# QT-Brightek PLCC-4 Series

# PLCC-4 Single Color LED

## Part No.: QBLP677A-XXD Series

**A: Common Anode**
**XX = Color Code**
**D = 50mA Sorting**

**Table of Contents:**

# Introduction

**Feature:**

- Water clear lens
- AlInGaP technology for R/S/Y/O
- InGaN technology IB/IG
- Common anode
- 120 degree viewing angle
- Height profile: 1.85mm

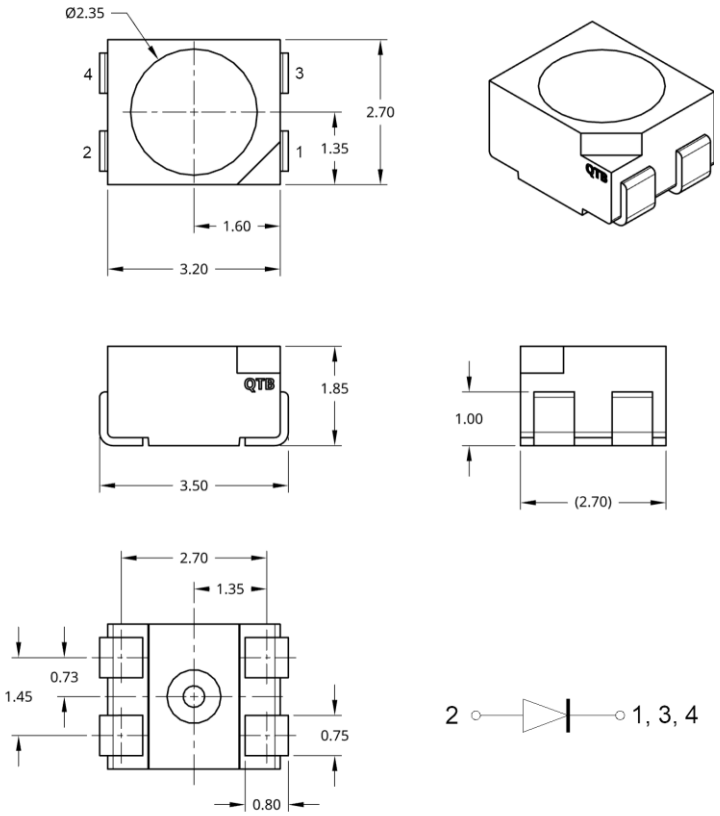
**Application:**

- Status indication
- Industrial equipment backlighting
- Architecture lighting

**Certification & Compliance:**

- ISO9001
- RoHS Compliant

Dimension:




Units: mm / tolerance = +/-0.2mm

## Electrical / Optical Characteristic (Ta=25 $^{o}$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. |
| QBLP677A-RD | Red | 50 | 2.1 | 2.9 | 615 | 620 | 630 | 630 | 1250 | 2050 | 4000 |
| QBLP677A-SD | Deep Red | | 2.1 | 2.9 | 630 | 640 | 650 | 654 | 100 | 170 | 320 |
| QBLP677A-YD | Yellow | | 2.1 | 2.9 | 585 | 590 | 595 | 594 | 1000 | 1600 | 2500 |
| QBLP677A-OD | Orange | | 2.7 | 2.9 | 600 | 605 | 610 | 612 | 1250 | 2400 | 4000 |
| QBLP677A-IGD | Green | | 3.3 | 3.7 | 515 | 520 | 525 | 515 | 2500 | 5000 | 6800 |
| QBLP677A-IBD | Blue | | 3.2 | 3.8 | 465 | 470 | 475 | 465 | 320 | 585 | 1000 |

## Absolute Maximum Rating

| Material | $P_d$ (mW) | $I_F$ (mA) | $I_{FP}$ (mA)* | $V_R$ (V) | $T_{OP}$ ($^{o}$C) | $T_{ST}$ ($^{o}$C) | $T_{SOL}$ ($^{o}$C)** |
|---|---|---|---|---|---|---|---|
| AlInGaP | 145 | 50 | 250 | 5 | -40 to +85 | -40 to +100 | 260 |
| InGaN | 200 | 50 | 250 | 5 | -40 to +85 | -40 to +100 | 260 |

*Duty 1/8 @ 1kHz

**IR Reflow for no more than 10 sec @ 260 $^{o}$C

## Forward Voltage $V_F$ for AlInGaP (R, S, Y, O) @ $I_F$=50mA

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| ☐ | 1.9 | 2.9 | V |

## Forward Voltage $V_F$ for InGaN (IG, IB) @ $I_F$=50mA

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| f | 2.8 | 3.1 | V |
| g | 3.1 | 3.4 | |
| h | 3.4 | 3.7 | |
| i | 3.7 | 4.0 | |

## Luminous Intensity @ $I_F$=50mA

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| J | 100 | 125 | mcd |
| K | 125 | 160 | |
| L | 160 | 200 | |
| M | 200 | 250 | |
| N | 250 | 320 | |
| O | 320 | 400 | |
| P | 400 | 500 | |
| Q | 500 | 630 | |
| R | 630 | 800 | |
| S | 800 | 1000 | |
| T | 1000 | 1250 | |
| U | 1250 | 1600 | |
| V | 1600 | 2000 | |
| W | 2000 | 2500 | |
| X | 2500 | 3200 | |
| Y | 3200 | 4000 | |
| Z | 4000 | 5200 | |
| a | 5200 | 6800 | |

## Dominant Wavelength $\lambda_D$ for Red @ $I_F$=50mA

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

## Dominant Wavelength $\lambda_D$ for Deep Red @ $I_F$=50mA

| Bin | Min. | Max. | Unit |
|---|---|---|---|
| v | 630 | 635 | nm |
| w | 635 | 650 | |

## Dominant Wavelength $\lambda_D$ for Yellow @ $I_F$=50mA

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

## Dominant Wavelength $\lambda_D$ for Orange @ $I_F$=50mA

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

## Dominant Wavelength $\lambda_D$ for True Green @ $I_F$=50mA

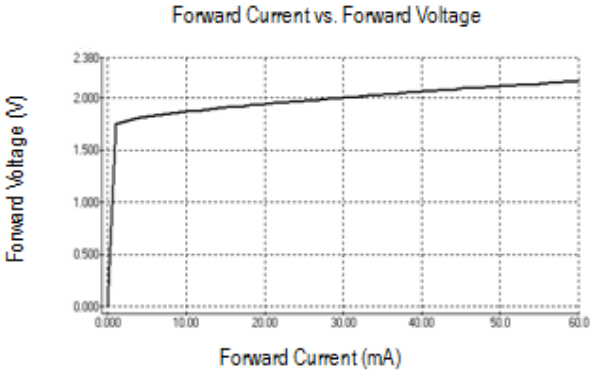
| Bin | Min. | Max. | Unit |
|---|---|---|---|
| S | 515 | 517.5 | nm |
| T | 517.5 | 520 | |
| U | 520 | 522.5 | |
| V | 522.5 | 525 | |

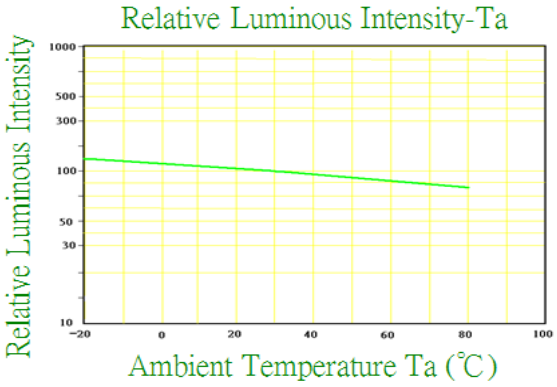
## Dominant Wavelength $\lambda_D$ for Blue @ $I_F$=50mA

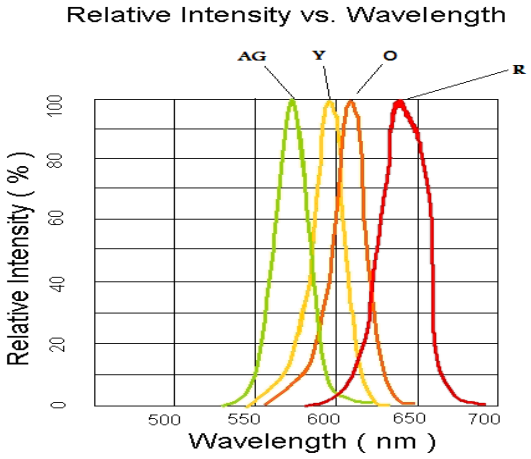
| Bin | Min. | Max. | Unit |
|---|---|---|---|
| G | 465 | 467.5 | nm |
| H | 467.5 | 470 | |
| I | 470 | 472.5 | |
| J | 472.5 | 475 | |

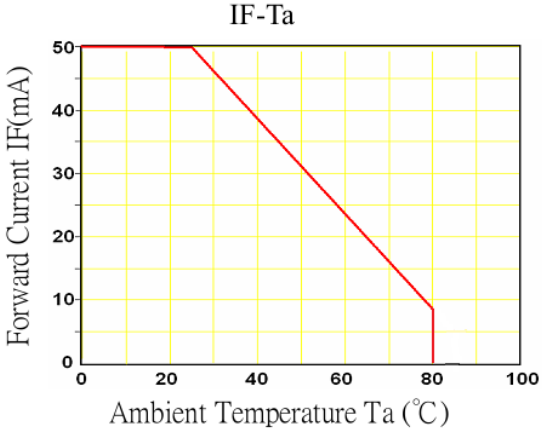
## Characteristic Curves

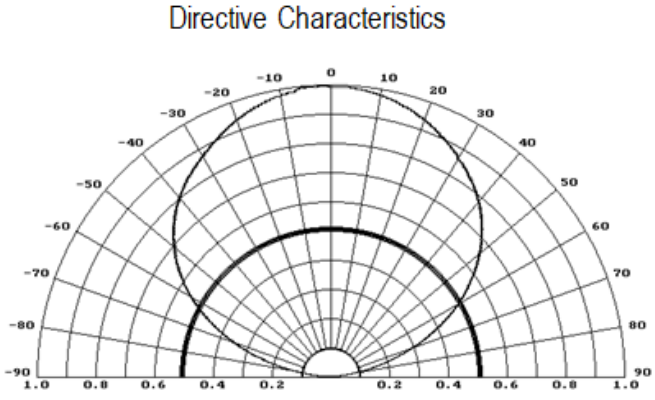
AlInGaP



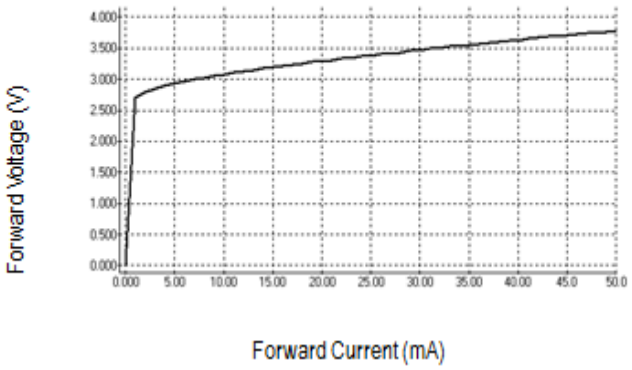



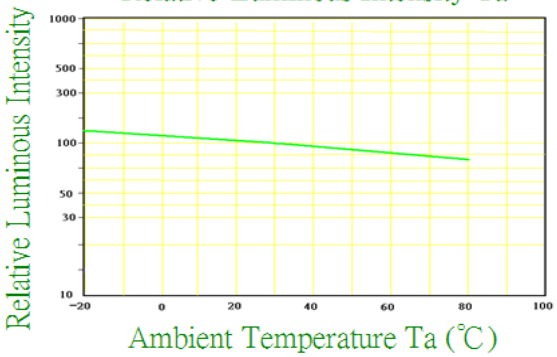



InGaN

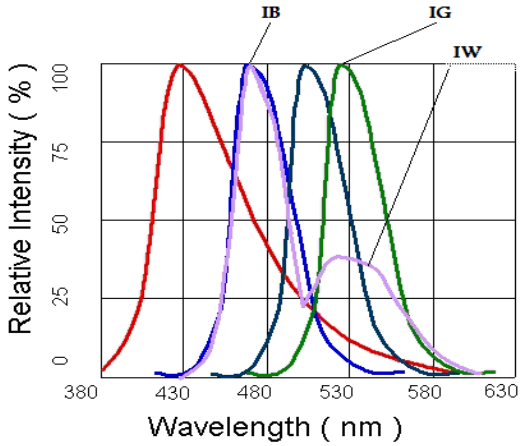
Forward Current vs. Forward Voltage



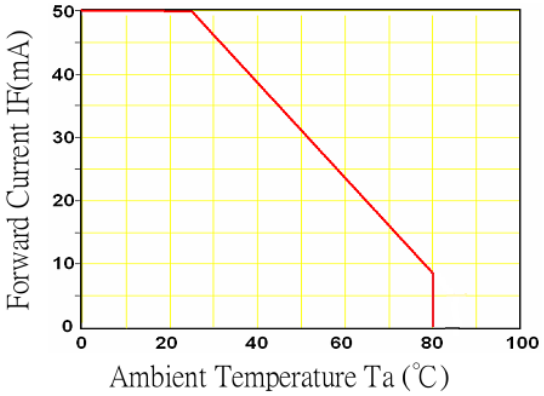

Relative Luminous Intensity-Ta



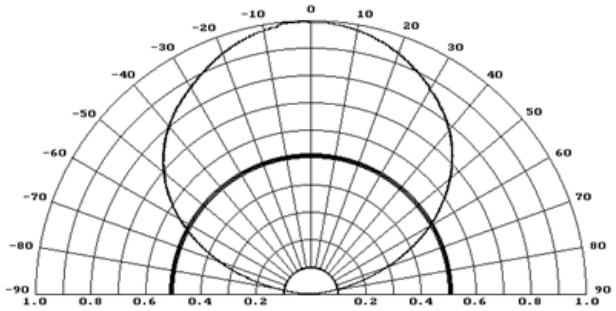

Relative Intensity vs. Wavelength




IF-Ta

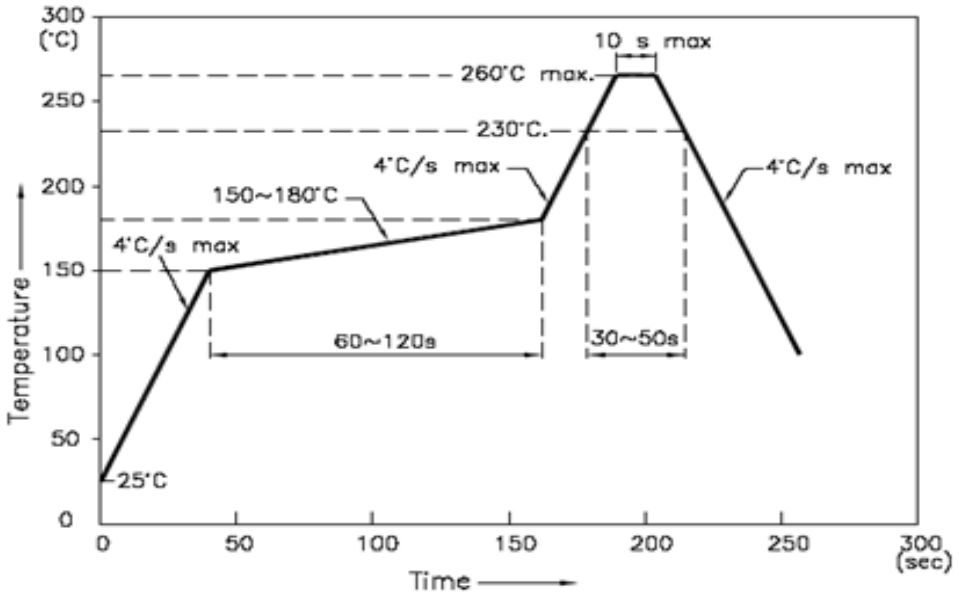



Directive Characteristics

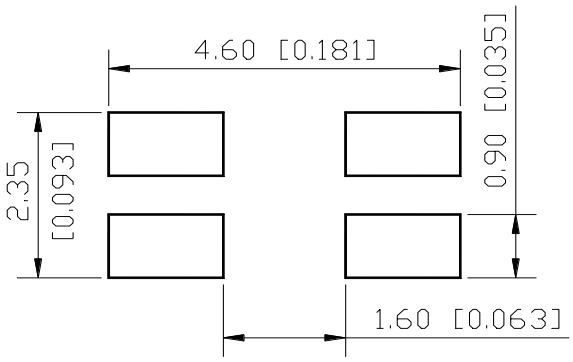


## Solder Profile & Footprint

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



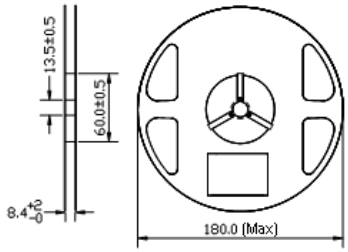

**Recommended Pad Layout**




Units: mm Tolerance: ± 0.1mm

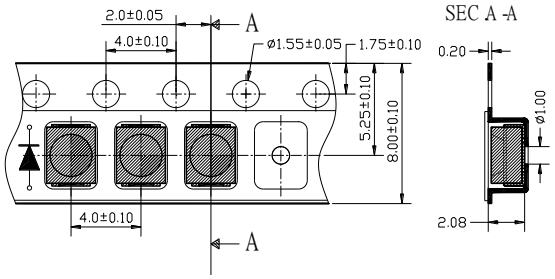
# Packing

## Reel Dimension:



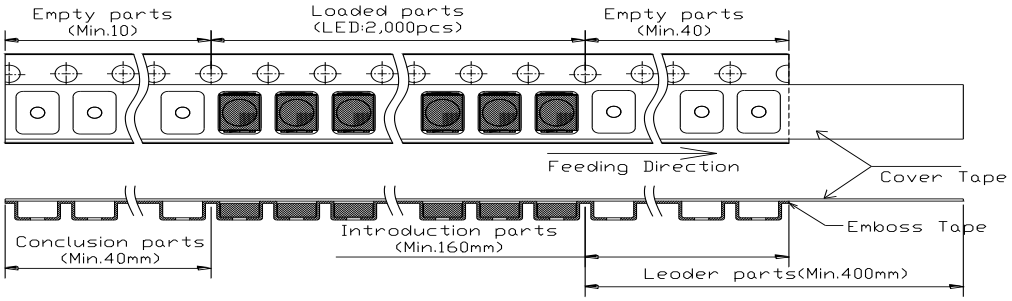

Unit: mm

## Tape Dimension:



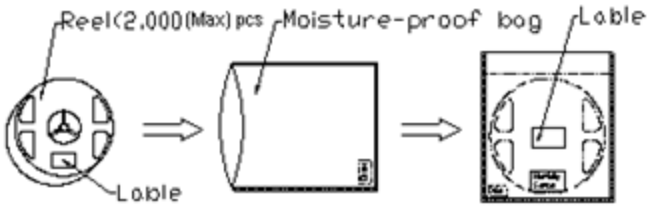

Unit: mm

## Arrangement of Tape:

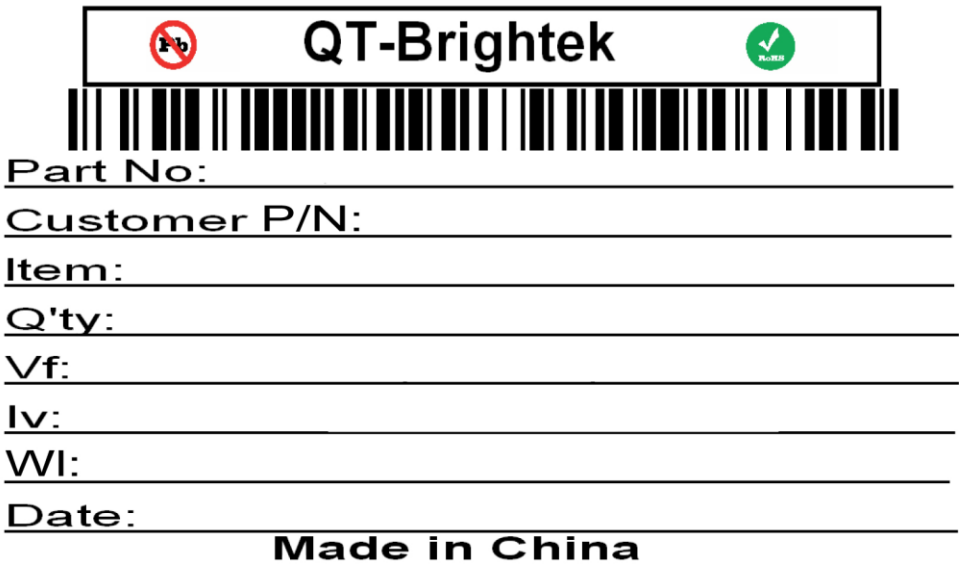



Unit: mm

## Packaging Specifications:



## Labeling




## Ordering Information

| Orderable Part # | Spec Range | Quantity per reel |
|---|---|---|
| QBLP677A-RD | Iv=2050mcd typ. @ $I_F$=50mA / $\lambda_d$=615-630nm | 2,000 units |
| QBLP677A-SD | Iv=170mcd typ. @ $I_F$=50mA / $\lambda_d$=630-650nm | 2,000 units |
| QBLP677A-YD | Iv=1600mcd typ. @ $I_F$=50mA / $\lambda_d$=585-595nm | 2,000 units |
| QBLP677A-OD | Iv=2400mcd typ. @ $I_F$=50mA / $\lambda_d$=600-610nm | 2,000 units |
| QBLP677A-IGD | Iv=1550mcd typ. @ $I_F$=50mA / $\lambda_d$=515-525nm | 2,000 units |
| QBLP677A-IBD | Iv=585mcd typ. @ $I_F$=50mA / $\lambda_d$=465-475nm | 2,000 units |

## Revision History

| Description: | Revision # | Revision Date |
|---|---|---|
| New Release of QBLP677A-XXD Series | V1.0 | 10/23/2015 |
| Update Top and $T_{ST}$ | V1.1 | 03/18/2016 |
| | | |
| | | |
| | | |

## Disclaimer

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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.