# RGWP161504-PCTC2

## Multi-Wavelength SMD Type

## Features

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

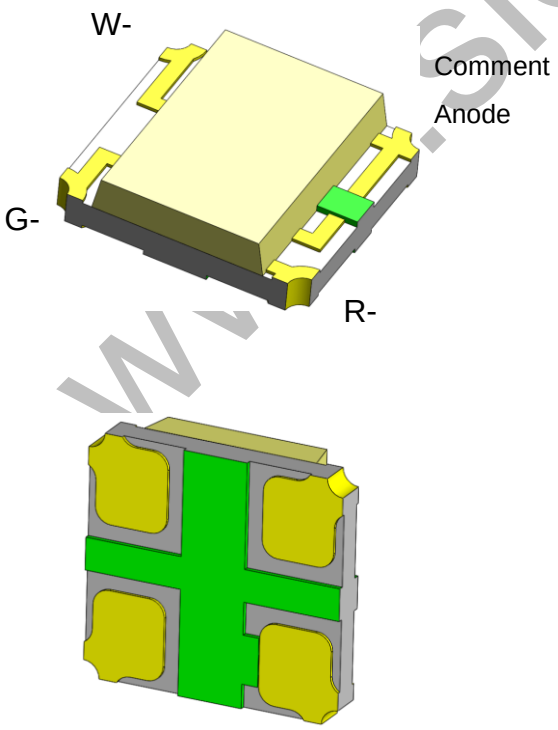
## Description

The RGWP161504-PCTC2 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.

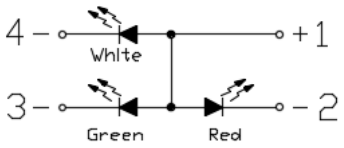
## Applications

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

## Package Outline




## Schematic



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

| Symbol | Parameters | | Ratings | Units | Notes |
|---|---|---|---|---|---|
| $I_F$ | Continuous Forward Current | R | 25 | mA | |
| | | G | 25 | | |
| | | W | 25 | | |
| $I_{FP}$ | Peak Forward Current | R | 60 | mA | 1 |
| | | G | 60 | | |
| | | W | 60 | | |
| $V_R$ | Reverse Voltage | | 10 | 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 | R | 60 | mW | |
| | | G | 95 | | |
| | | W | 95 | | |

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

### Optical Characteristics (Red)

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Units | Notes |
|---|---|---|---|---|---|---|---|
| Iv | Luminous Intensity | $I_F$=5mA | 28.5 | - | 72 | mcd | 3 |
| λp | Peak Wavelength | $I_F$=5mA | - | 617 | - | nm | |
| λd | Dominant Wavelength | $I_F$=5mA | - | 622 | - | nm | |
| θ1/2 | 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 | - | 2.3 | V | |
| $I_R$ | Reverse Current | $V_R$=5V | - | - | 1 | μA | |

## Optical Characteristics (Green)

| *Symbol* | *Parameters* | *Test Conditions* | *Min* | *Typ* | *Max* | *Units* | *Notes* |
|---|---|---|---|---|---|---|---|
| Iv | Luminous Intensity | $I_F$=5mA | 225 | - | 565 | mcd | 3 |
| λp | Peak Wavelength | $I_F$=5mA | - | 523 | - | nm | |
| λd | Dominant Wavelength | $I_F$=5mA | 520 | - | 535 | nm | 4 |
| θ1/2 | 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 | 2.3 | - | 3.0 | V | |
| $I_R$ | Reverse Current | $V_R$=5V | - | - | 1 | μA | |

## Optical Characteristics (White)

| *Symbol* | *Parameters* | *Test Conditions* | *Min* | *Typ* | *Max* | *Units* | *Notes* |
|---|---|---|---|---|---|---|---|
| Iv | Luminous Intensity | $I_F$=5mA | 140 | - | 360 | mcd | 3 |
| λp | Peak Wavelength | $I_F$=5mA | - | - | - | nm | |
| λd | Dominant Wavelength | $I_F$=5mA | - | - | - | nm | |
| θ1/2 | Angle of Half Intensity | $I_F$=5mA | - | ±65 | - | deg | |

## Electrical Characteristics (White)

| *Symbol* | *Parameters* | *Test Conditions* | *Min* | *Typ* | *Max* | *Units* | *Notes* |
|---|---|---|---|---|---|---|---|
| $V_F$ | Forward Voltage | $I_F$=5mA | 2.5 | - | 3.2 | 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.

3. Bin Range of Luminous Intensity

| Red | | | | |
|---|---|---|---|---|
| Bin Code | Min | Max | Unit | Condition |
| N | 28.5 | 45 | mcd | $I_F$=5mA |
| P | 45 | 72 | | |
| Green | | | | |
| SA | 225 | 360 | mcd | $I_F$=5mA |
| TA | 360 | 565 | | |
| White | | | | |
| Bin Code | Min | Max | Unit | Condition |
| RA | 140 | 225 | mcd | $I_F$=5mA |
| SA | 225 | 360 | | |

Tolerance of Luminous Intensity ±10%

4. Bin Range of Dominant Wavelength

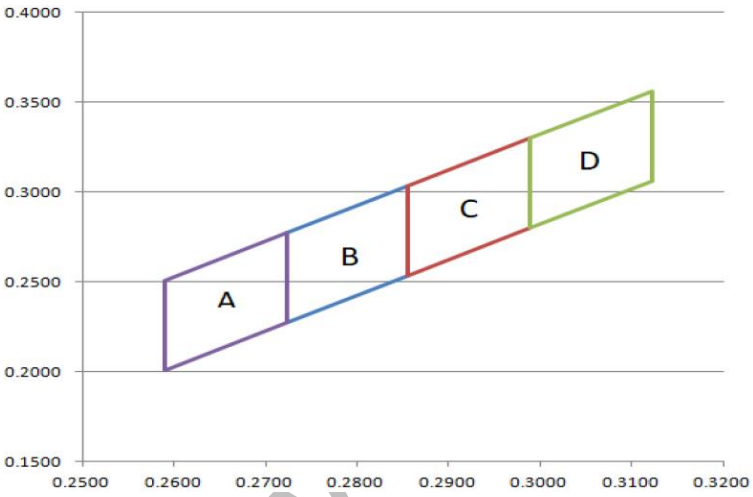
| Green | | | | |
|---|---|---|---|---|
| A5 | 520 | 525 | nm | $I_F$=5mA |
| A6 | 525 | 530 | | |
| A7 | 530 | 535 | | |

Tolerance of Dominant Wavelength: ±1nm.

5. Bin Range of Chromaticity Coordinates

| Bin Code | CIE_x | CIE_y | Bin Code | CIE_x | CIE_y |
|---|---|---|---|---|---|
| A | 0.2590 | 0.2008 | B | 0.2723 | 0.2272 |
| | 0.2590 | 0.2508 | | 0.2723 | 0.2772 |
| | 0.2723 | 0.2772 | | 0.2856 | 0.3036 |
| | 0.2723 | 0.2272 | | 0.2856 | 0.2536 |
| C | 0.2856 | 0.2536 | D | 0.2989 | 0.2800 |
| | 0.2856 | 0.3036 | | 0.2989 | 0.3300 |
| | 0.2989 | 0.3300 | | 0.3122 | 0.3564 |
| | 0.2989 | 0.2800 | | 0.3122 | 0.3064 |

The C.I.E 1931 Chromaticity Diagram



## Typical Characteristic Curves

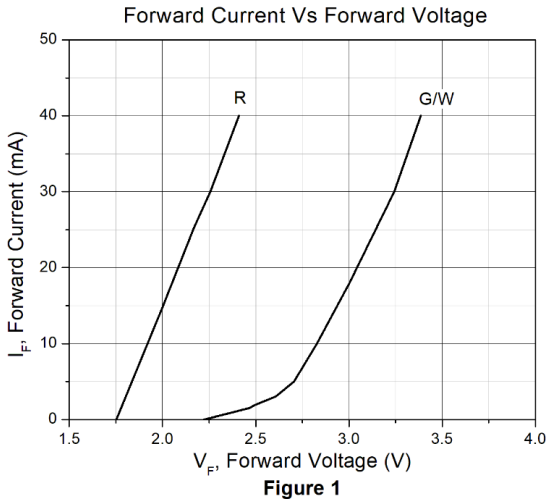


**Figure 1**

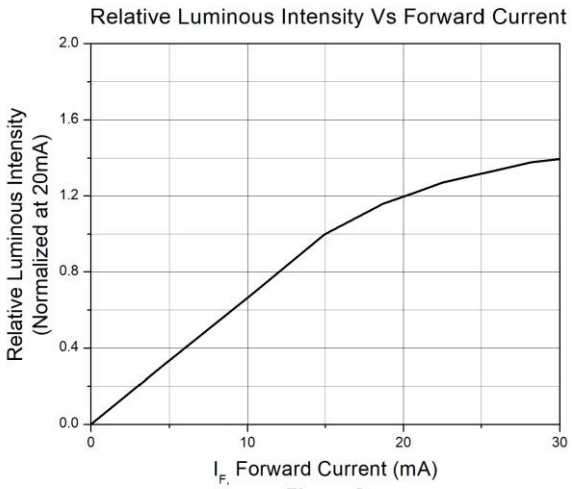


**Figure 2**

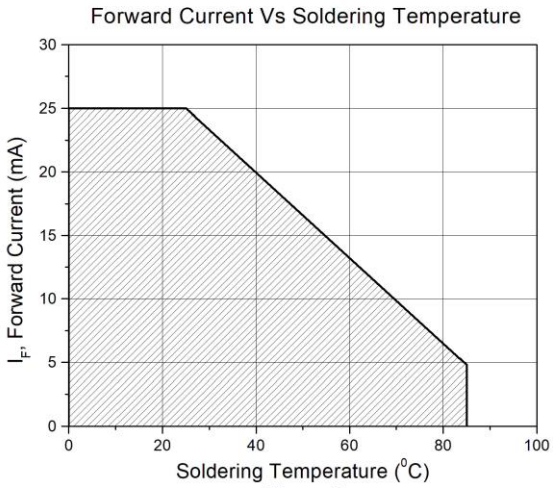


**Figure 3**

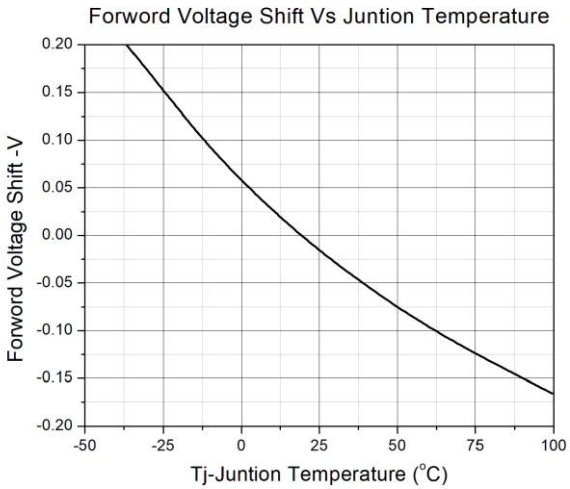


**Figure 4**

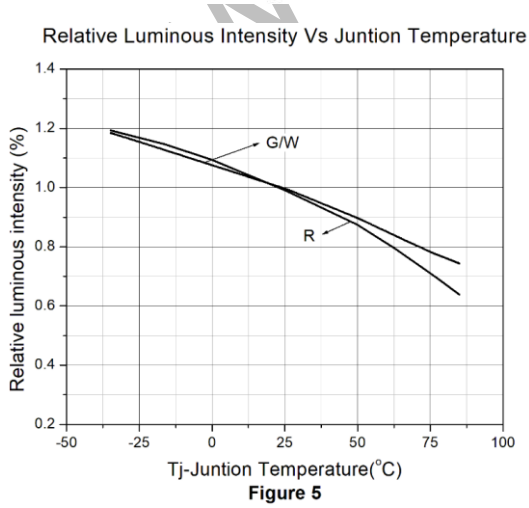


**Figure 5**

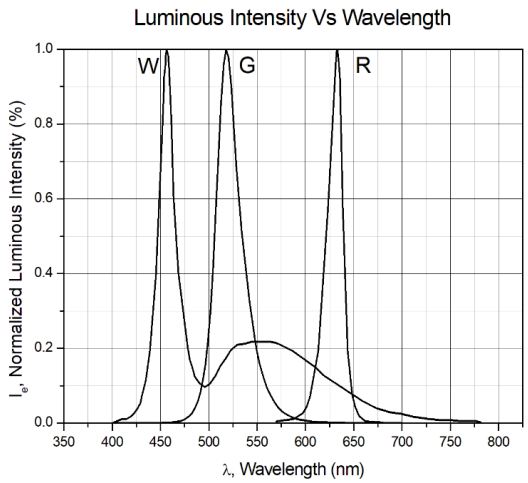


**Figure 6**

## Typical Characteristic Curves

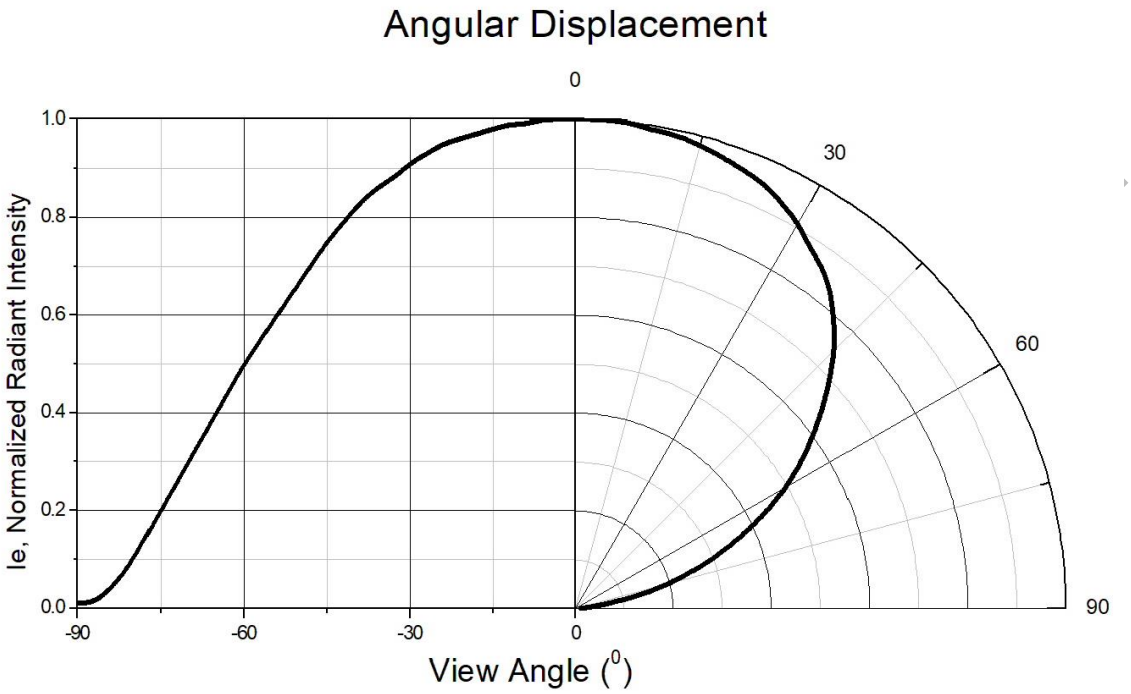
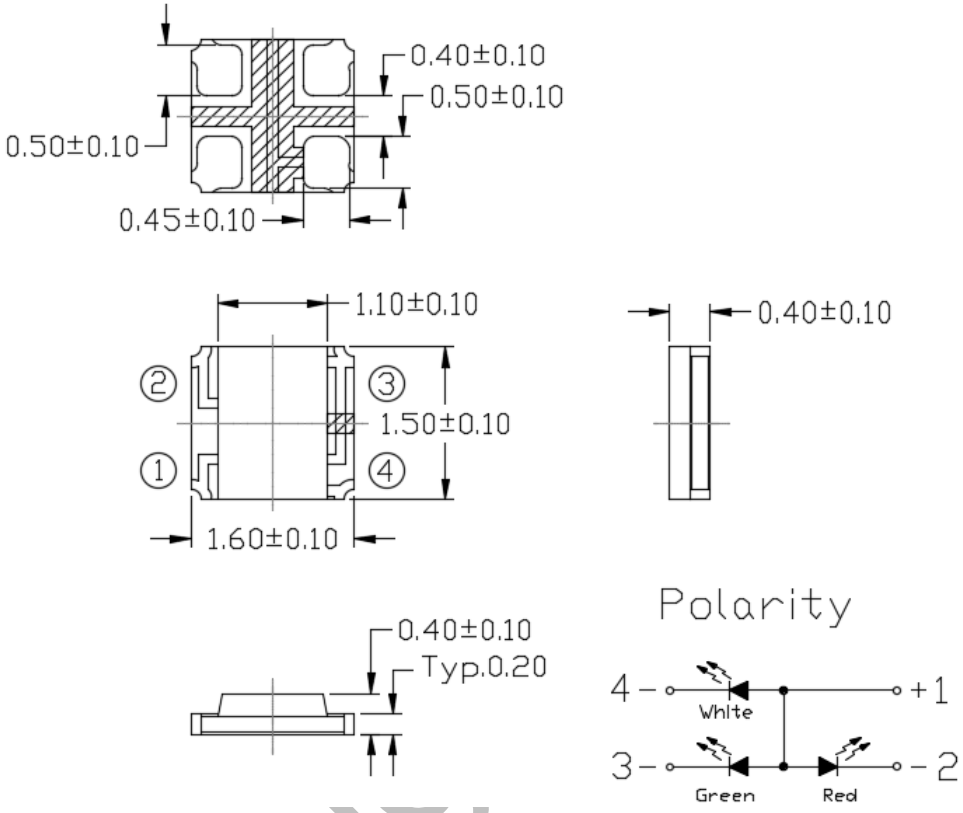


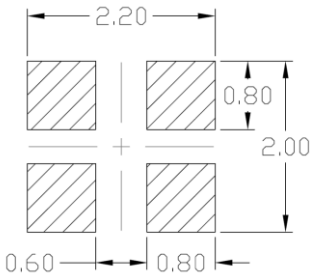

**Figure 7**

## 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*

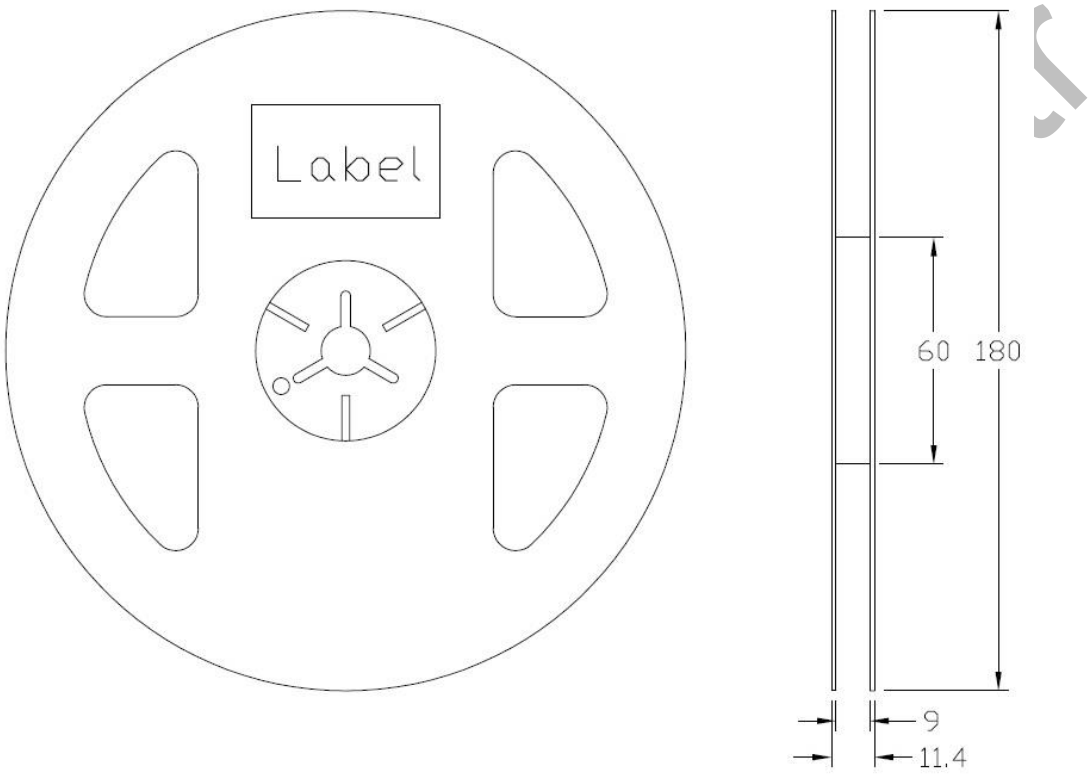



Note: Tolerance unless mentioned is ±0.1mm

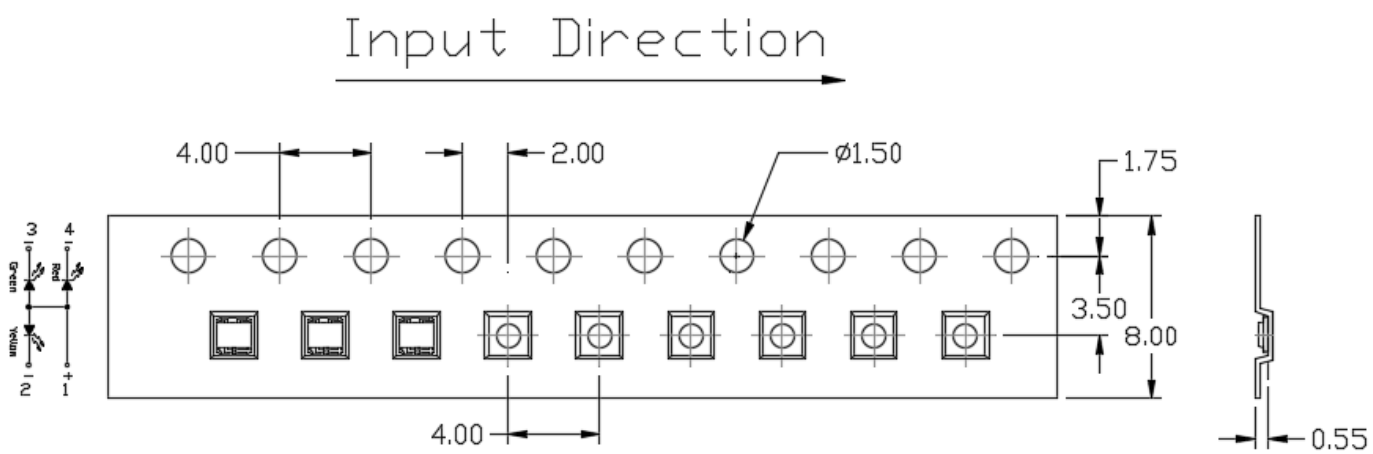
## Ordering Information

| *Part Number* | *Description* | *Quantity* |
|---|---|---|
| RGWP161504-PCTC2 | Tape & Reel | 2000 pcs |

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

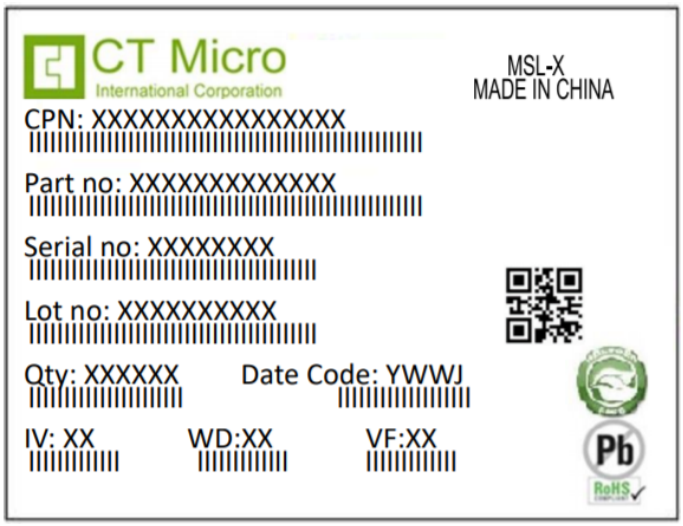



## Tape Dimension *All dimensions are in mm, unless otherwise stated*




Note: Tolerance unless mentioned is ±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

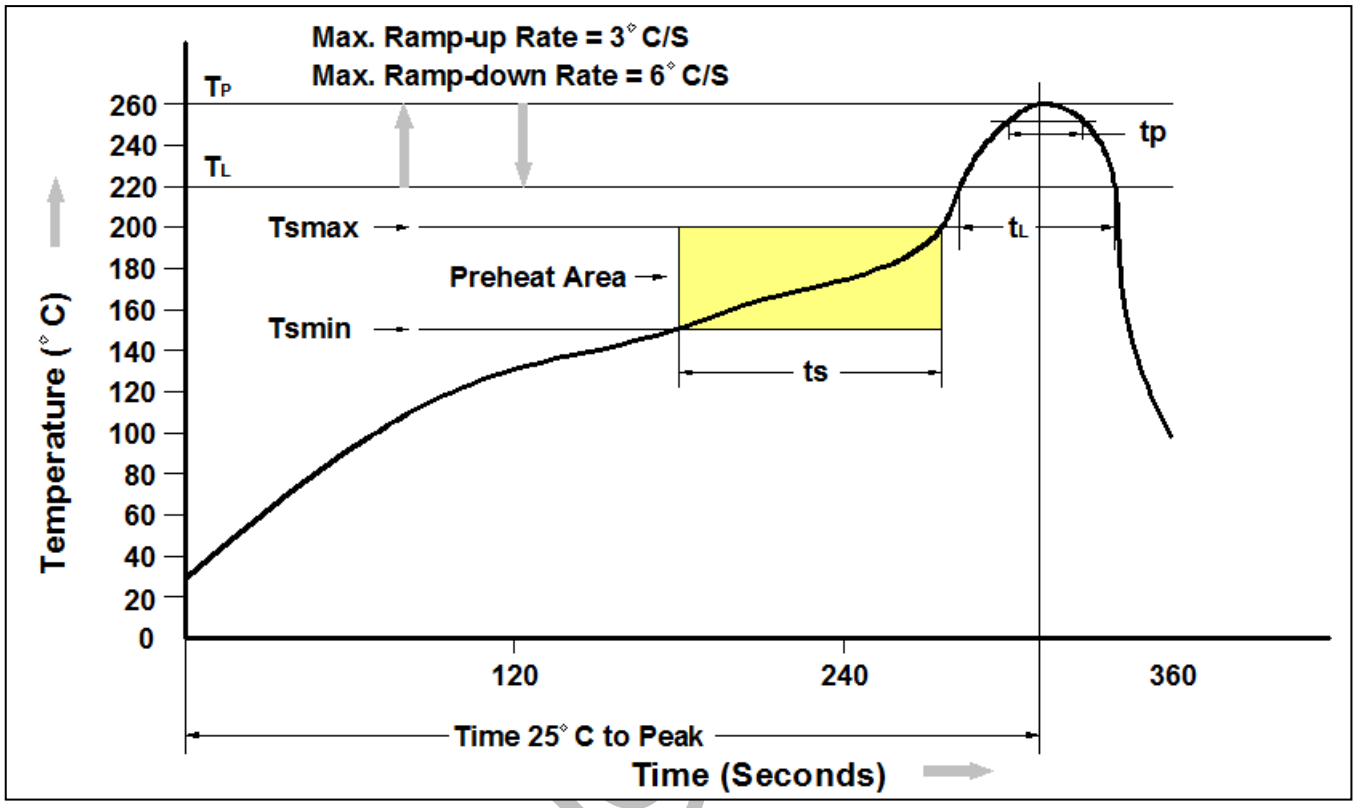
VF : Bin Code of Forward Voltage

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 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. (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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