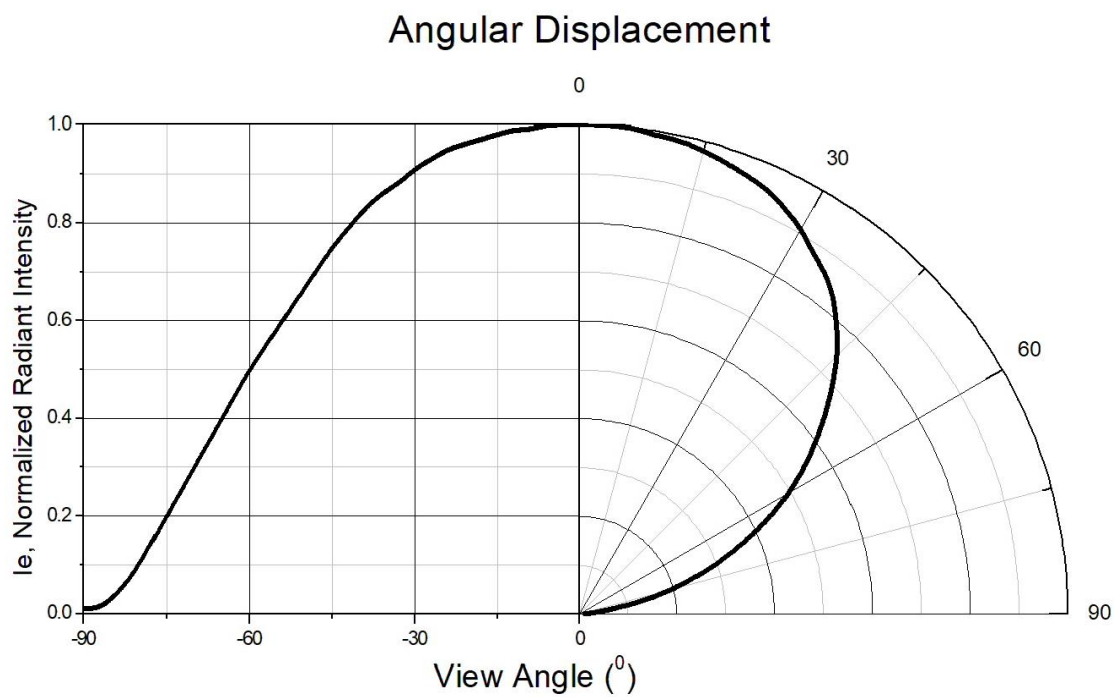


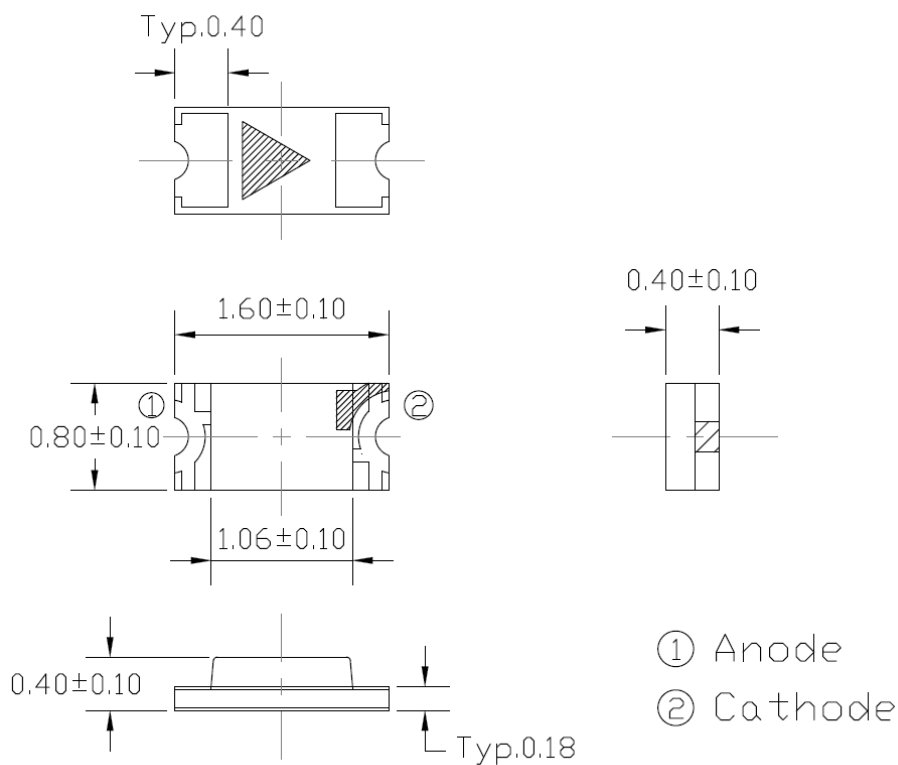
Figure 7



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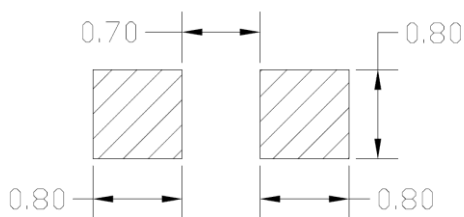
## SMD Type Blue Emitter

### 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

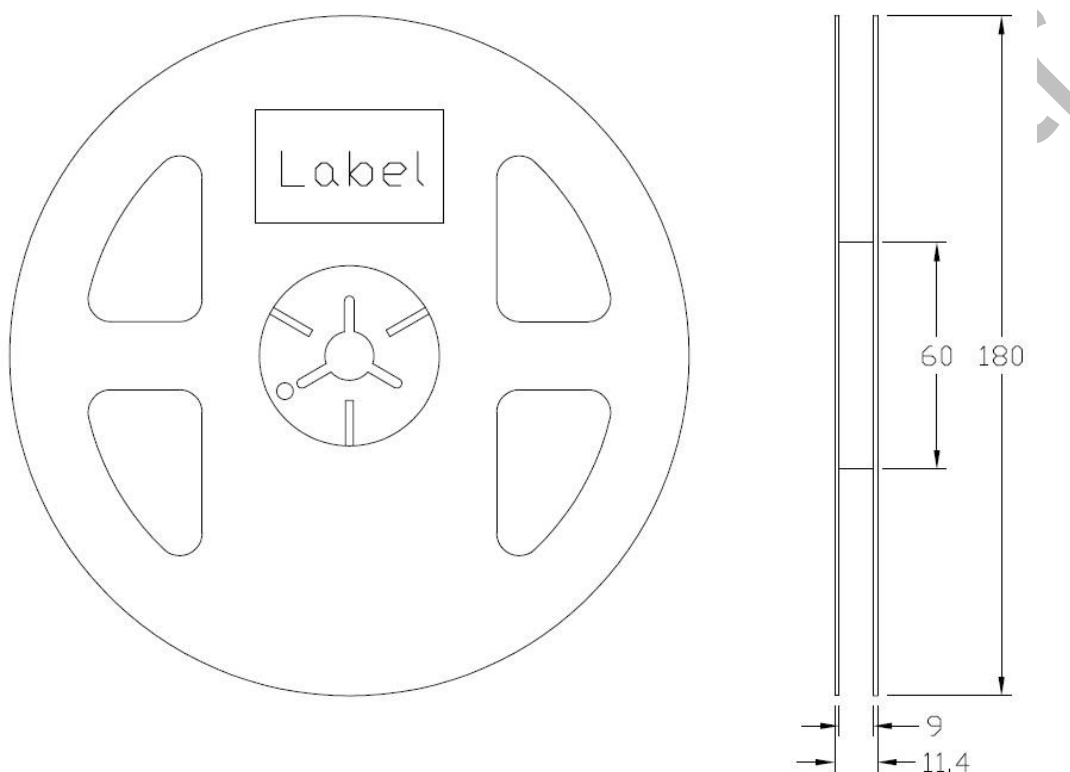
Part Number	Description	Quantity
BP160804-ATC4	Tape & Reel	4000 pcs



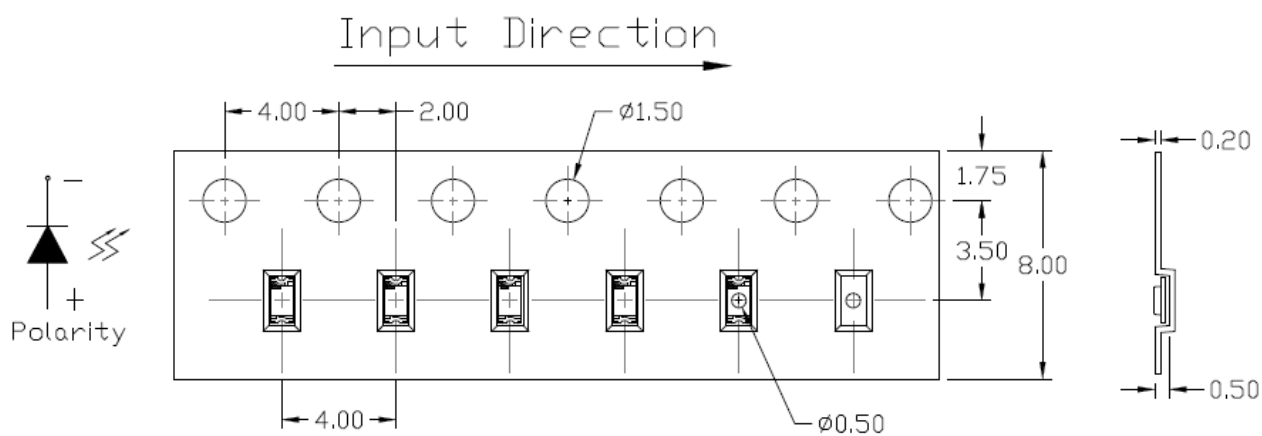
# BP160804-ATC4

## SMD Type Blue Emitter

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



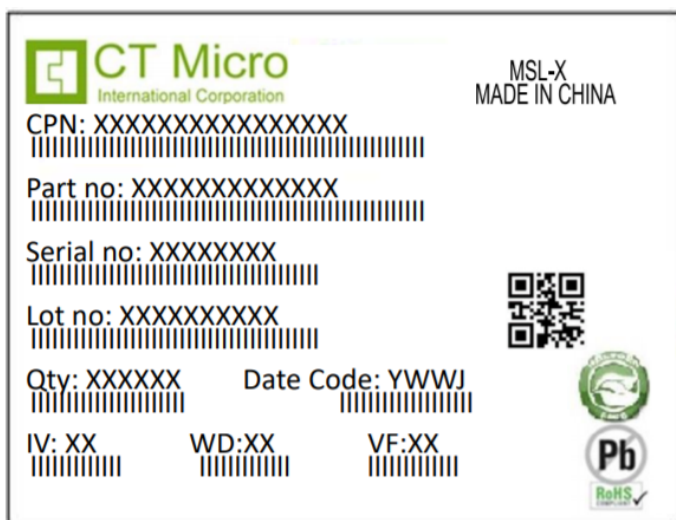
**Tape Dimension** *All dimensions are in mm, unless otherwise stated*



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

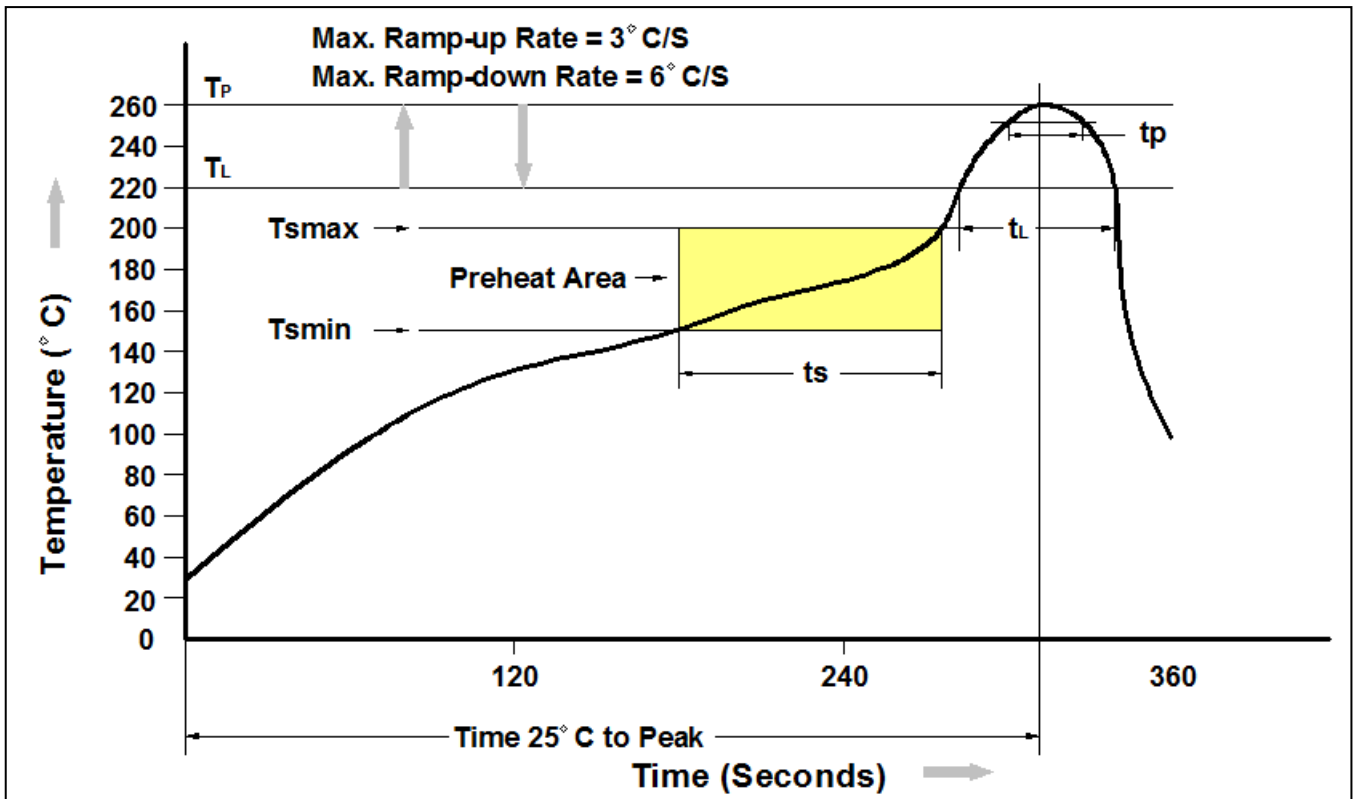
### Storage Condition

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. (T <sub>sm</sub> )	150°C
Temperature Max. (T <sub>sm</sub> )	200°C
Time (t <sub>s</sub> ) from (T <sub>sm</sub> to T <sub>sm</sub> )	60-120 seconds
Ramp-up Rate (t <sub>l</sub> to t <sub>p</sub> )	3°C/second max.
Liquidous Temperature (T <sub>l</sub> )	217°C
Time (t <sub>l</sub> ) Maintained Above (T <sub>l</sub> )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t <sub>p</sub> ) within 5°C of 260°C	30 seconds
Ramp-down Rate (T <sub>p</sub> to T <sub>l</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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