# WC101606-ETC4

## SMD Type White Emitter

## Features

- Top view 1016 package
- Viewing Angle = $\pm 60^0$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- Ultra bright White
- RoHS compliance

## Description

The WC101606-ETC4 is an AlInGaN White LED housed in a miniature SMD package.

Static electricity and surge damage the LEDs.

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

## Applications

- Optical indicator.
- Switch and Symbol Display.

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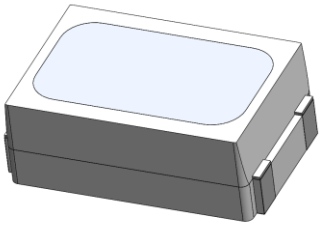
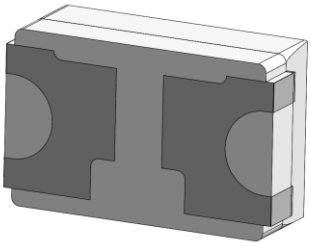
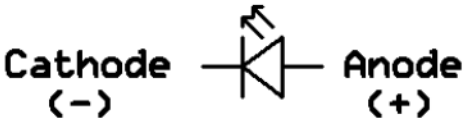
## Package Outline





Cathode Anode

## Schematic



## Absolute Maximum Rating at 25$^0$C

| Symbol | Parameters | Ratings | Units | Notes |
|---|---|---|---|---|
| $I_F$ | Continuous Forward Current | 30 | mA | |
| $I_{FP}$ | Peak Forward Current | 90 | mA | 1 |
| $V_R$ | Reverse Voltage | 5 | V | |
| $T_{opr}$ | Operating Temperature | -40 ~ +85 | $^0$C | |
| $T_{stg}$ | Storage Temperature | -40 ~ +100 | $^0$C | |
| $T_{sol}$ | Soldering Temperature | 260 | $^0$C | 2 |
| $P_D$ | Power Dissipation at(or below) 25℃ Free Air Temperature | 115 | mW | |

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

### Optical Characteristics

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Units | Notes |
|---|---|---|---|---|---|---|---|
| Iv | Luminous Intensity | $I_F$=30mA | 2250 | - | 3600 | mcd | 3 |
| θ1/2 | Angle of Half Intensity | $I_F$=30mA | - | ±60 | - | deg | |

### Electrical Characteristics

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Units | Notes |
|---|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | $I_F$=30mA | 2.9 | - | 3.7 | V | 5 |
| $I_R$ | Reverse Current | $V_R$=5V | - | - | 1 | μA | |

**Notes:**

1. $I_{FP}$ Conditions--Pulse Width≦ 100μs and Duty≦ 10%.
2. Soldering time≦ 10 seconds.
3. Bin Range of Luminous Intensity

| Bin Code | Min | Max | Unit | Condition |
|---|---|---|---|---|
| X2 | 2250 | 2850 | mcd | $I_F$=30mA |
| Y1 | 2850 | 3600 | | |

Tolerance of Luminous Intensity ±10%

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4. Bin Range of Forward Voltage

| Bin Code | Min | Max | Unit | Condition |
|---|---|---|---|---|
| V10 | 2.9 | 3.1 | V | $I_F$=30mA |
| V11 | 3.1 | 3.3 | | |
| V12 | 3.3 | 3.5 | | |
| V13 | 3.5 | 3.7 | | |

Tolerance of Forward Voltage ±0.1V

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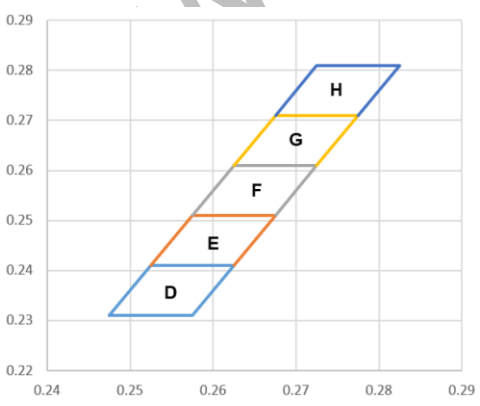
5. Bin Range of Chromaticity Coordinates

| Bin Code | CIE_x | CIE_y | Bin Code | CIE_x | CIE_y |
|---|---|---|---|---|---|
| D | 0.2475 | 0.2310 | E | 0.2525 | 0.2410 |
| | 0.2525 | 0.2410 | | 0.2575 | 0.2510 |
| | 0.2625 | 0.2410 | | 0.2675 | 0.2510 |
| | 0.2575 | 0.2310 | | 0.2625 | 0.2410 |
| F | 0.2575 | 0.2510 | G | 0.2625 | 0.2610 |
| | 0.2625 | 0.2610 | | 0.2675 | 0.2710 |
| | 0.2725 | 0.2610 | | 0.2775 | 0.2710 |
| | 0.2675 | 0.2510 | | 0.2725 | 0.2610 |
| H | 0.2675 | 0.2710 | | | |
| | 0.2725 | 0.2810 | | | |
| | 0.2825 | 0.2810 | | | |
| | 0.2775 | 0.2710 | | | |

Tolerance of Chromaticity Coordinates: ±0.01

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

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## Typical Characteristic Curves

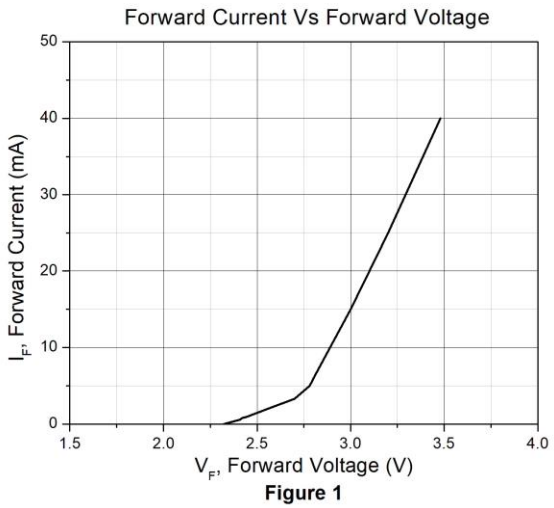

**Figure 1**

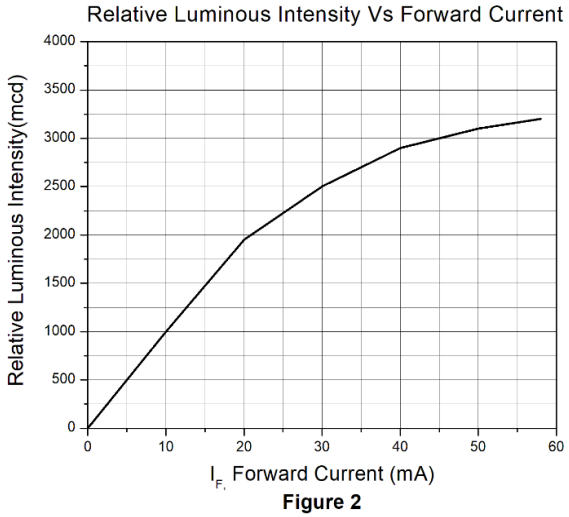

**Figure 2**

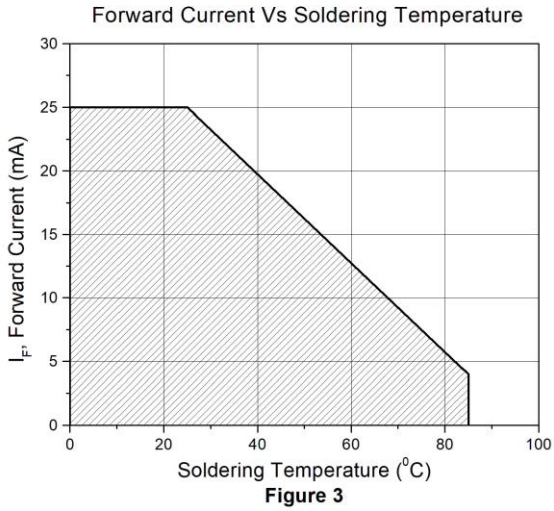

**Figure 3**

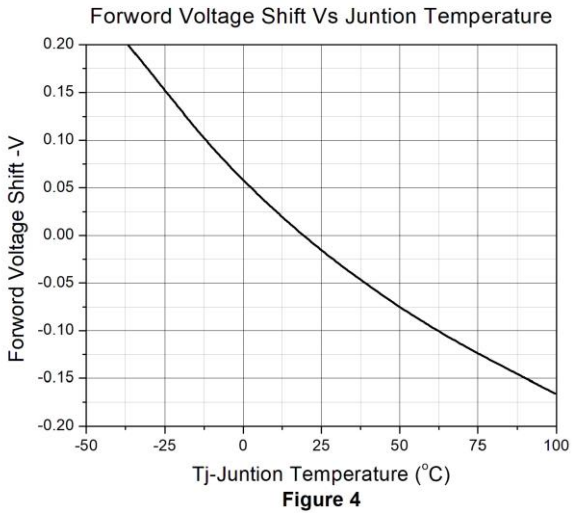

**Figure 4**

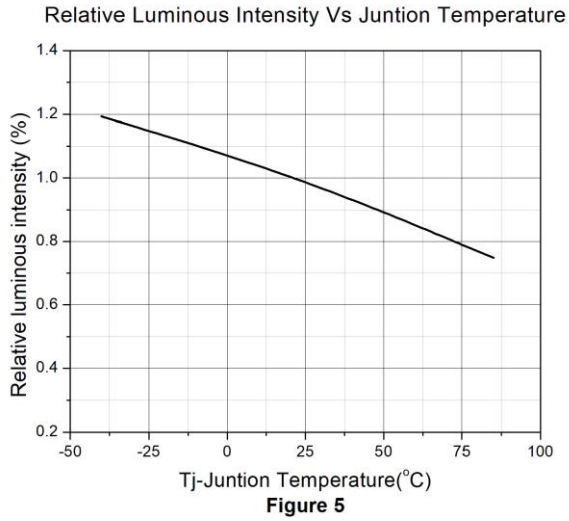

**Figure 5**

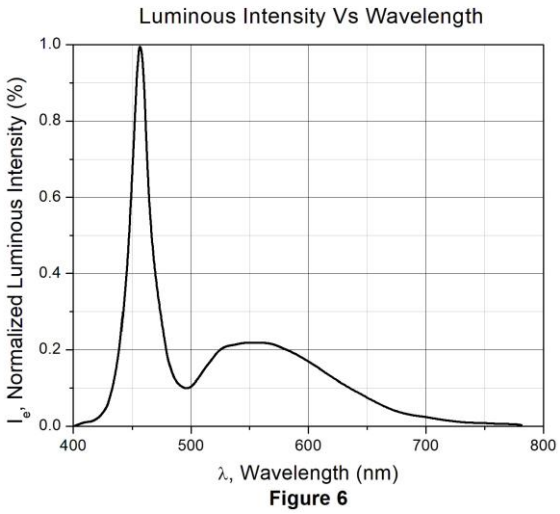

**Figure 6**

## Typical Characteristic Curves

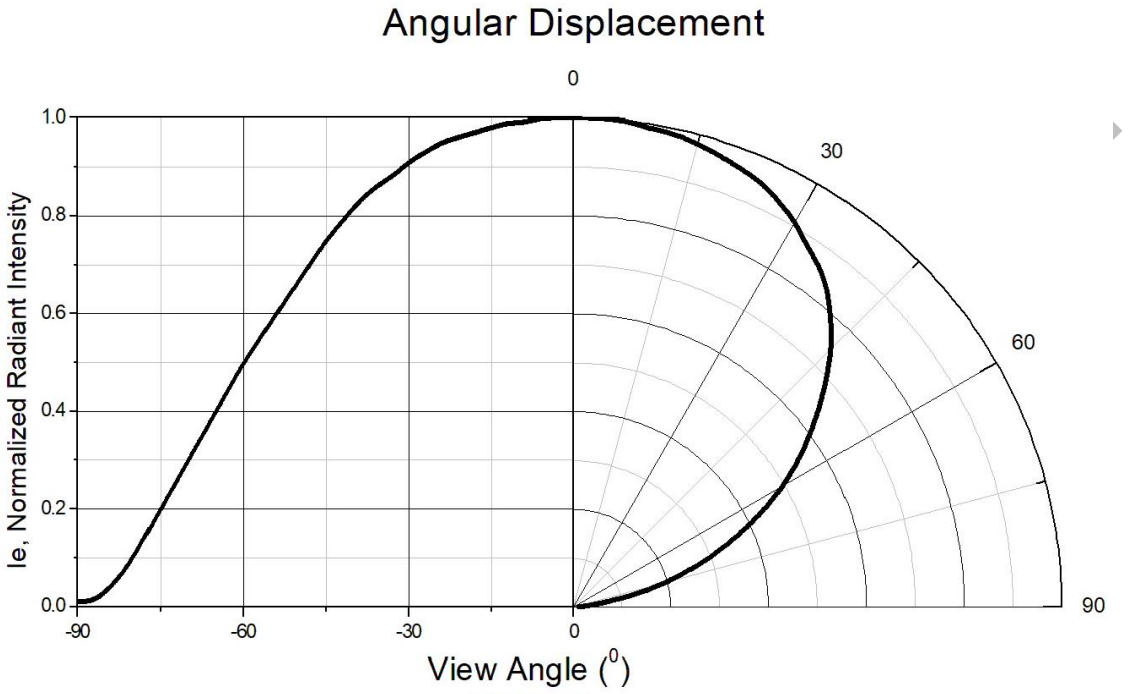


**Figure 7**

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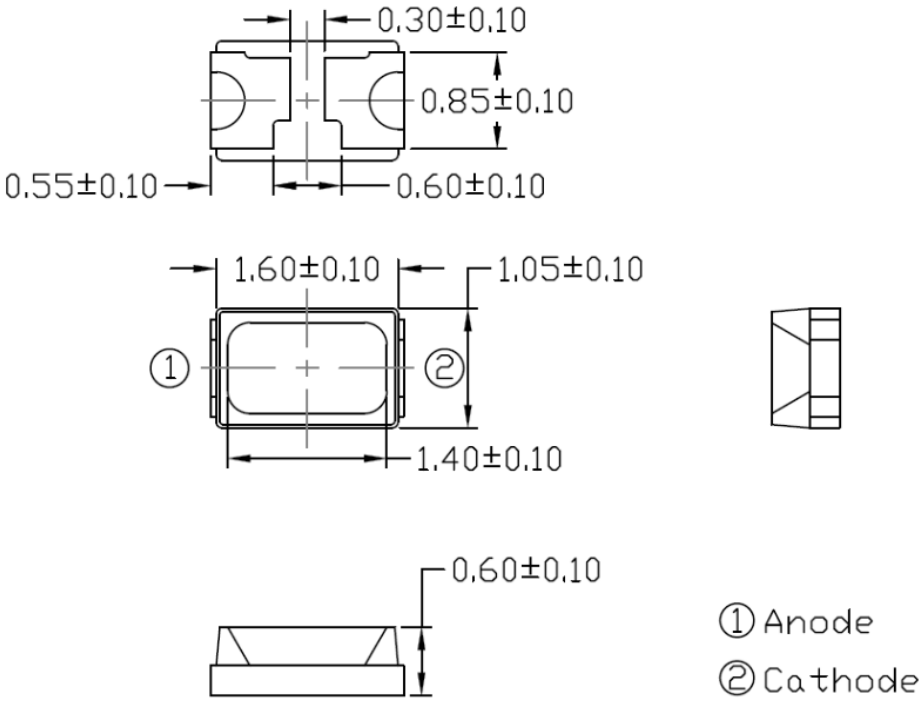
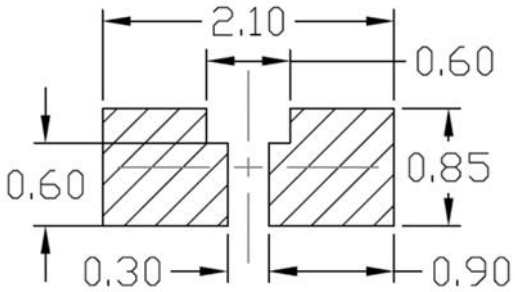
## Package Dimension *All dimensions are in mm, unless otherwise stated*




Note: Tolerance unless mentioned is ±0.1mm.

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

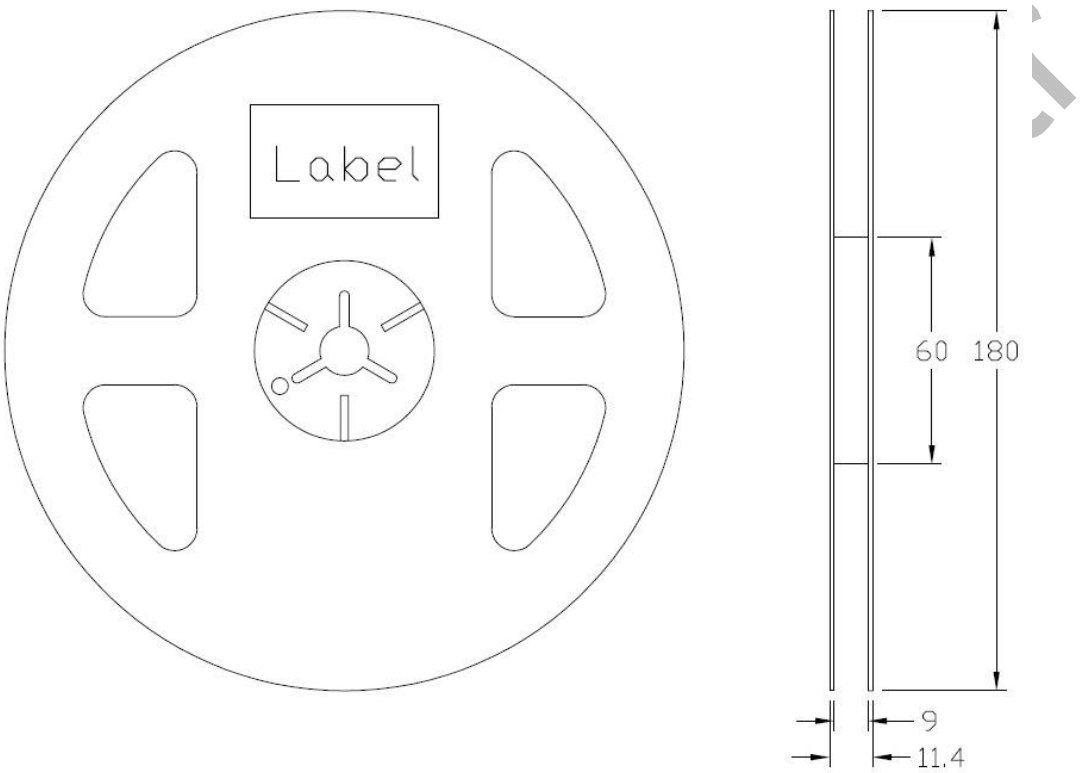



Note: Tolerance unless mentioned is ±0.1mm.

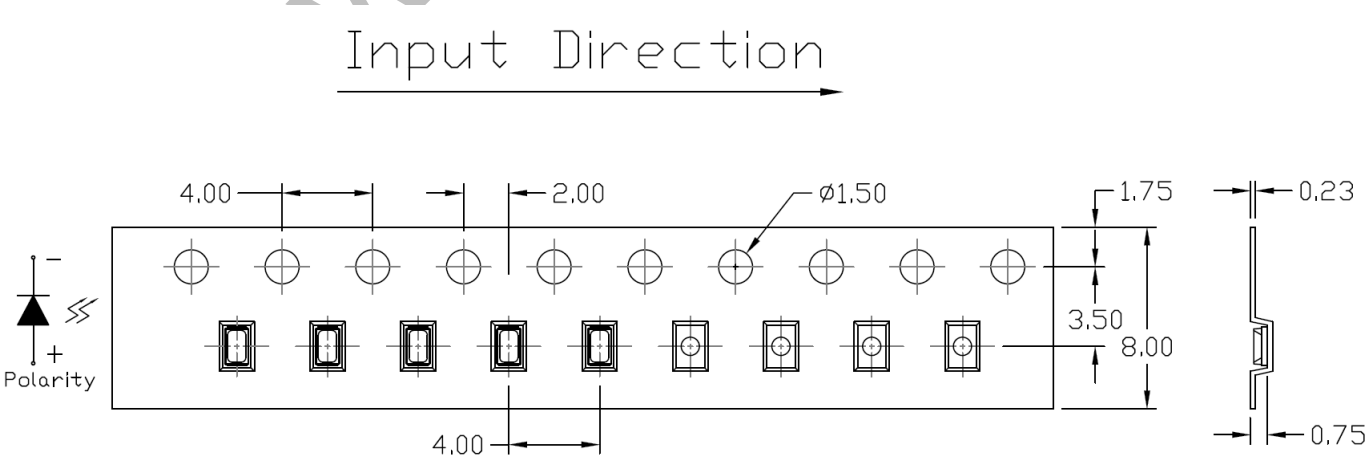
## Ordering Information

| *Part Number* | *Description* | *Quantity* |
|---|---|---|
| WC101606-ETC4 | Tape & Reel | 4000 pcs |

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

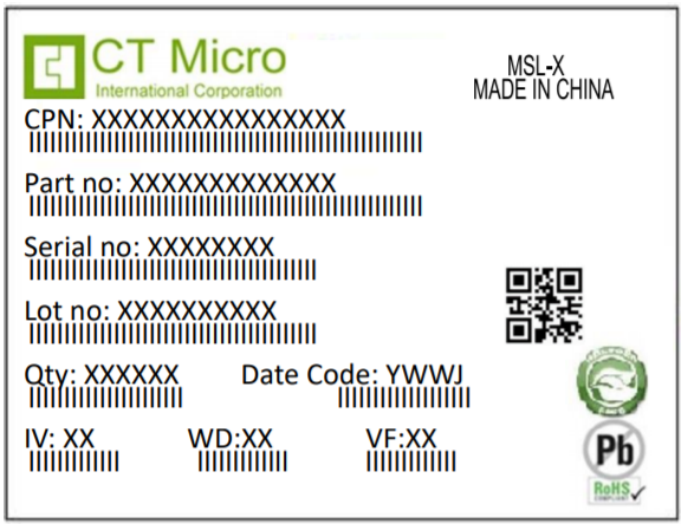



## Tape Dimension *All dimensions are in mm, unless otherwise stated*




Note: Tolerance unless mentioned is ±0.1mm.

## 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 168h 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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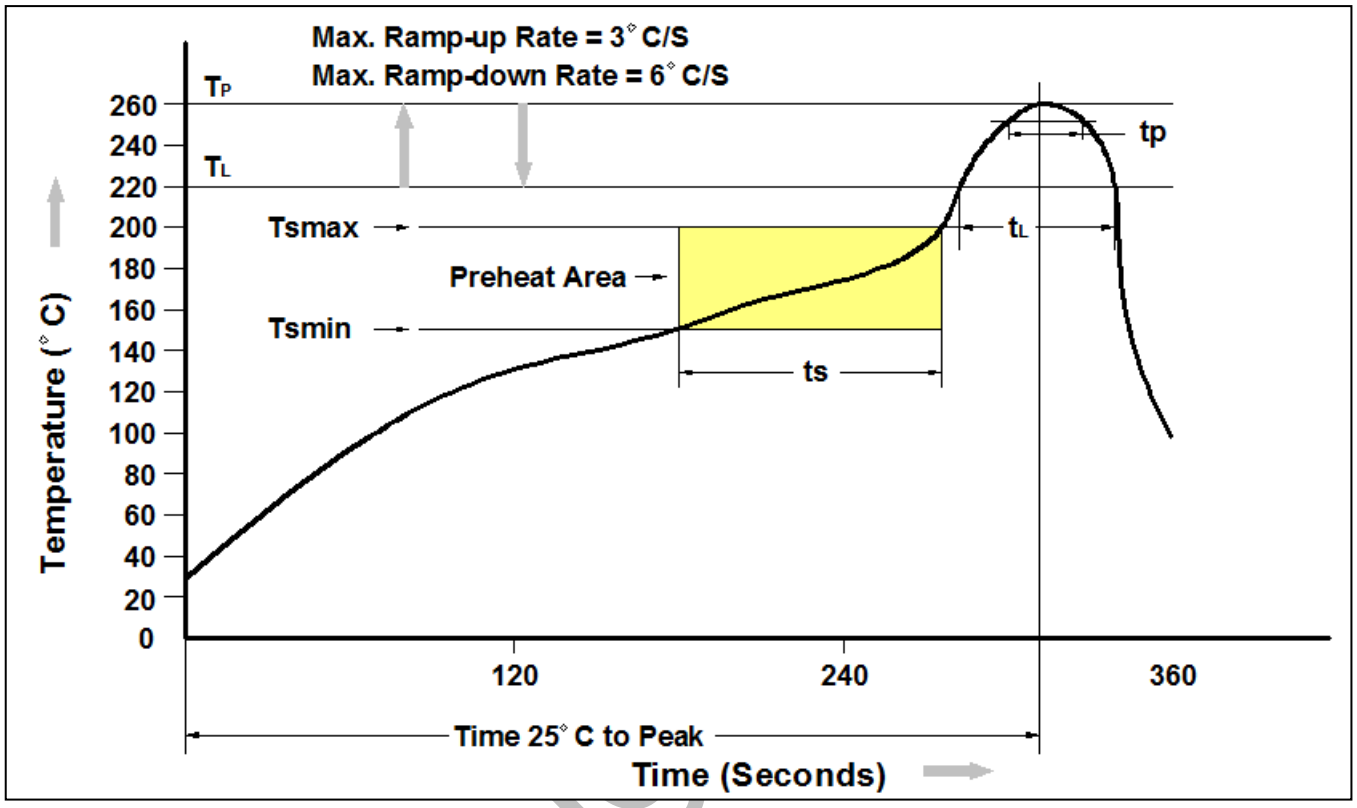
## Reflow Profile




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