# QT-Brightek PLCC Series

# 0606 PLCC4 RGB LED

## Part No.: QBLP1515AB-RGB2A

**A: Common Anode**
**B: Black Housing**
**RGB2: Diffused Lens**
**A: 10mA**

**Table of Contents:**

# Introduction

**Feature:**

- White diffused lens
- Black housing
- 0606 (1.5 x 1.55mm) PLCC-4 pkg
- RGB LED
- Common anode
- Beam angle: 120 deg typ.
- Silicone lens
- MSL 2A
- Height profile: 1mm

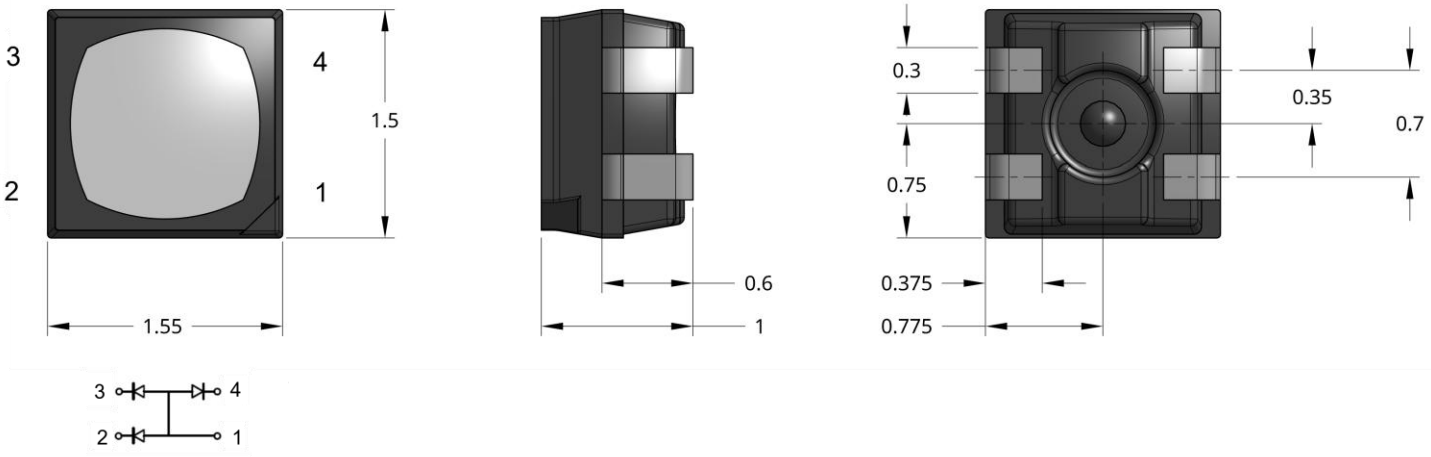
Application:

- Status indication
- Back lighting application
- Display signage board

Certification & Compliance:

- ISO9001
- RoHS Compliant

Dimension:




Pin 1: Common Anode
Pin 2: Cathode Blue
Pin 3: Cathode Green
Pin 4: Cathode Red

Units: mm / tolerance = +/-0.2mm

## Electrical / Optical Characteristic ($T_A$=25 °C)

| Product | Color | $I_F$ (mA) | $V_F$ (V) | | $\lambda_D$ (nm) | | | $\lambda_P$ (nm) | $I_V$ (mcd) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Min. | Typ. | Max. | Typ. | Min. | Typ. | Max. |
| QBLP1515AB-RGB2A | Red | 10 | 2.0 | 2.4 | 612 | 622 | 627 | 630 | 77 | 168 | 290 |
| | Green | 10 | 2.8 | 3.3 | 516 | 524 | 531 | 520 | 220 | 390 | 640 |
| | Blue | 10 | 2.8 | 3.3 | 460 | 468 | 475 | 463 | 27 | 90 | 170 |

## Absolute Maximum Rating

| Chip Material | $P_d$ (mW) | $I_F$ (mA) | $I_{FP}$ (mA)* | $V_R$ (V) | $T_{OP}$ (°C) | $T_{ST}$ (°C) | $T_J$ (°C) | $T_{SOL}$ (°C)** |
|---|---|---|---|---|---|---|---|---|
| AlInGaP (R) | 46 | 20 | 100 | 5 | -40 to +85 | -40 to +100 | 115 | 260 |
| InGaN (G/B) | 60 | 20 | 100 | 5 | -40 to +85 | -40 to +100 | 115 | 260 |

*Pulse width ≤ 0.1 msec, duty ≤ 1/10
**IR Reflow for no more than 10 sec @ 260 °C

**Forward Voltage $V_F$ for Red @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| V1B | 1.5 | 1.8 | V |
| V1C | 1.8 | 2.1 | |
| V2A | 2.1 | 2.4 | |

**Forward Voltage $V_F$ for Green & Blue @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| V2B | 2.4 | 2.7 | V |
| V2C | 2.7 | 3.0 | |
| V3A | 3.0 | 3.3 | |

**Luminous Intensity $I_V$ for Red @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| 19 | 77 | 130 | mcd |
| 20 | 130 | 170 | |
| 21 | 170 | 220 | |
| 22 | 220 | 290 | |

**Luminous Intensity $I_V$ for Green @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| 22 | 220 | 290 | mcd |
| 23 | 290 | 380 | |
| 24 | 380 | 490 | |
| 25 | 490 | 640 | |

**Luminous Intensity $I_V$ for Blue @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| 17 | 27 | 45 | mcd |
| 18 | 45 | 77 | |
| 19 | 77 | 130 | |
| 20 | 130 | 170 | |

**Dominant Wavelength $\lambda_D$ for Red @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| A5 | 612 | 617 | nm |
| R1 | 617 | 622 | |
| R2 | 622 | 627 | |

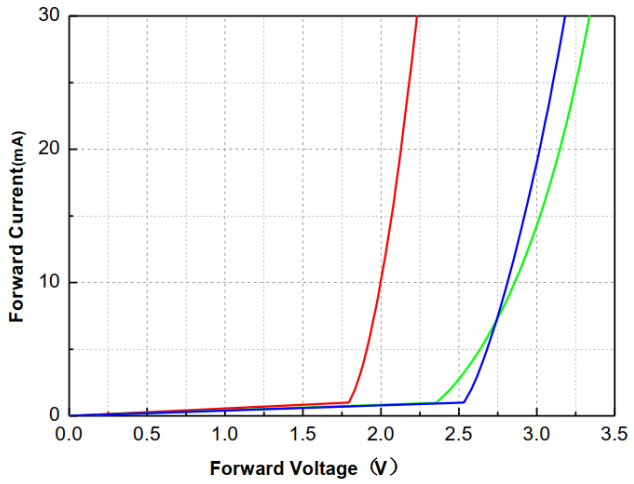
**Dominant Wavelength $\lambda_D$ for Green @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| TG1 | 516 | 521 | nm |
| TG2 | 521 | 526 | |
| TG3 | 526 | 531 | |

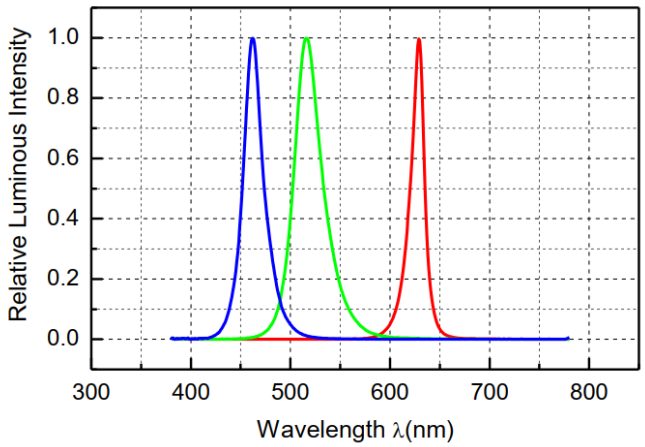
**Dominant Wavelength $\lambda_D$ for Blue @ $I_F$=10mA**

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| B5 | 460 | 465 | nm |
| B6 | 465 | 470 | |
| B7 | 470 | 475 | |

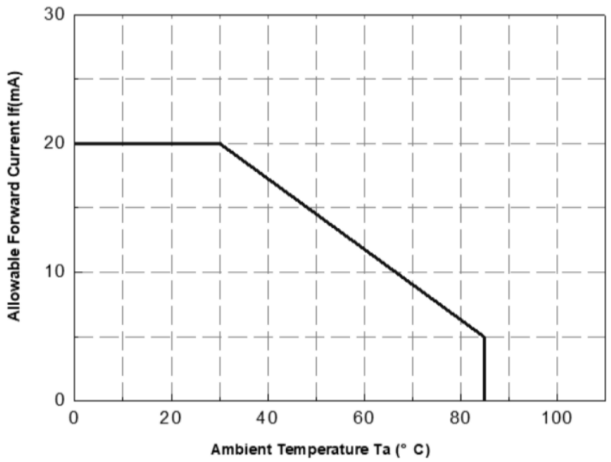
## Characteristic Curves



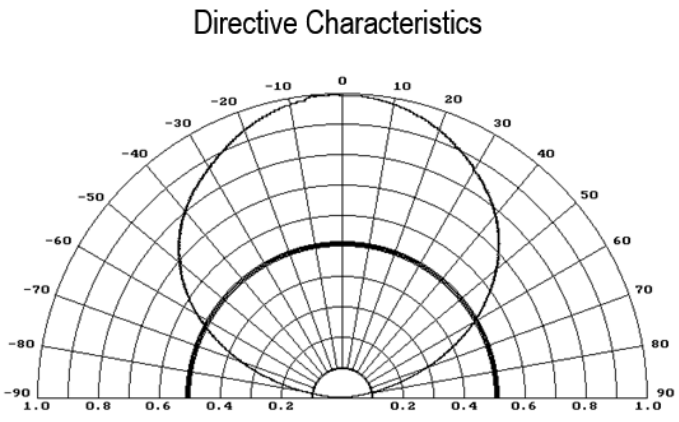

Forward Current VS. Forward Voltage




Spectral Power Distribution vs. Wavelength

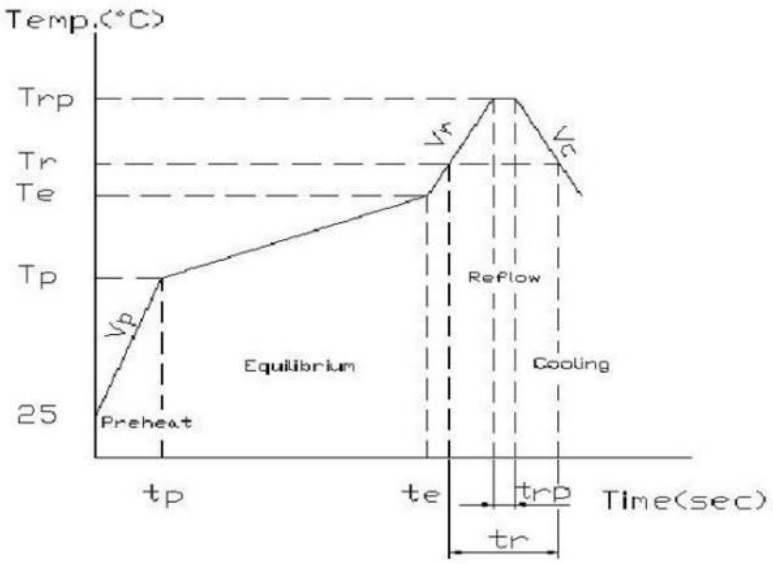



Forward Current vs. Ambient Temperature



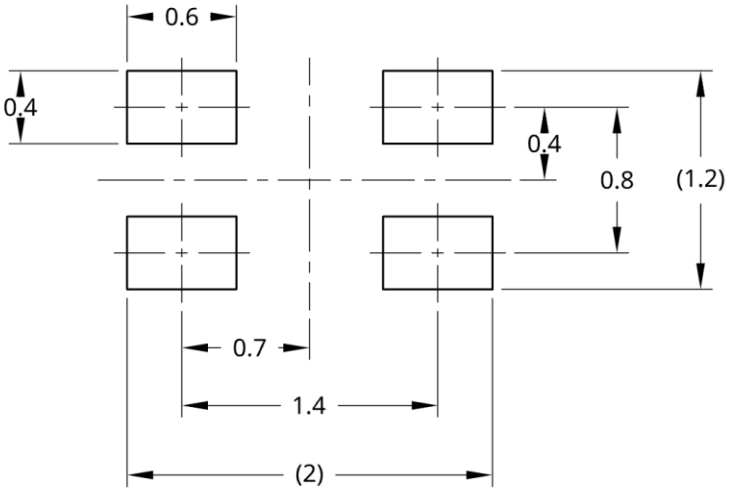
# Solder Profile & Footprint

-The recommended lead free reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):




| | | | | | |
|---|---|---|---|---|---|
| (1)Preheat | Ramp-up rate | Vp | 1 | 5 | ℃/sec |
| | temperature | Tp | 150 | – | ℃ |
| | time | tp | – | – | sec |
| (2)Equilibrium | Ramp-up rate | Ve | – | – | ℃/sec |
| | temperature | Te | 150 | 200 | ℃ |
| | Time | te | 60 | 120 | sec |
| (3)Reflow | Ramp-up rate | Vr | 1 | 5 | ℃/sec |
| | temperature | Tr | 220 | – | ℃ |
| | Time | tr | – | 60 | sec |
| | Peak temperature | Trp | – | 260 | ℃ |
| | Peak time | trp | – | 10 | sec |
| (4)Cooling | Ramp-down rate | Vc | 3 | 6 | ℃/sec |

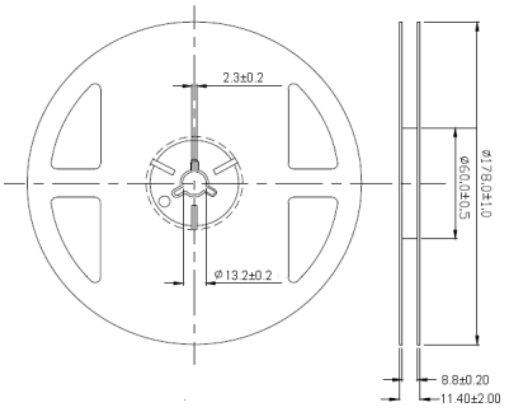
**Recommended Solder Pad**




Units: mm

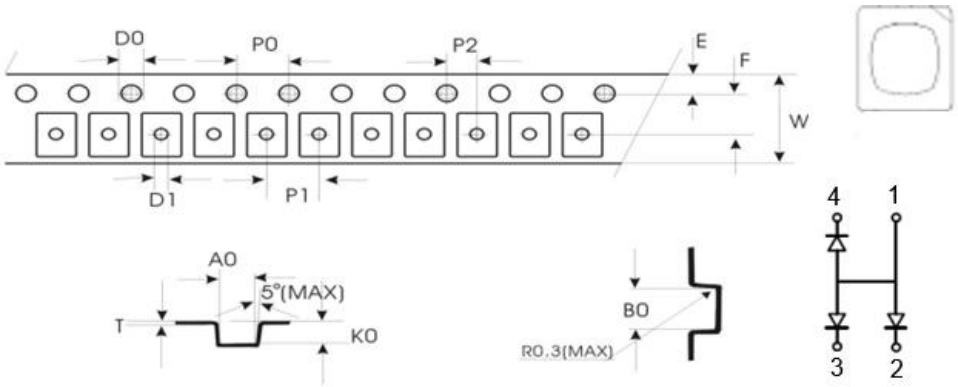
# Packing

**Reel Dimension:**




Unit: mm

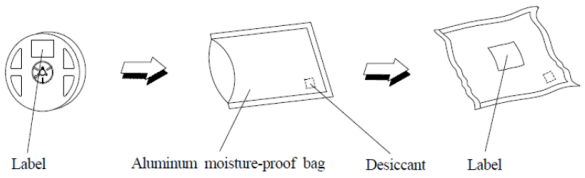
**Tape Dimension:**



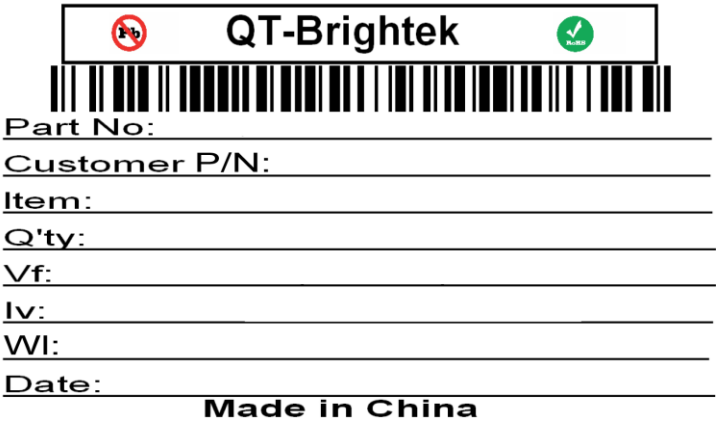

| A0 | B0 | K0 | P0 | P1 | P2 |
|---|---|---|---|---|---|
| 1.8±0.1 | 1.85±0.1 | 1.2±0.1 | 4.0±0.1 | 4.0±0.1 | 2.00±0.1 |
| E | F | D0 | D1 | W | T |
| 1.75±0.10 | 3.50±0.05 | 1.5±0.1 | 1.0±0.1 | 8.0±0.1 | 0.25±0.05 |

Unit: mm

**Packaging Specification:**



## Labeling




## Ordering Information

| Orderable Part # | Spec Range | Quantity per reel |
|---|---|---|
| QBLP1515AB-RGB2A | A single reel of LEDs will contain only one brightness bin, one color bin, and one forward voltage bin for each color. Shipments may contain any of the bin ranges listed on page 4 & 5. The specific bin groupings or combinations included in each shipment cannot be predetermined or guaranteed. | 3,500 units |

## Revision History

| Description: | Revision # | Revision Date |
|---|---|---|
| New Release of QBLP1515AB-RGB2A | V1.0 | 12/16/2025 |
| | | |
| | | |
| | | |
| | | |

## Disclaimer

QT-BRIGHTEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. QT-BRIGHTEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

## Life Support Policy

QT-BRIGHTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTEK. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.