



GRBP160406-PCSC3

Multi-Wavelength SMD Type

Features

- Side view 0602 package
- Wide viewing angle
- GRB individual control
- High reliability
- RoHS compliance

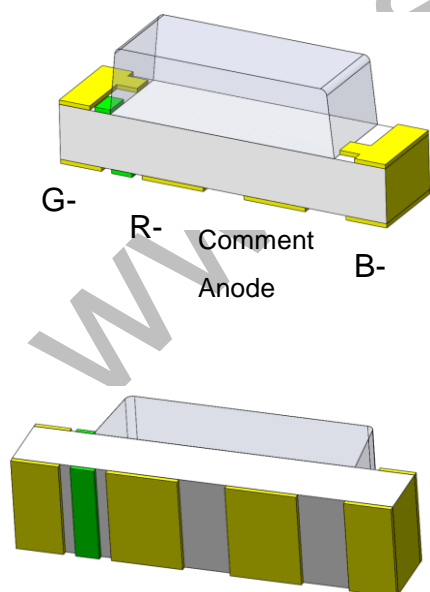
Applications

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

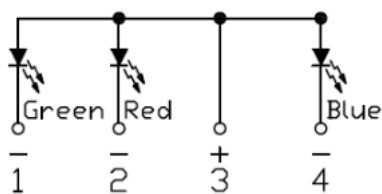
Description

The GRBP160406-PCSC3 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 _F	Continuous Forward Current	G	20	mA	
		R	20		
		B	20		
I _{FP}	Peak Forward Current	G	60	mA	1
		R	60		
		B	60		
V _R	Reverse Voltage		10	V	
T _{opr}	Operating Temperature		-40 ~ +85	°C	
T _{stg}	Storage Temperature		-40 ~ +100	°C	
T _{sol}	Soldering Temperature		260	°C	2
P _D	Power Dissipation at(or below) 25°C Free Air Temperature	G	95	mW	
		R	60		
		B	95		

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

Optical Characteristics (Green)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I _v	Luminous Intensity	I _F =5mA	90.0	-	225	mcd	3
λ _d	Dominant Wavelength	I _F =5mA	520	527	535	nm	4
θ _{1/2}	Angle of Half Intensity	I _F =5mA	-	±65	-	deg	

Electrical Characteristics (Green)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V _F	Forward Voltage	I _F =5mA	2.5	-	3.0	V	
I _R	Reverse Current	V _R =5V	-	-	1	μA	



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Optical Characteristics (Red)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I _v	Luminous Intensity	I _F =5mA	14.5	-	36.0	mcd	3
λ _d	Dominant Wavelength	I _F =5mA	616	621	626	nm	
θ _{1/2}	Angle of Half Intensity	I _F =5mA	-	±65	-	deg	

Electrical Characteristics (Red)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V _F	Forward Voltage	I _F =5mA	1.6	-	2.1	V	
I _R	Reverse Current	V _R =5V	-	-	1	μA	

Optical Characteristics (Blue)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I _v	Luminous Intensity	I _F =5mA	22.5	-	57.0	mcd	3
λ _d	Dominant Wavelength	I _F =5mA	465	470	475	nm	4
θ _{1/2}	Angle of Half Intensity	I _F =5mA	-	±65	-	deg	

Electrical Characteristics (Blue)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V _F	Forward Voltage	I _F =5mA	2.6	-	3.1	V	
I _R	Reverse Current	V _R =5V	-	-	1	μA	

Notes:

1. I_{FP} 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
QA	90	140	mcd	I _F =5mA
RA	140	225		
Red				
LA	14.5	22.5	mcd	I _F =5mA
MA	22.5	36.0		
Blue				
Bin Code	Min	Max	Unit	Condition
MA	22.5	36.0	mcd	I _F =5mA
NA	36.0	57.0		

Tolerance of Luminous Intensity $\pm 10\%$

4. Bin Range of Dominant Wavelength

Green				
Bin Code	Min	Max	Unit	Condition
A5	520	525	nm	I _F =5mA
A6	525	530		
A7	530	535		
Blue				
A6	465	470	nm	I _F =5mA
A7	470	475		

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



Typical Characteristic Curves

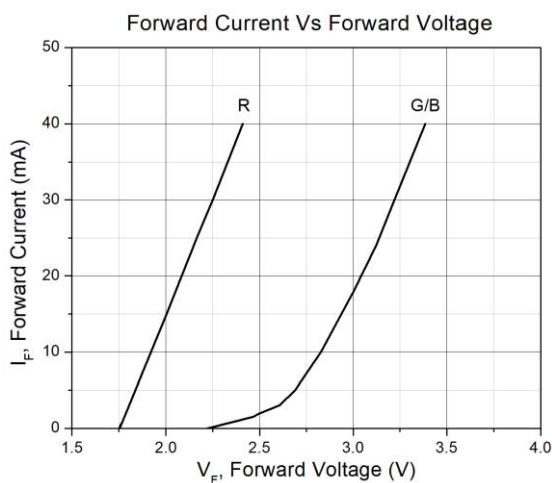


Figure 1

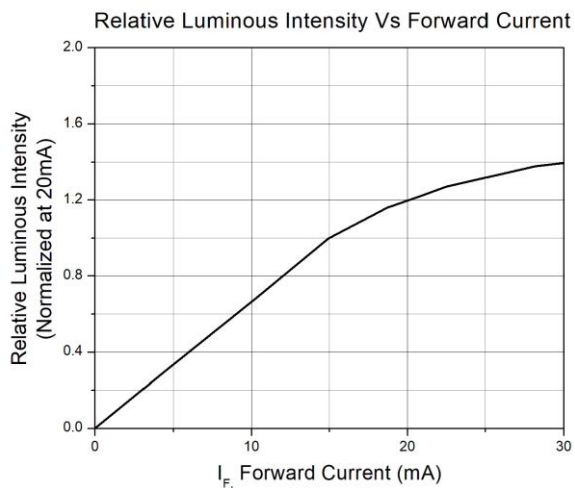


Figure 2

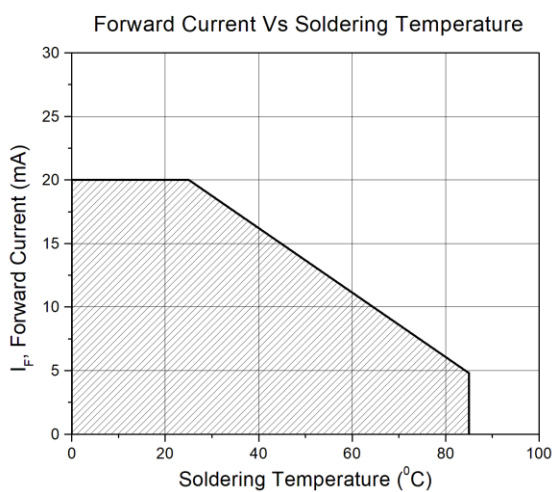


Figure 3

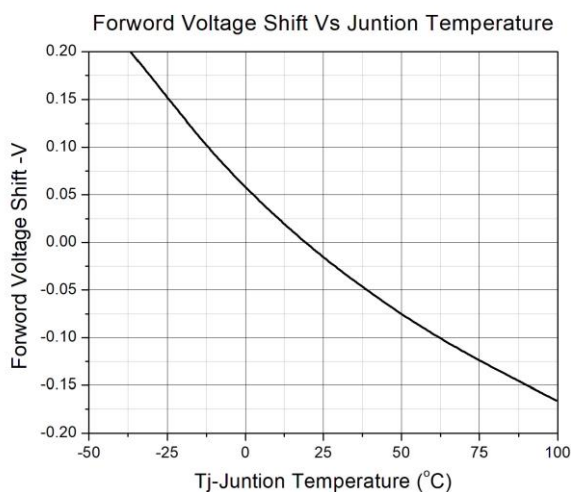


Figure 4

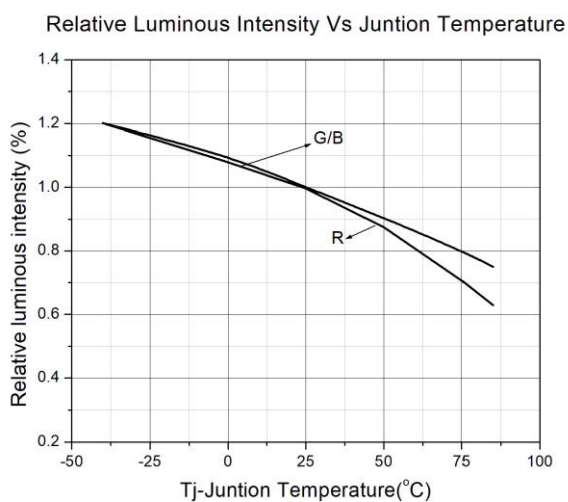


Figure 5

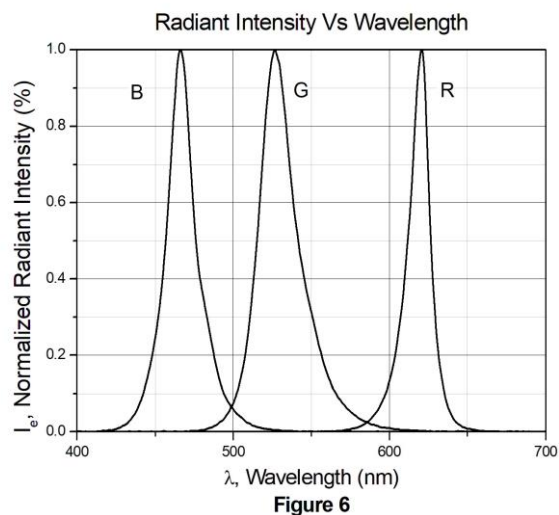


Figure 6



Typical Characteristic Curves

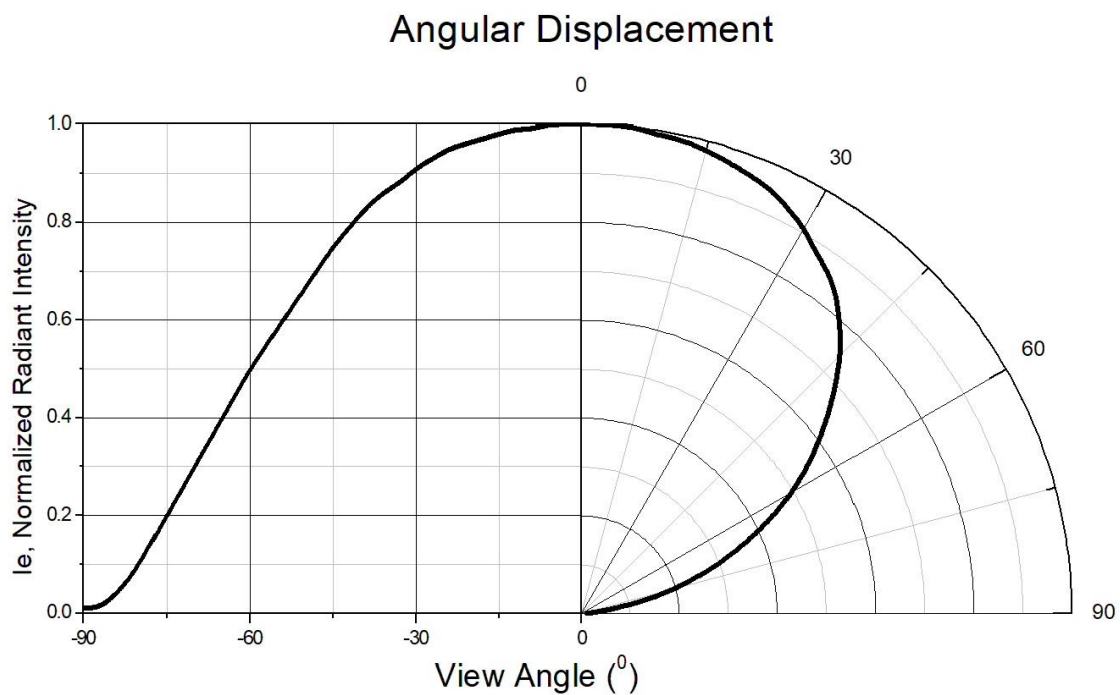


Figure 7

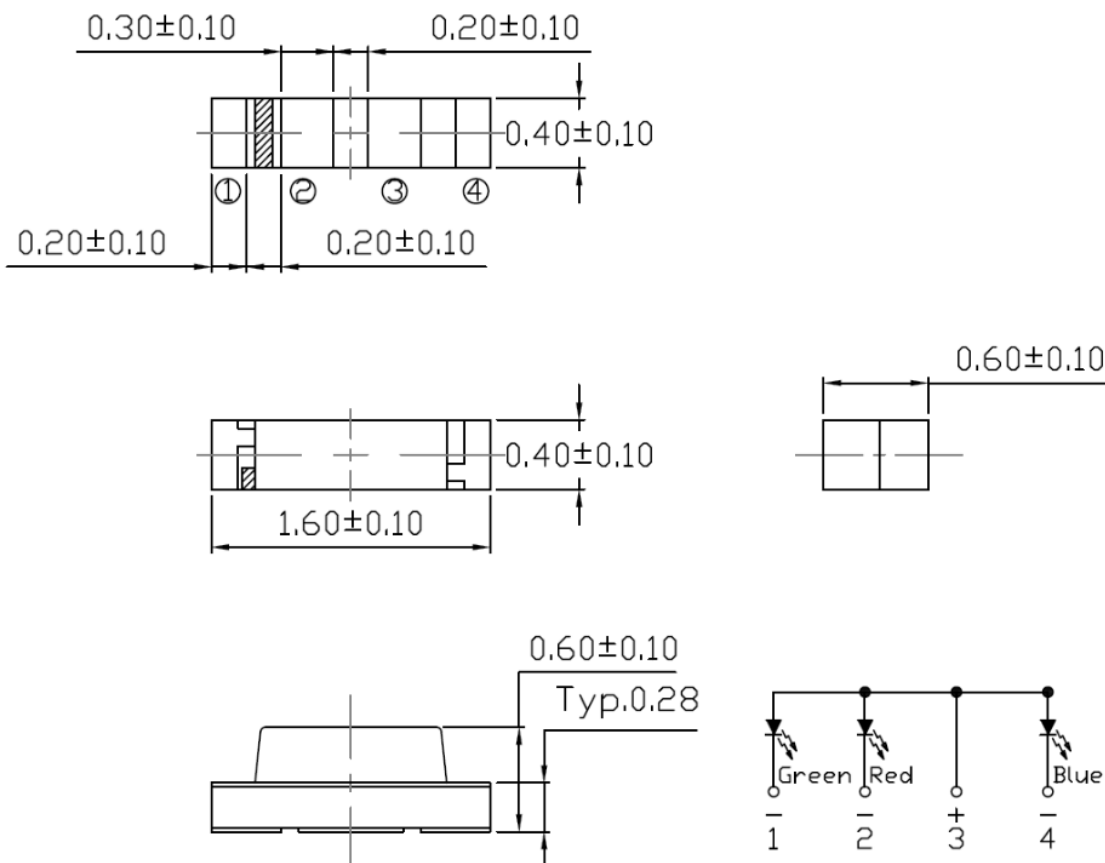
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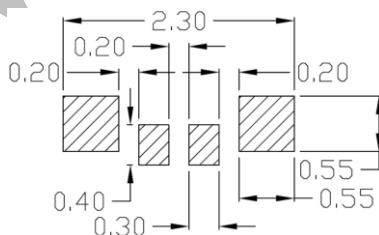
Multi-Wavelength SMD Type

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



Note: Tolerance unless mentioned is $\pm 0.1\text{mm}$

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



Note: Tolerance unless mentioned is $\pm 0.1\text{mm}$

Ordering Information

Part Number	Description	Quantity
GRBP160406-PCSC3	Tape & Reel	3000 pcs

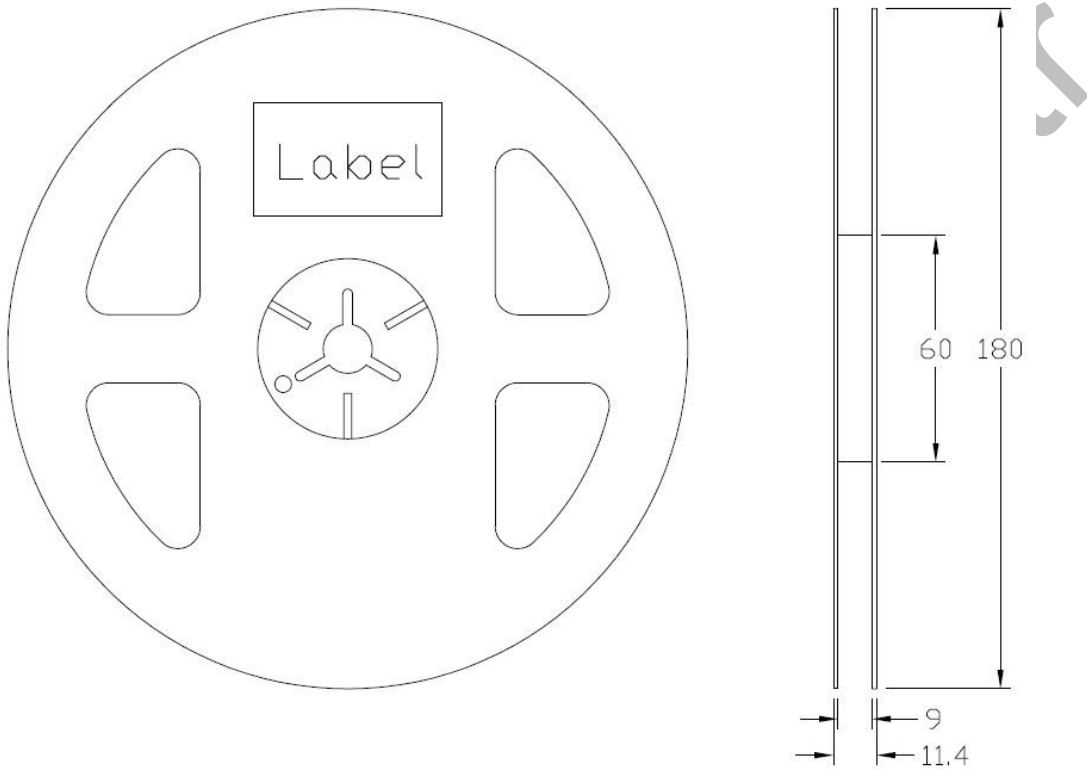


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Multi-Wavelength SMD Type

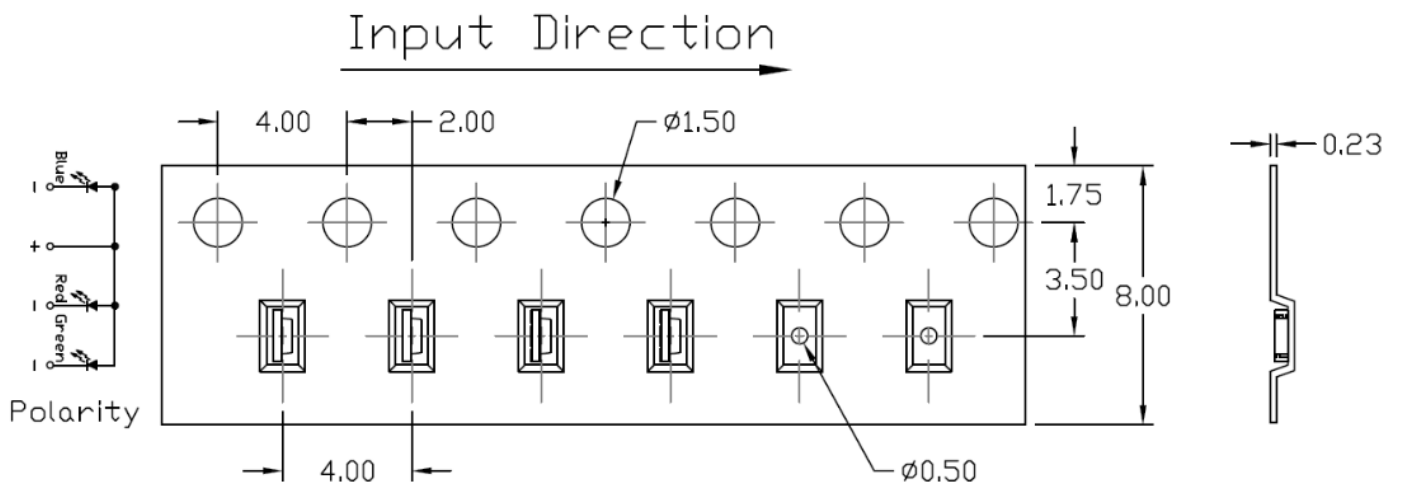
Reel Dimension

All dimensions are in mm, unless otherwise stated



Tape Dimension

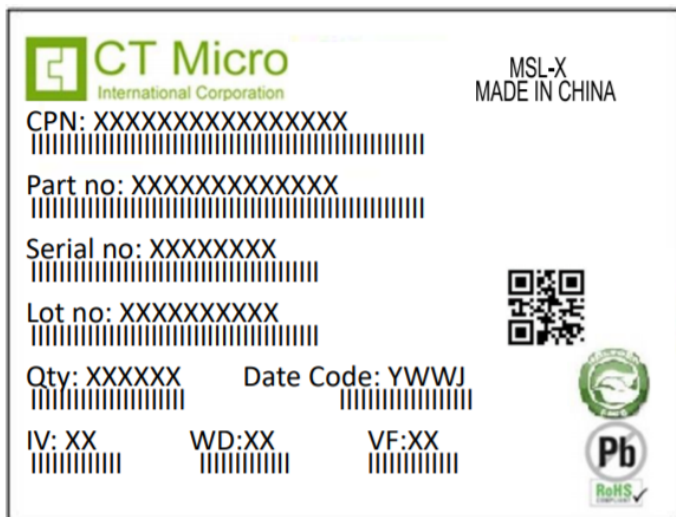
All dimensions are in mm, unless otherwise stated



Note: Tolerance unless mentioned is ± 0.1 mm



Label Form Specification



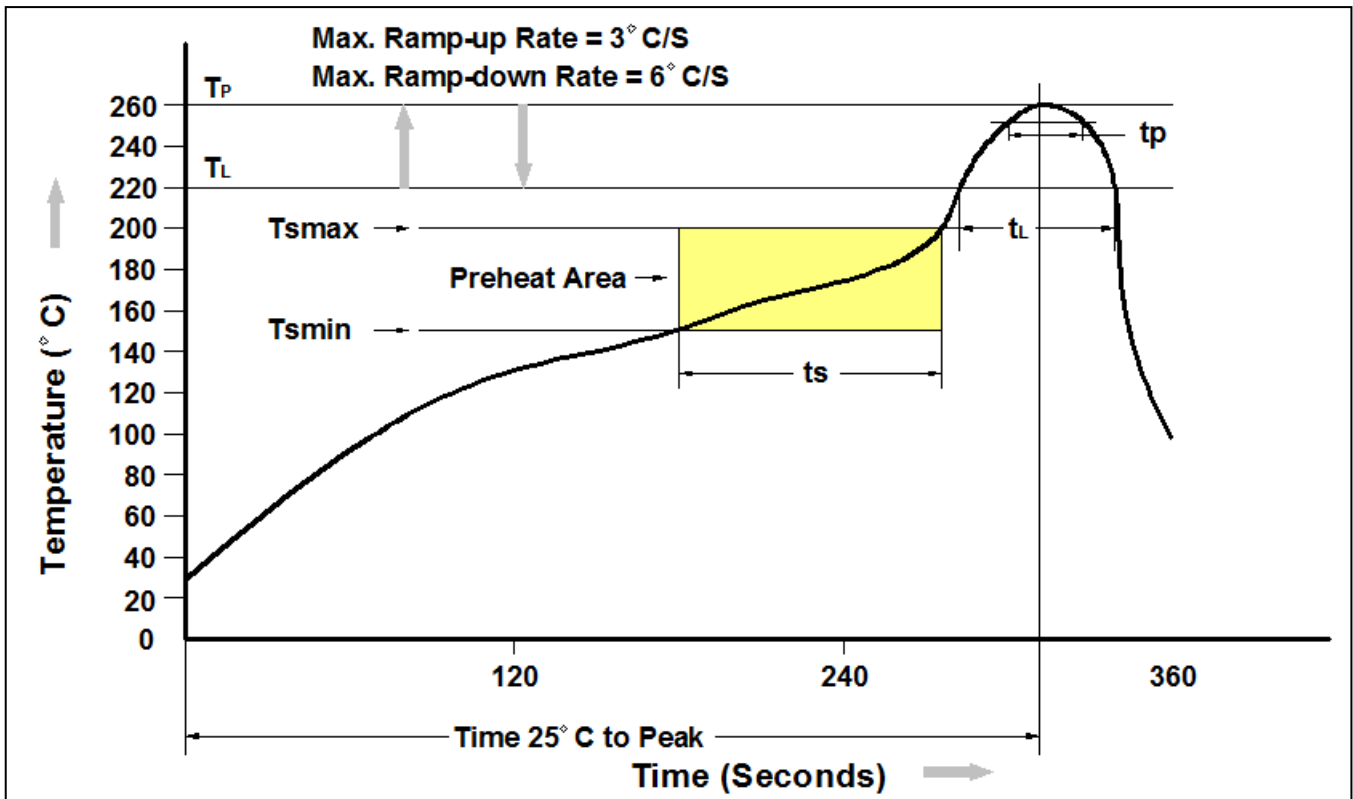
CPN : Customer Part Number
 Part no: CTM Production Number
 Serial no: Production Number
 Lot no: Lot number
 Q'ty: Packing Quantity
 Date Code: Manufacture Date
 IV : Bin Code of Luminous Intensity
 WD : Bin Code of Dominant Wavelength
 VF : Bin Code of Forward Voltage
 MADE IN CHINA: Production Place

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_{smin})	150°C
Temperature Max. (T_{smax})	200°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Ramp-up Rate (t_L to t_P)	3°C/second max.
Liquidous Temperature (T_L)	217°C
Time (t_L) Maintained Above (T_L)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t_P) within 5°C of 260°C	30 seconds
Ramp-down Rate (T_P to T_L)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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