



**THE DATASHEET OF  
QBLP679E-RGB**



**QT-Brightek PLCC6 Series**

**PLCC6 RGB LED**

**Part No.: QBLP679E-RGB**

|                       |                      |              |
|-----------------------|----------------------|--------------|
| Product: QBLP679E-RGB | Date: March 23, 2021 | Page 1 of 10 |
|                       | Version# 2.2         |              |

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## Introduction

### Feature:

- Diffused lens
- Package in tape and reel
- Ultra bright PLCC6 RGB LED
- Direct Drive
- InGaN technology for IB/IG
- AlInGaP technology for R
- 120 degree viewing angle
- Black Face

### Description:

This ultra bright PLCC6 RGB LED has a height profile of 1.60mm. Combination of high brightness output and direct drive capability, these LEDs are ideal for architecture lighting, status indication, and color mixing applications.

### Application:

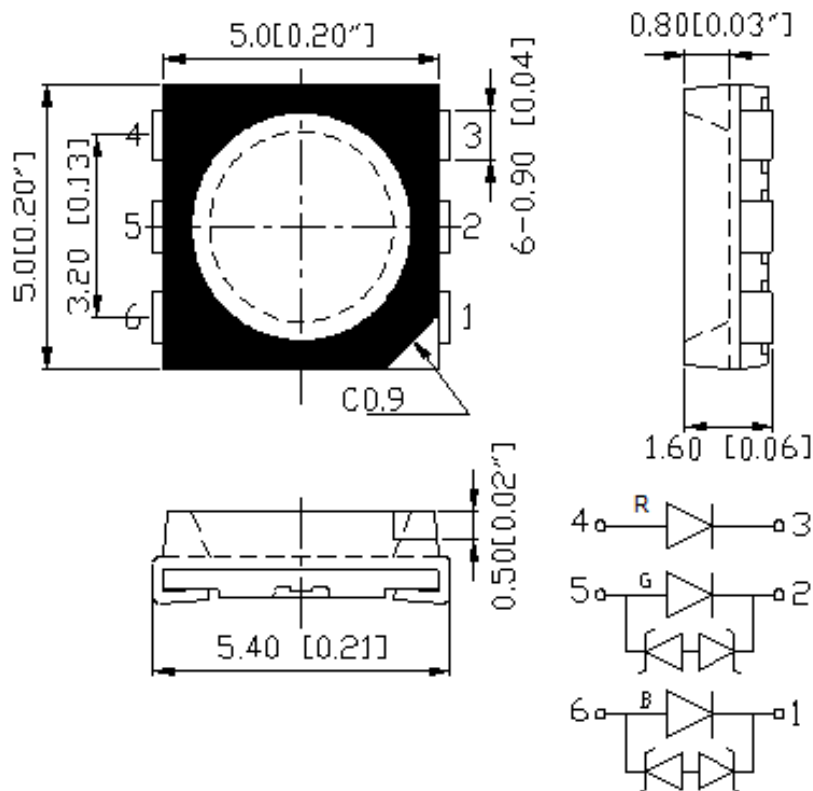
- Status indication
- Back lighting application
- Architecture lighting

### Certification & Compliance:

- TS16949
- ISO9001
- IEC60529
- RoHS Compliant



### Dimension:



Units: mm / tolerance = +/-0.2mm

### 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. |
| QBLP679E-RGB | Red        | 20                  | 2.0                | 2.5  | 615                 | 620  | 630  | 500                  | 840  |
|              | True Green | 20                  | 3.3                | 3.7  | 520                 | 525  | 530  | 1000                 | 1500 |
|              | Blue       | 20                  | 3.2                | 3.7  | 465                 | 470  | 475  | 200                  | 285  |

### 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)** | ESD (V)      |
|---------------|---------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|-------------------------|--------------|
| InGaN (IB/IG) | 111                 | 30                  | 125                   | 5                  | -40 to +80           | -40 to +85           | 260                     | HBM<br>12000 |
| AllnGaP (R)   | 75                  | 30                  | 125                   | 5                  | -40 to +80           | -40 to +85           | 260                     | HBM<br>8000  |

\*Duty 1/8 @ 1KHz

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

### Luminous Intensity I<sub>V</sub> for Red @ I<sub>F</sub>=20mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| Q   | 500  | 630  | mcd  |
| R   | 630  | 800  |      |
| S   | 800  | 1000 |      |
| T   | 1000 | 1250 |      |
| U   | 1250 | 1600 |      |

### Luminous Intensity I<sub>V</sub> for True Green @ I<sub>F</sub>=20mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| T   | 1000 | 1250 | mcd  |
| U   | 1250 | 1600 |      |
| V   | 1600 | 2000 |      |
| W   | 2000 | 2500 |      |

### Luminous Intensity I<sub>V</sub> for Blue @ I<sub>F</sub>=20mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| M   | 200  | 250  | mcd  |
| N   | 250  | 320  |      |
| O   | 320  | 400  |      |
| P   | 400  | 500  |      |

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

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| A   | 615  | 620  | nm   |
| B   | 620  | 625  |      |
| C   | 625  | 630  |      |

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

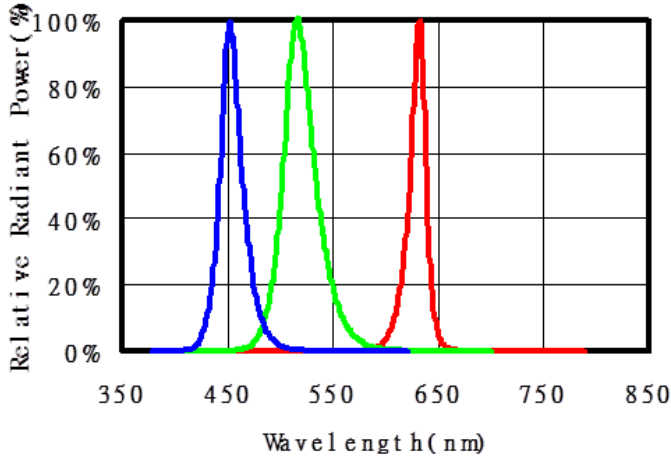
| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| B   | 520  | 525  | nm   |
| C   | 525  | 530  |      |

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

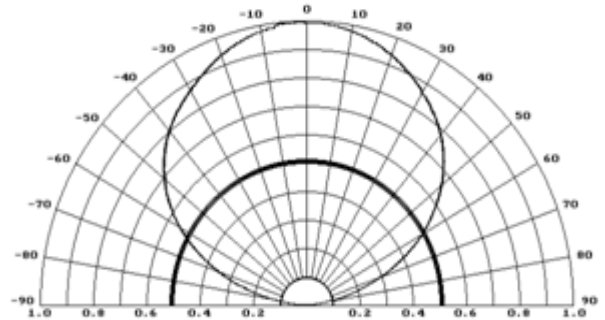
| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| B   | 465  | 470  | nm   |
| C   | 470  | 475  |      |

**Characteristic Curves**

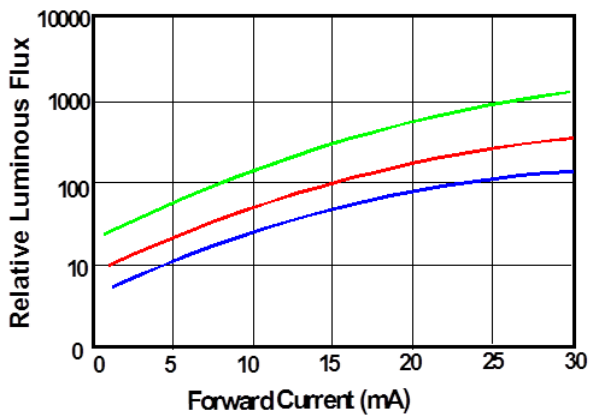
**Relative Spectral Power Distribution(Ta=25°C)**



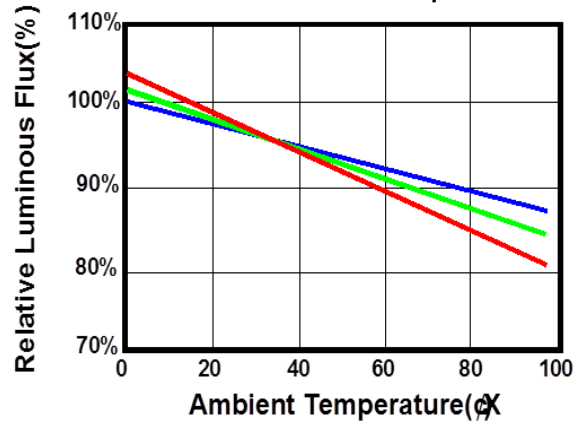
**Directive Characteristics**



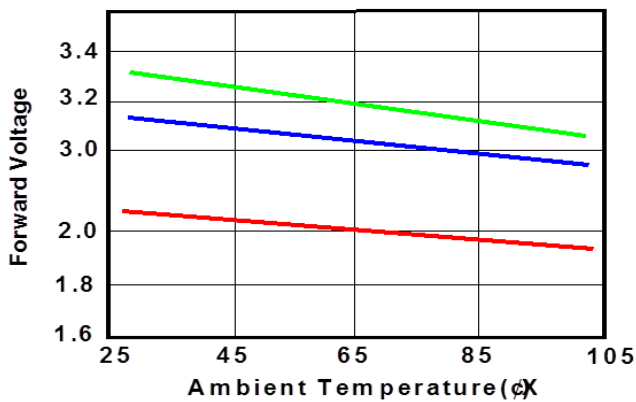
**Relative Flux vs.Current (Ta=25°C)**



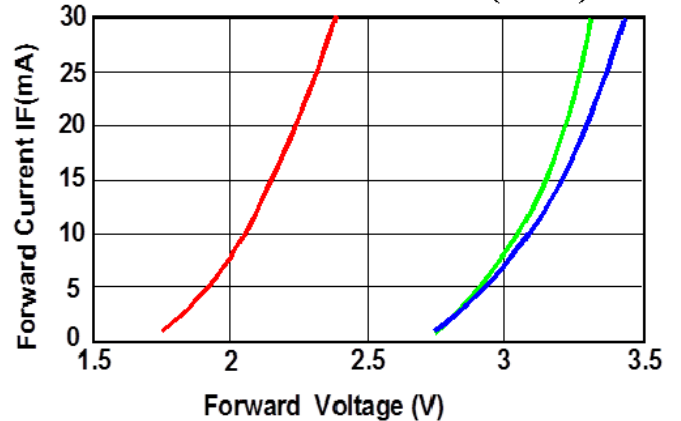
**Relative Flux vs.Ambient Temperature**



**Forward Voltage .Ambient Temperature**

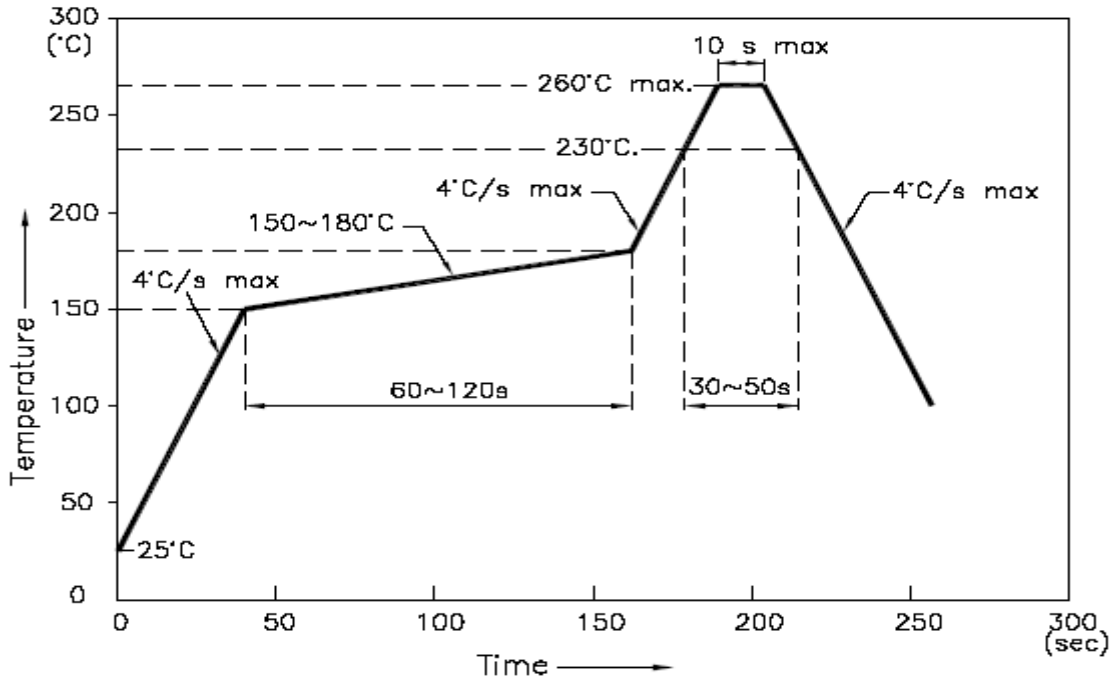


**Electrical Characteristics(Ta=25)**

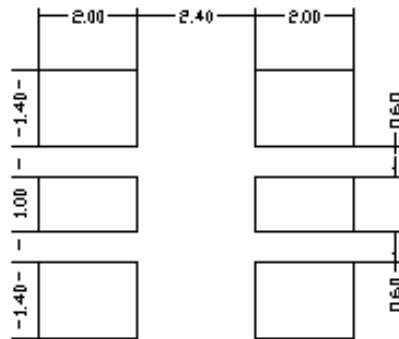


## Solder Profile & Footprint

- 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):



### Recommend Pad Layout

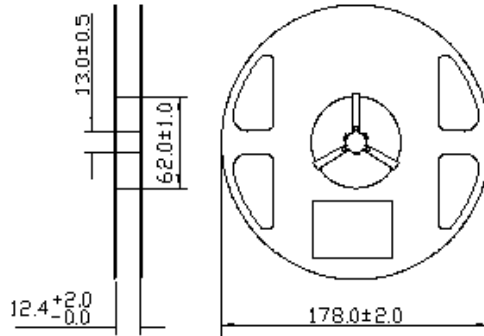


Units: mm

tolerance: +/- 0.2mm

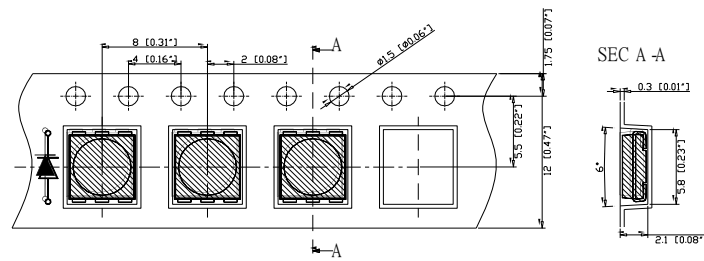
## Packing

Reel Dimension:



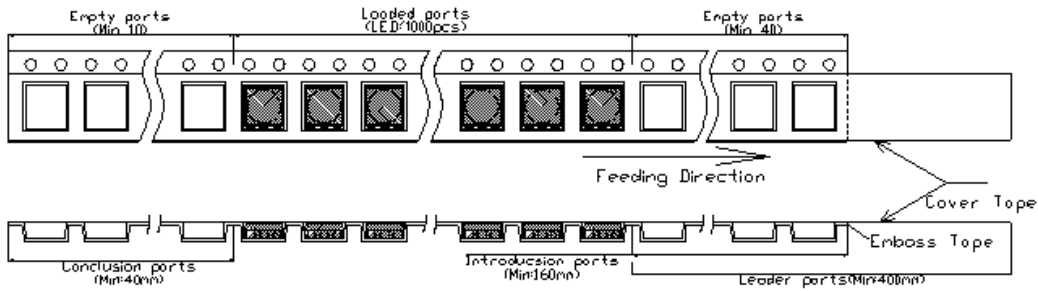
Unit: mm

Tape Dimension:

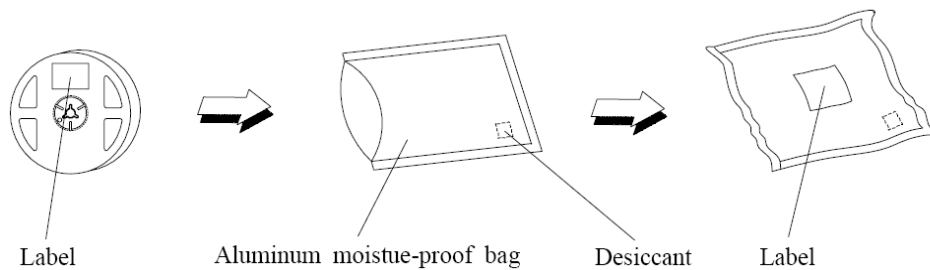


Unit: mm

Arrangement of Tape:



Packaging Specification:



## 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 |
|--------------|------------------|--|-------------------|
| QBLP679E-RGB | QBLP679E-RGB     | Red: Iv=840mcd typ. / Color=615nm to 630nm         | 1000 units        |
|              |                  | True Green: Iv=1500mcd typ. / Color=520nm to 530nm |                   |
|              |                  | Blue: Iv=285mcd typ. / Color=465nm to 475nm        |                   |

## Revision History

| Description:   | Revision # | Revision Date |
|--|------------|---------------|
| New Release of QBLP679E-RGB                          | V1.0       | 02/14/2012    |
| Add ESD HBM information                              | V1.1       | 08/12/2013    |
| Update to new format / Update Packing Spec           | V2.0       | 09/10/2013    |
| Update dimension drawing, wavelength, and brightness | V2.1       | 03/20/2014    |
| Update brightness (mcd) binning for red color        | V2.2       | 03/23/2021    |
|  |            |               |

## 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.

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