

# **QT-Brightek Chip LED Series**

## **SMD 1206 Sideview LED**

**Part No.: QBLP615 series**

|                         |                          |              |
|-------------------------|--------------------------|--------------|
| Product: QBLP615_series | Date: September 29, 2022 | Page 1 of 13 |
|                         | Version# 1.4             |              |

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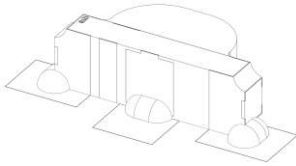
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## Introduction

### Feature:

- Water clear lens
- Package in tape and reel
- Side View Ultra bright 1206 LED package
- InGaN technology for IB/IG
- AlInGaP technology for R/AG/Y/S/O
- Viewing angle 150° typ.



### Description:

These ultra bright side view 1206 LEDs have a height profile of 1.0mm. With higher packing density and smaller footprint, these LEDs are ideal for smaller equipment and miniature application.

### Application:

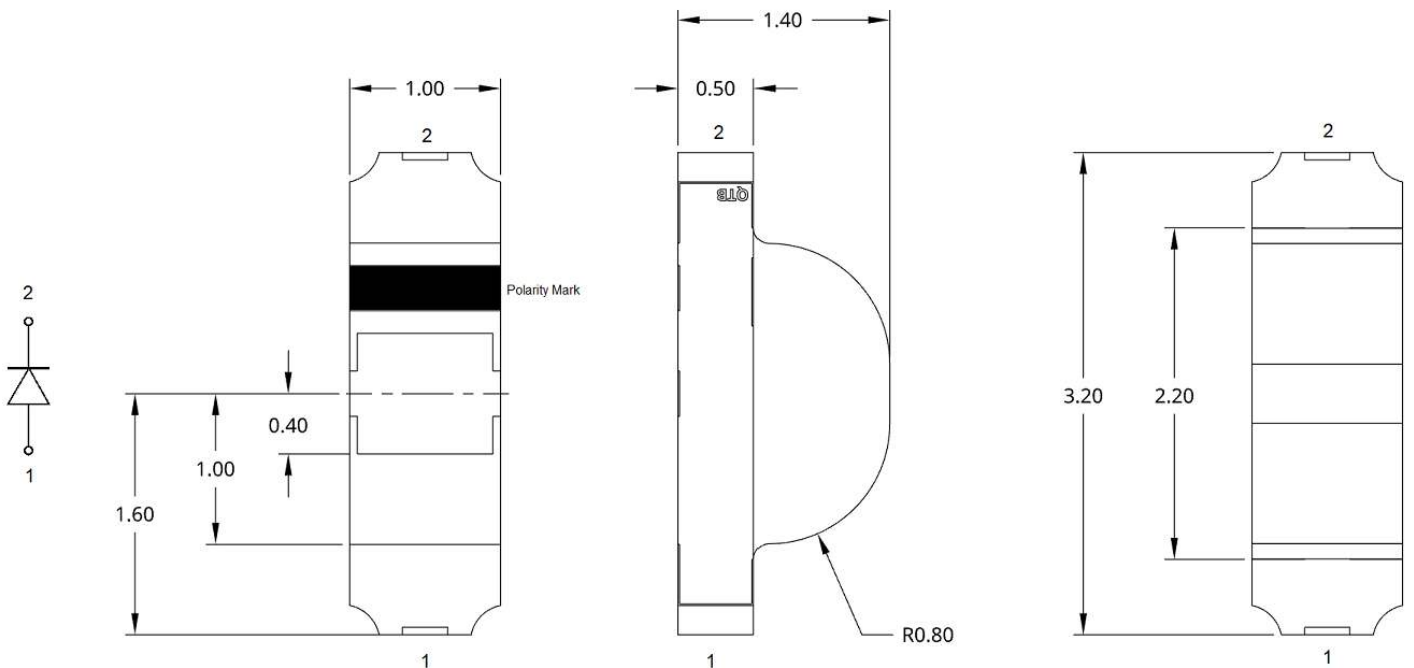
- Status indication
- Back lighting application
- General Use

### Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



### Dimension:



Units: mm / tolerance = +/-0.1mm

**Electrical / Optical Characteristic (Ta=25 °C)**

| Product    | Color        | I <sub>F</sub> (mA) | V <sub>F</sub> (V) |      | λ <sub>D</sub> (nm) |      |      | I <sub>V</sub> (mcd) |      |
|------------|--------------|---------------------|--------------------|------|---------------------|------|------|----------------------|------|
|            |              |                     | Typ.               | Max. | Min.                | Typ. | Max. | Min.                 | Typ. |
| QBLP615-IB | Blue         | 20                  | 3.1                | 3.7  | 455                 | 460  | 465  | 40                   | 70   |
| QBLP615-IG | True Green   | 20                  | 3.1                | 3.7  | 520                 | 525  | 530  | 125                  | 320  |
| QBLP615-R  | Red          | 20                  | 2.0                | 2.5  | 615                 | 620  | 630  | 80                   | 140  |
| QBLP615-AG | Yellow Green | 20                  | 2.0                | 2.5  | 565                 | 570  | 576  | 20                   | 63   |
| QBLP615-Y  | Yellow       | 20                  | 2.0                | 2.5  | 585                 | 590  | 595  | 63                   | 120  |
| QBLP615-O  | Orange       | 20                  | 2.0                | 2.5  | 600                 | 605  | 610  | 80                   | 150  |
| QBLP615-S  | Deep Red     | 20                  | 2.0                | 2.5  | 625                 | 630  | 635  | 50                   | 85   |

**Absolute Maximum Rating**

| Material                | P <sub>d</sub> (mW) | I <sub>F</sub> (mA) | I <sub>FP</sub> (mA)* | V <sub>R</sub> (V) | T <sub>OP</sub> (°C) | T <sub>ST</sub> (°C) | T <sub>SOL</sub> (°C)** |
|-------------------------|---------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|-------------------------|
| InGaN (IB/IG)           | 111                 | 30                  | 125                   | 5                  | -40 ~ +80            | -40 ~ +85            | 260                     |
| AlInGaP<br>(R/AG/Y/O/S) | 75                  | 30                  | 125                   | 5                  | -40 ~ +80            | -40 ~ +85            | 260                     |

\*Duty 1/8 @ 1kHz

\*\*IR Reflow for no more than 10 sec @ 260 °C

**Forward Voltage V<sub>F</sub> for AlInGaP @ I<sub>F</sub>=20mA**

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| □   | 1.7  | 2.5  | V    |

**Forward Voltage V<sub>F</sub> for InGaN @ I<sub>F</sub>=20mA**

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| f   | 2.8  | 3.1  | V    |
| g   | 3.1  | 3.4  |      |
| h   | 3.4  | 3.7  |      |

**Luminous Intensity  $I_V$  @  $I_F=20mA$** 

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| C   | 20   | 25   | mcd  |
| D   | 25   | 32   |      |
| E   | 32   | 40   |      |
| F   | 40   | 50   |      |
| G   | 50   | 63   |      |
| H   | 63   | 80   |      |
| I   | 80   | 100  |      |
| J   | 100  | 125  |      |
| K   | 125  | 160  |      |
| L   | 160  | 200  |      |
| M   | 200  | 250  |      |
| N   | 250  | 320  |      |
| O   | 320  | 400  |      |
| P   | 400  | 500  |      |
| Q   | 500  | 630  |      |

**Dominant Wavelength  $\lambda_D$  for Blue @  $I_F=20mA$** 

| Bin | Min.  | Max.  | Unit |
|-----|-------|-------|------|
| C   | 455   | 457.5 | nm   |
| D   | 457.5 | 460   |      |
| E   | 460   | 462.5 |      |
| F   | 462.5 | 465   |      |

**Dominant Wavelength  $\lambda_D$  for True Green @  $I_F=20mA$** 

| Bin | Min.  | Max.  | Unit |
|-----|-------|-------|------|
| U   | 520   | 522.5 | nm   |
| V   | 522.5 | 525   |      |
| W   | 525   | 527.5 |      |
| X   | 527.5 | 530   |      |

**Dominant Wavelength  $\lambda_D$  for Red @  $I_F=20mA$** 

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| s   | 615  | 620  | nm   |
| t   | 620  | 625  |      |
| u   | 625  | 630  |      |

**Dominant Wavelength  $\lambda_D$  for Yellow Green @  $I_F=20mA$**

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| h   | 565  | 568  | nm   |
| i   | 568  | 572  |      |
| j   | 572  | 576  |      |

**Dominant Wavelength  $\lambda_D$  for Yellow @  $I_F=20mA$**

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| m   | 585  | 590  | nm   |
| n   | 590  | 595  |      |

**Dominant Wavelength  $\lambda_D$  for Orange @  $I_F=20mA$**

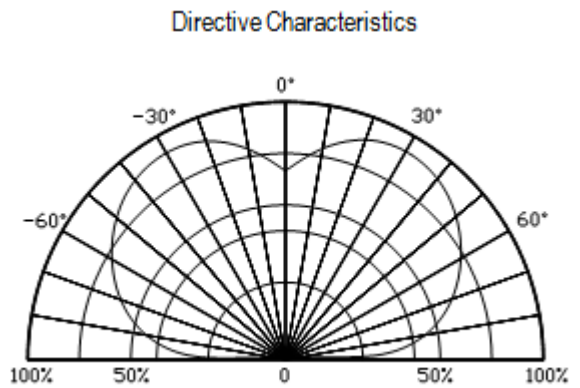
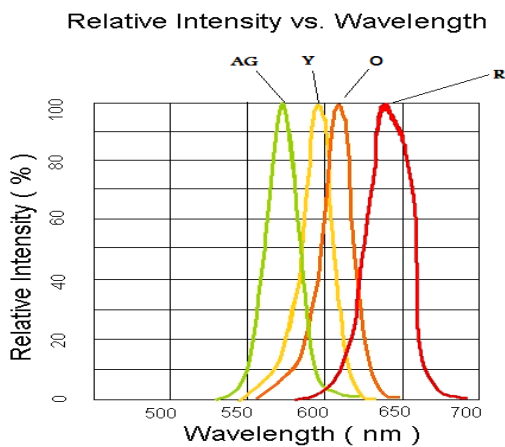
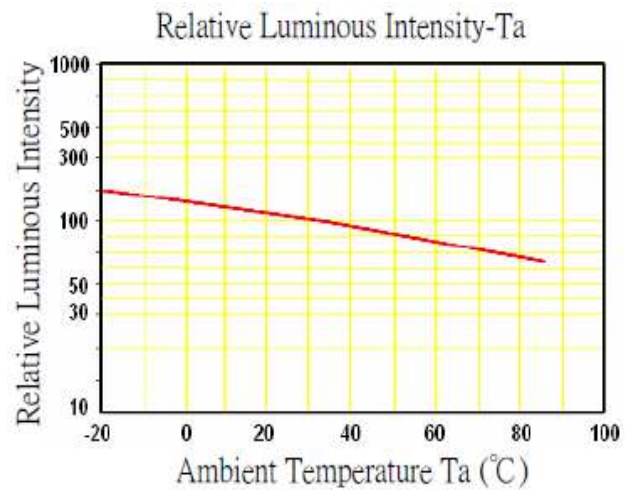
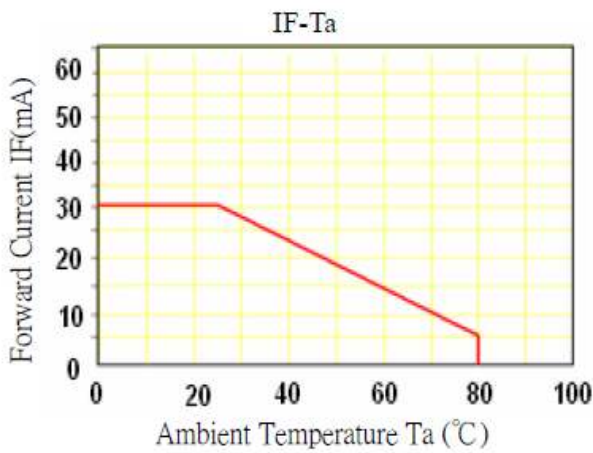
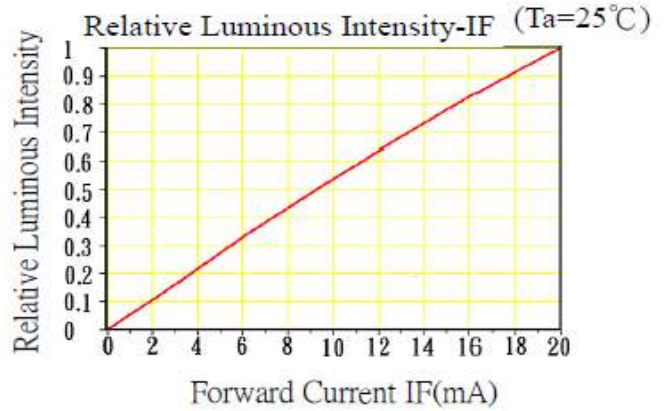
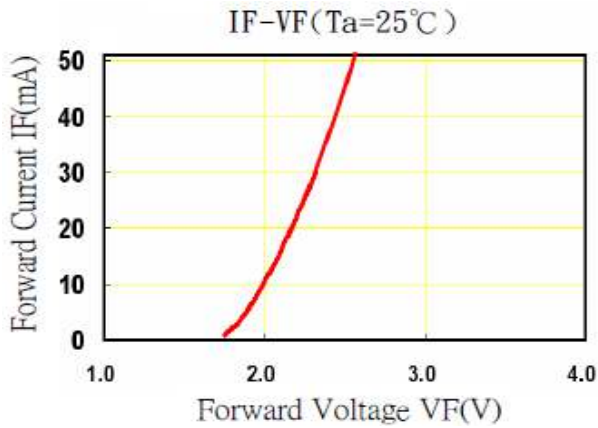
| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| p   | 600  | 605  | nm   |
| q   | 605  | 610  |      |

**Dominant Wavelength  $\lambda_D$  for Red @  $I_F=20mA$**

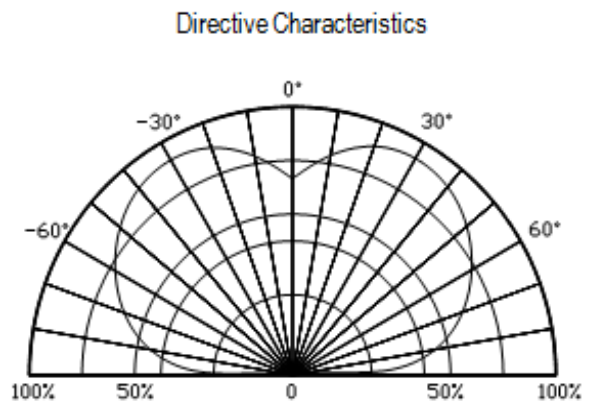
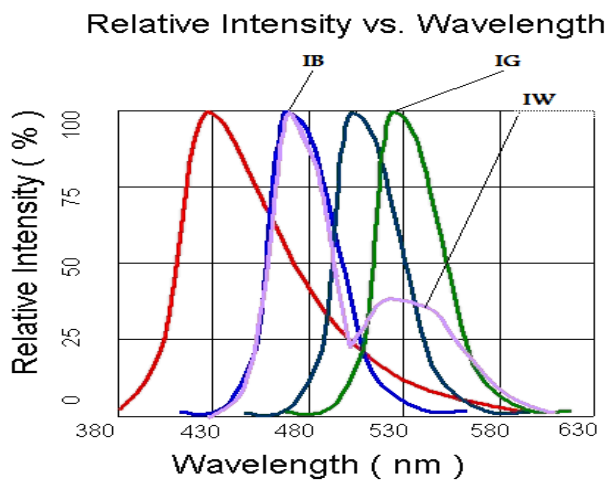
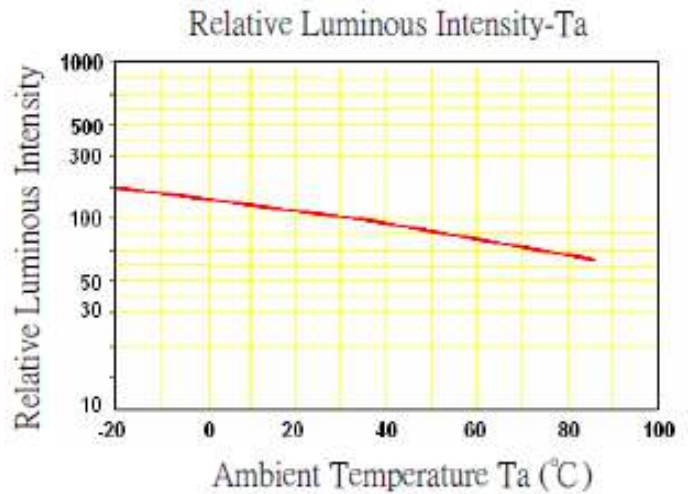
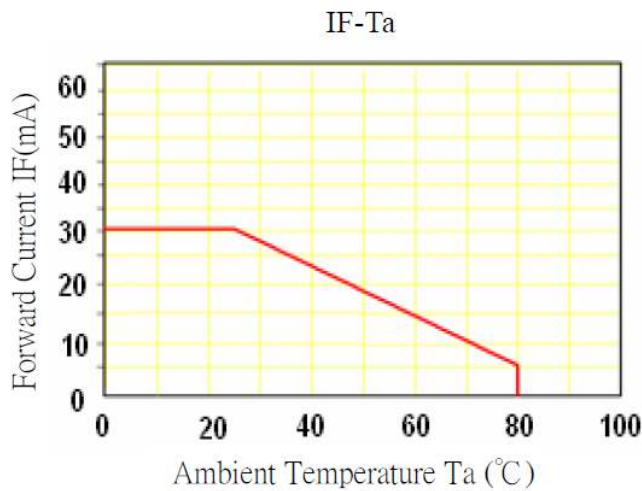
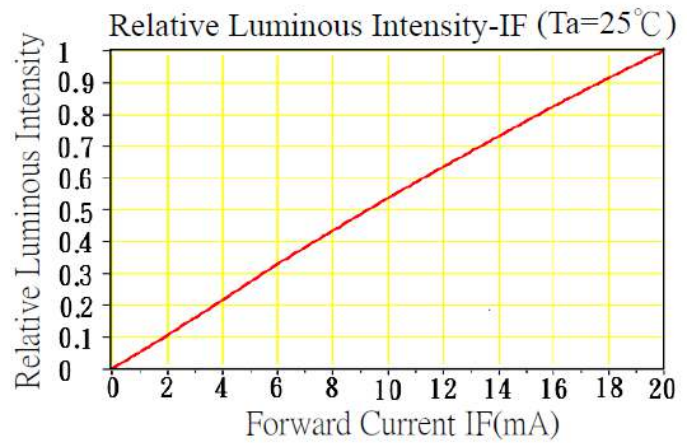
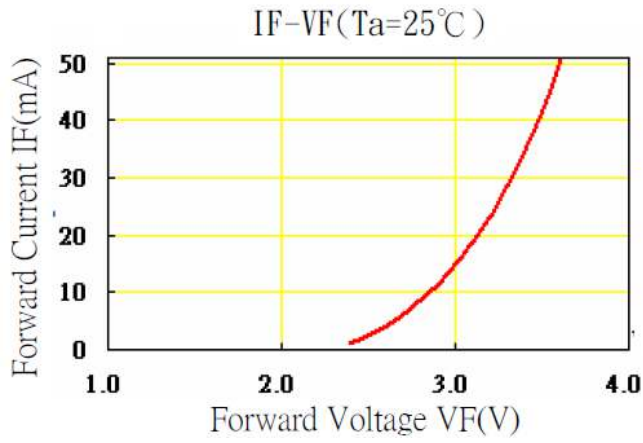
| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| u   | 625  | 630  | nm   |
| v   | 630  | 635  |      |

**Characteristic Curves**

AllnGaP (R/AG/Y/O/S)



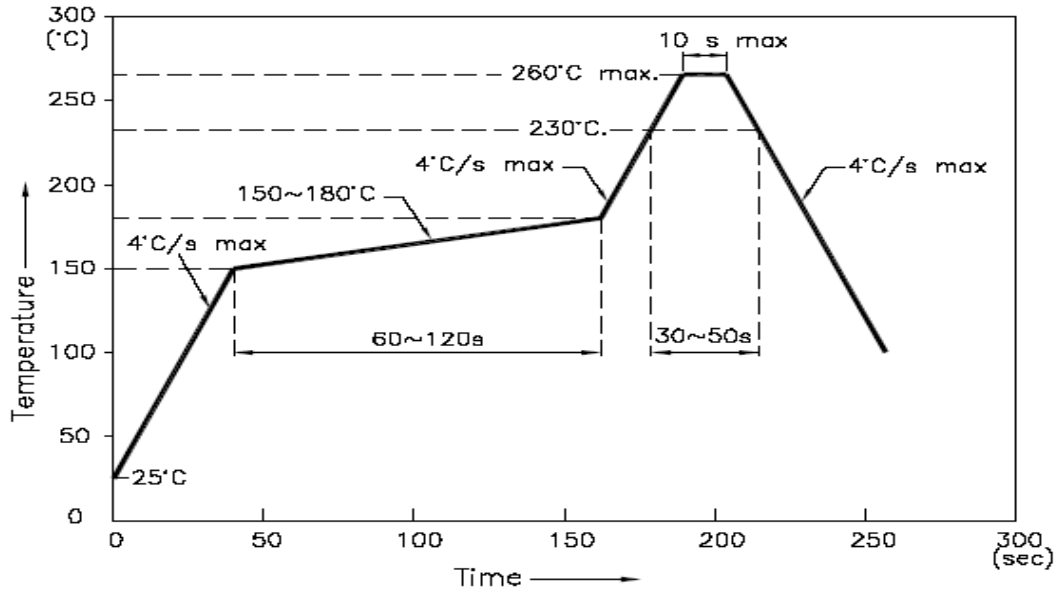
InGaN (IB/IG/IW)



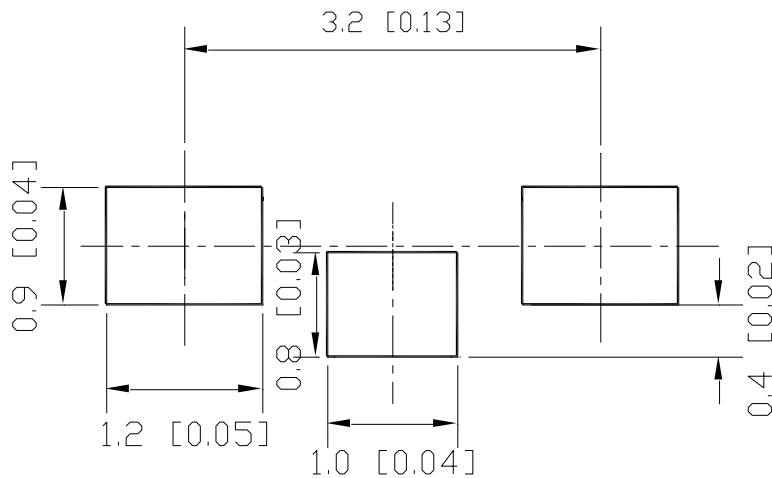


## Solder Profile & Footprint

- Recommended tin solder specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

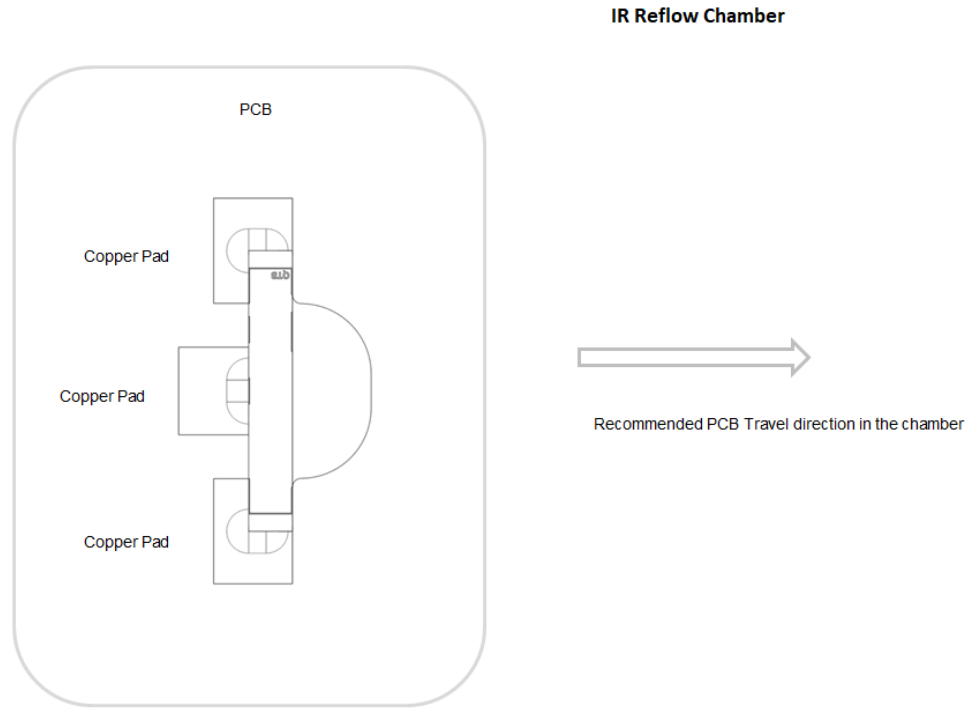


### Recommended Pad Layout

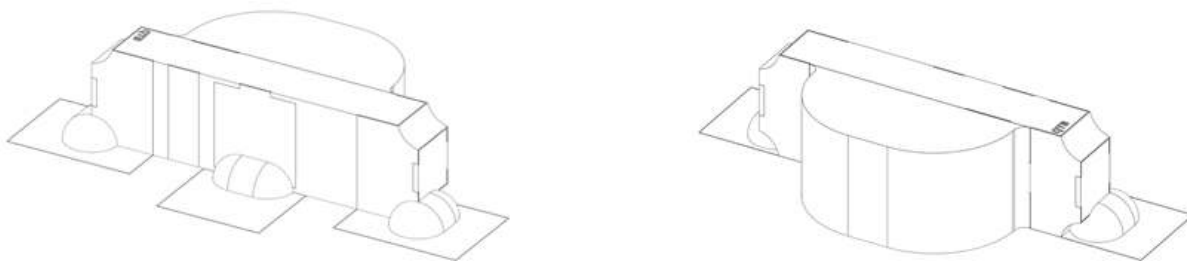


Units: mm

- The recommended IR reflow direction for a right angle (side view) SMD led is illustrated below to insure the solder on each lead melts simultaneously during the SMT reflow soldering process.



## Mounting the LED on PCB

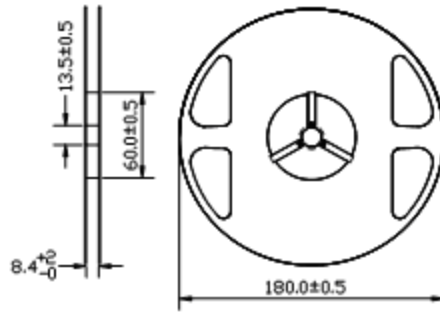


Note: The amount of solder paste applied as shown in the picture is just for illustration purpose only. When mounting and soldering the LEDs, avoid excess solder paste from overflowing onto or near the epoxy lens.

|                         |                          |               |
|-------------------------|--------------------------|---------------|
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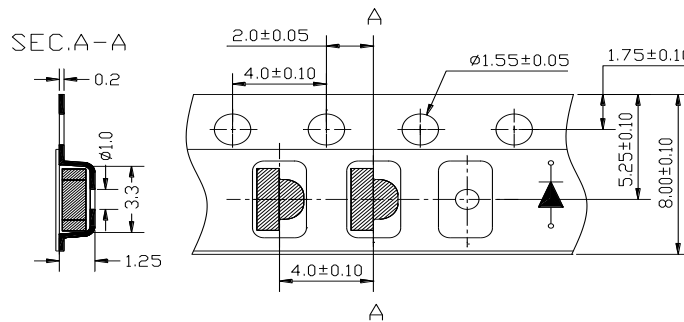
## Packing

### Reel Dimension:



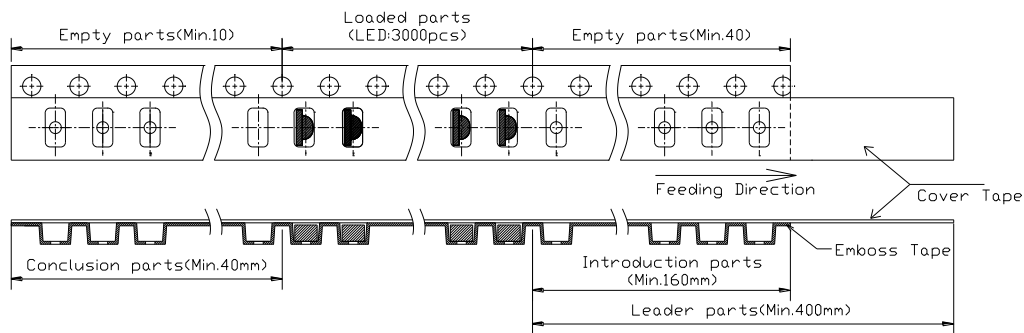
Unit: mm

### Tape Dimension:

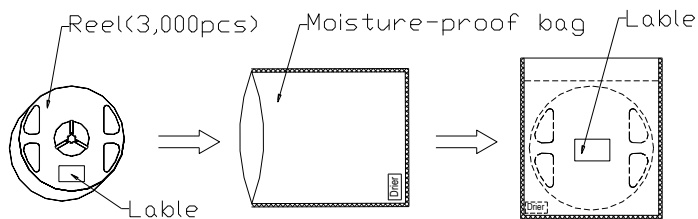


Unit: mm

### Arrangement of Tape:



### Packaging Specifications:



**Labeling**

**Part No:** \_\_\_\_\_  
**Customer P/N:** \_\_\_\_\_  
**Item:** \_\_\_\_\_  
**Q'ty:** \_\_\_\_\_  
**Vf:** \_\_\_\_\_  
**Iv:** \_\_\_\_\_  
**WI:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

**Made in China****Ordering Information**

| Part #     | Orderable Part # | Spec Range                                      | Quantity per reel |
|------------|------------------|---|-------------------|
| QBLP615-IB | QBLP615-IB       | Iv=70mcd typ. @ 20mA /<br>Color=455nm ~ 465nm   | 3,000 units       |
| QBLP615-IG | QBLP615-IG       | Iv=320 mcd typ. @ 20mA /<br>Color=520nm ~ 530nm | 3,000 units       |
| QBLP615-R  | QBLP615-R        | Iv=140mcd typ. @ 20mA /<br>Color=615nm ~ 630nm  | 3,000 units       |
| QBLP615-AG | QBLP615-AG       | Iv=63mcd typ. @ 20mA /<br>Color=565nm ~ 576nm   | 3,000 units       |
| QBLP615-Y  | QBLP615-Y        | Iv=120mcd typ. @ 20mA /<br>Color=585nm ~ 595nm  | 3,000 units       |
| QBLP615-O  | QBLP615-O        | Iv=150 mcd typ. @ 20mA /<br>Color=600nm ~ 610nm | 3,000 units       |
| QBLP615-S  | QBLP615-S        | Iv=85 mcd typ. @ 20mA /<br>Color=625nm ~ 635nm  | 3,000 units       |

## Revision History

| Description:   | Revision # | Revision Date |
|--|------------|---------------|
| New Release of QBLP615_series  | V1.0       | 06/25/2011    |
| Amend drawing and footprint  | V1.1       | 11/28/2011    |
| Amend new format/ drawings/ update spec of blue/ red/ orange/ Yellow/ Add Deep Red spec    | V1.2       | 11/18/2013    |
| Update solder Profile and characteristic curve, add viewing angle                          | V1.3       | 02/04/2014    |
| Add recommended SMT and mounting suggestion / Optimize drawing dimensions in the datasheet | V1.4       | 09/29/2022    |

## Disclaimer

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