

QT-Brightek PLCC Series

PLCC2 LED

Part No.: QBLP669 Series

Table of Contents:

| | |
|--|----|
| Introduction | 3 |
| Electrical / Optical Characteristic (Ta=25 °C) | 4 |
| Absolute Maximum Rating | 4 |
| Characteristic Curves..... | 7 |
| Solder Profile & Footprint..... | 10 |
| Packing | 11 |
| Labeling | 12 |
| Ordering Information | 12 |
| Revision History | 13 |
| Disclaimer | 13 |

Introduction

Feature:

- Package in tape and reel
- Ultra bright reflector type PLCC2 LED
- InGaN technology for IB/IG
- AlInGaP technology for R/S0/S/Y
- ESD protection diode for IB/IG
- Viewing angle: 120 degree typ.

Description:

These ultra bright reflector type PLCC2 LEDs have a height profile of 1.90mm. Combination of high brightness output and robust package, these LEDs are ideal for architecture lighting, status indication, and industrial equipment lighting applications.

Application:

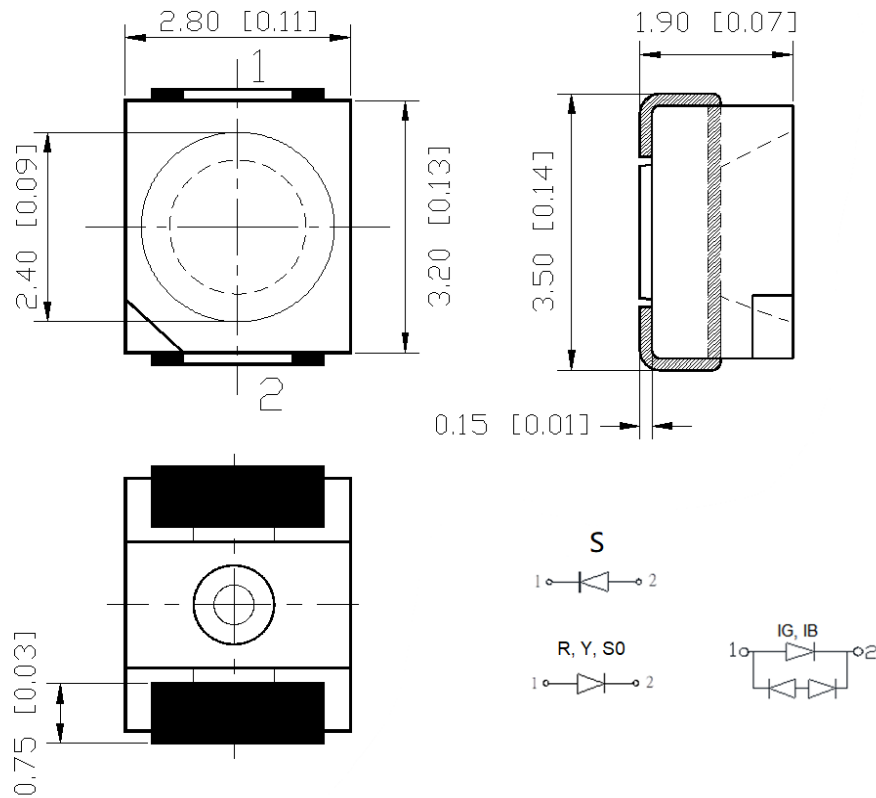
- Status indication
- Industrial equipment backlighting
- Transpiration lighting
- Appliance lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Dimension:



Units: mm / tolerance = +/-0.2mm

Electrical / Optical Characteristic (Ta=25 °C)

| Product | Color | I _F (mA) | V _F (V) | | λ _D (nm) | | | I _V (mcd) | | |
|-------------|------------|---------------------|--------------------|------|---------------------|------|------|----------------------|------|------|
| | | | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. |
| QBLP669-R | Red | 20 | 2.0 | 2.5 | 617 | 620 | 627 | 100 | 160 | 250 |
| QBLP669-S0 | Deep Red | 20 | 2.0 | 2.5 | 625 | 630 | 635 | 80 | 160 | 250 |
| QBLP669-S | Deep Red | 20 | 2.0 | 2.5 | 630 | 642 | 650 | 160 | 320 | 500 |
| QBLP669-Y | Yellow | 20 | 2.0 | 2.5 | 585 | 590 | 595 | 125 | 230 | 400 |
| QBLP669E-IG | True Green | 20 | 3.2 | 3.6 | 520 | 522 | 530 | 630 | 1100 | 2000 |
| QBLP669E-IB | Blue | 20 | 3.0 | 3.6 | 465 | 470 | 475 | 125 | 230 | 400 |

Absolute Maximum Rating

| Material | P _d (mW) | I _F (mA) | I _{FP} (mA)* | V _R (V) | T _{OP} (°C) | T _{ST} (°C) | T _{SOL} (°C)** |
|--------------------|---------------------|---------------------|-----------------------|--------------------|----------------------|----------------------|-------------------------|
| AllnGaP (R/S0/S/Y) | 75 | 30 | 125 | 5 | -40 ~ +105 | -40 ~ +105 | 260 |
| InGaN (IB/IG) | 111 | 30 | 125 | 5 | -40 ~ +105 | -40 ~ +105 | 260 |

*Duty 1/8 @ 1KHz

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

Forward Voltage V_F for AllnGaP @ I_F=20mA

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

Forward Voltage V_F for InGaN @ I_F=20mA

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| 2 | 2.8 | 3.0 | V |
| 3 | 3.0 | 3.2 | |
| 4 | 3.2 | 3.4 | |
| 5 | 3.4 | 3.6 | |

Luminous Intensity I_V @ $I_F=20mA$

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| I | 80 | 100 | mcd |
| J | 100 | 125 | |
| 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 | |

Dominant Wavelength λ_D for Red (R) @ $I_F=20mA$

| Bin | Min. | Max. | Unit |
|-----|------|------|------|
| A | 617 | 620 | nm |
| B | 620 | 623 | |
| C | 623 | 627 | |

Dominant Wavelength λ_D for Deep Red (S0) @ $I_F=20mA$

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

Dominant Wavelength λ_D for Deep Red (S) @ $I_F=20mA$

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

Dominant Wavelength λ_D for Yellow (Y) @ $I_F=20mA$

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

Dominant Wavelength λ_D for Blue (IB) @ $I_F=20\text{mA}$

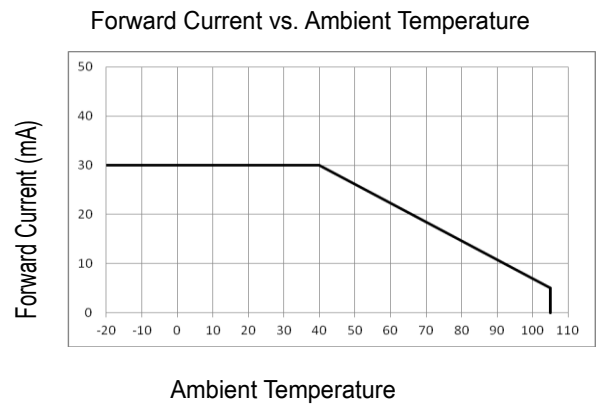
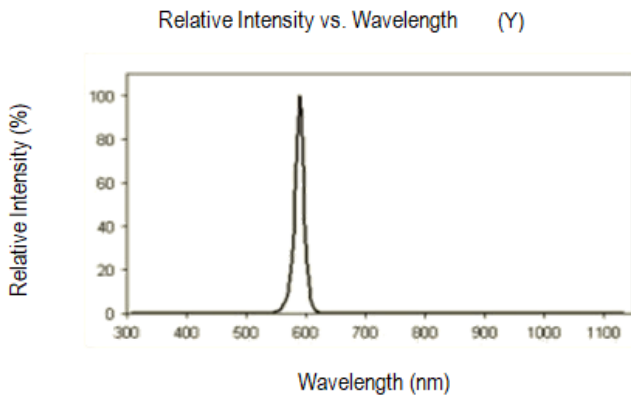
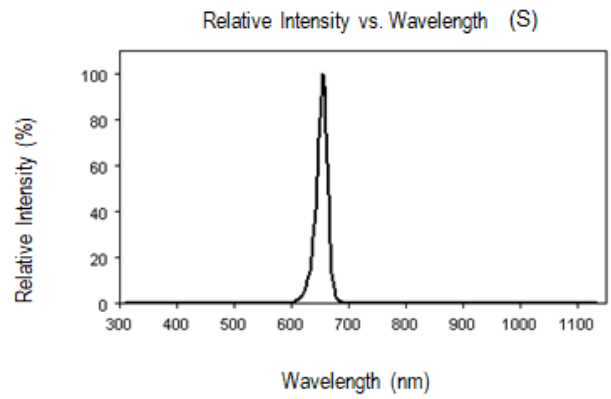
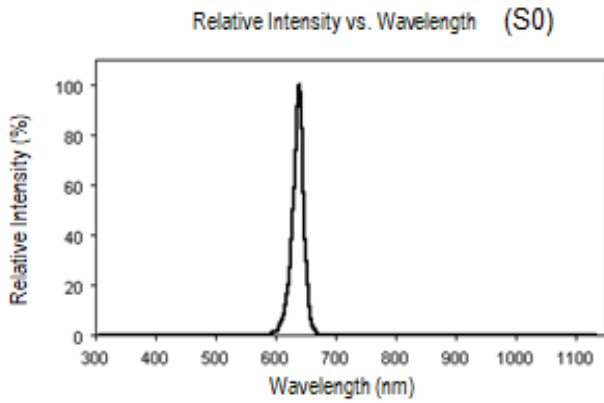
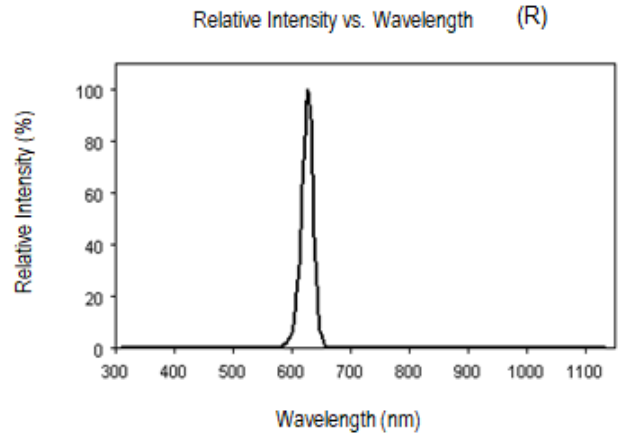
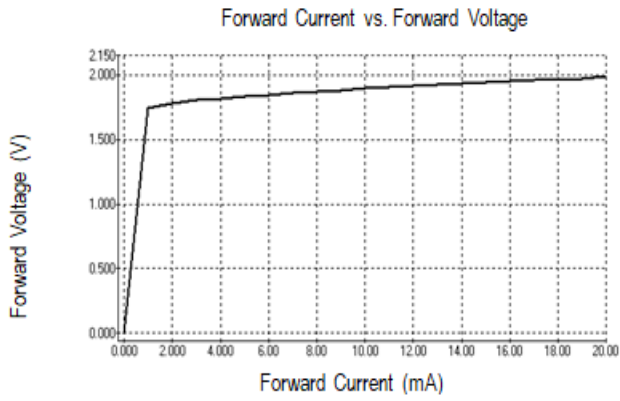
| Bin | Min. | Max. | Unit |
|-----|-------|-------|------|
| G | 465 | 467.5 | nm |
| H | 467.5 | 470 | |
| I | 470 | 472.5 | |
| J | 472.5 | 475 | |

Dominant Wavelength λ_D for Green (IG) @ $I_F=20\text{mA}$

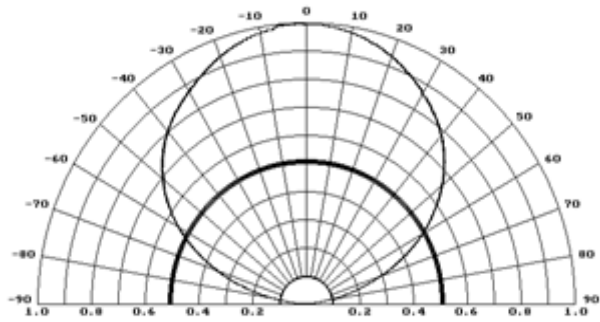
| Bin | Min. | Max. | Unit |
|-----|-------|-------|------|
| U | 520 | 522.5 | nm |
| V | 522.5 | 525 | |
| W | 525 | 527.5 | |
| X | 527.5 | 530 | |

Characteristic Curves

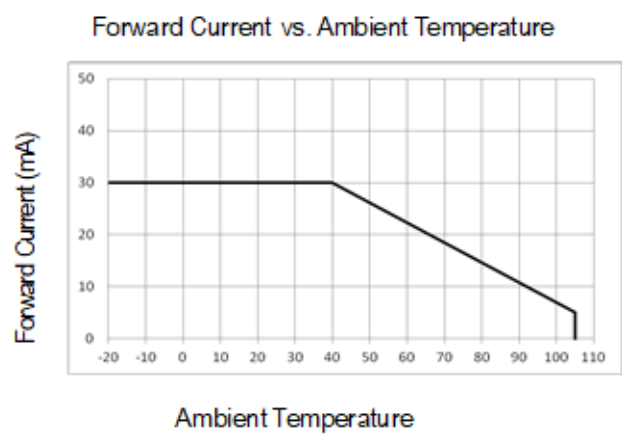
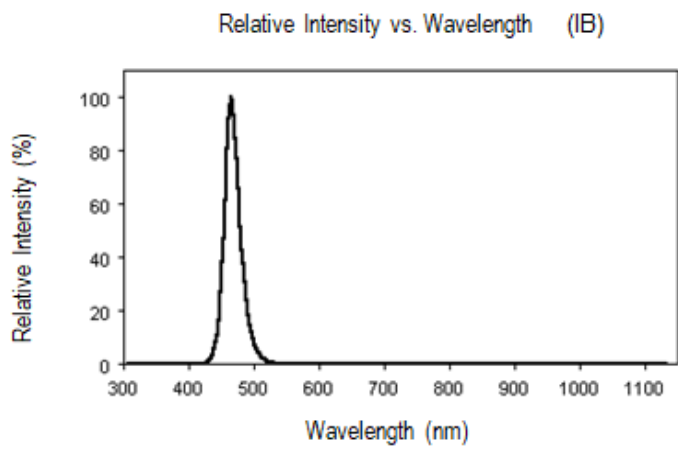
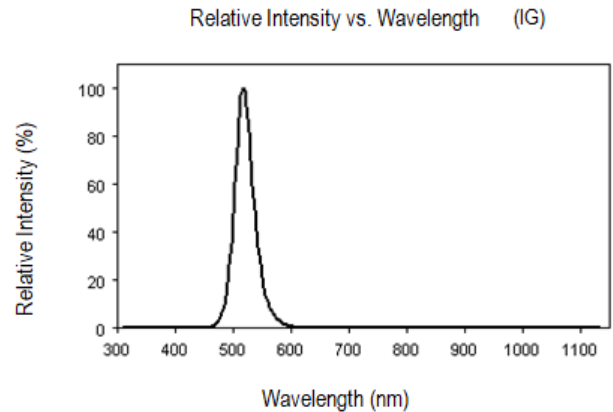
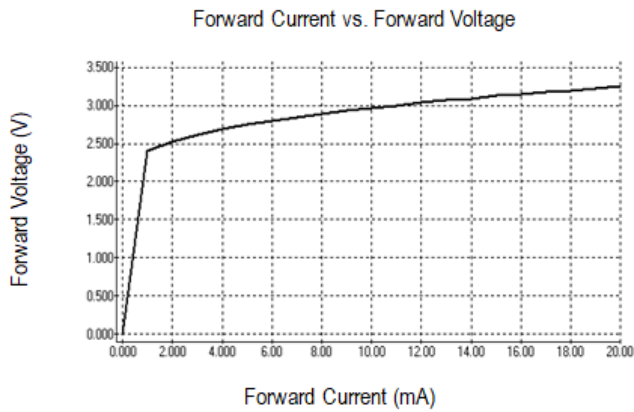
AllnGaP (R/S/S0/Y/O/S)



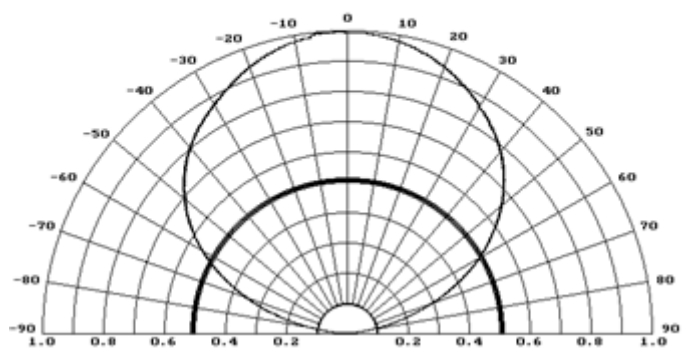
Directive Characteristics



InGaN (IG/IB)

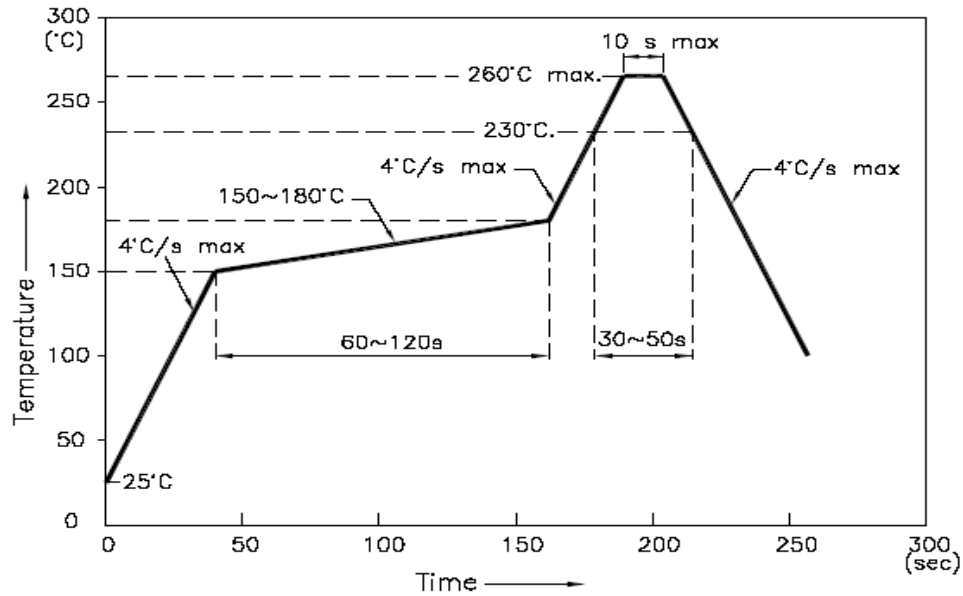


Directive Characteristics

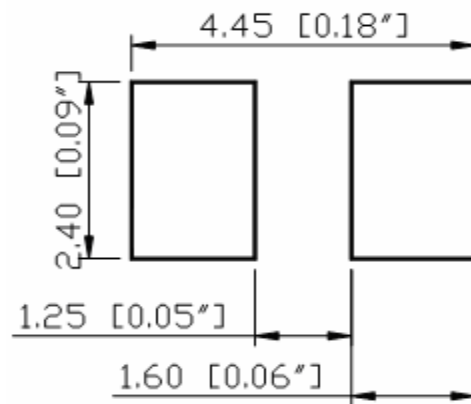


Solder Profile & Footprint

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



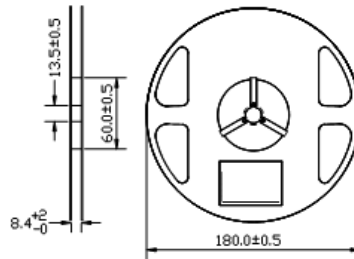
RECOMMEND PADLAYOUT



Units: mm

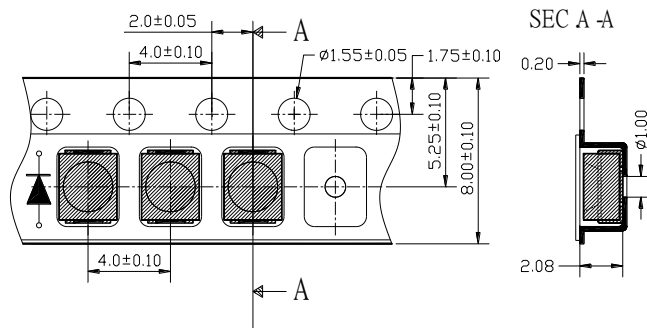
Packing

Reel Dimension:



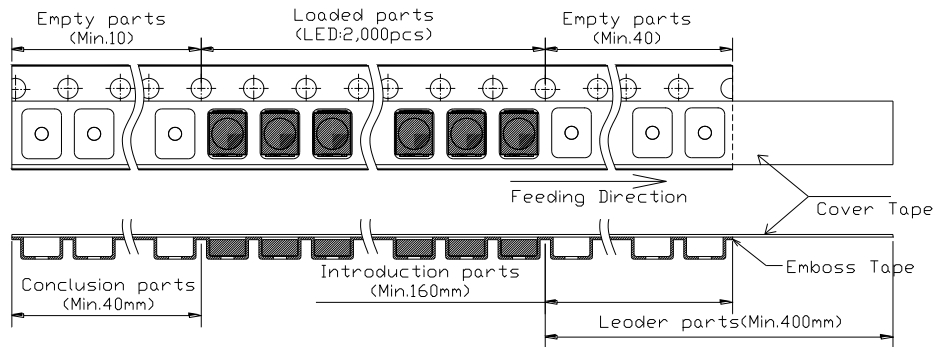
Unit: mm

Tape Dimension:

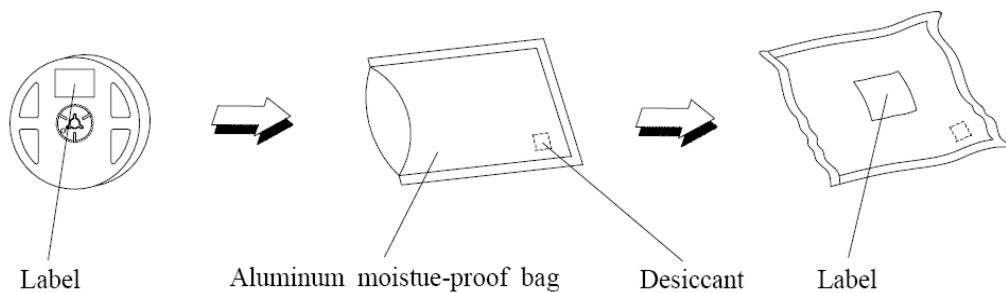


Unit: mm

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 |
|-------------|------------------|---|-------------------|
| QBLP669-R | QBLP669-R | Iv=160mcd typ. @ 20mA/ $\lambda_D=617\text{nm to }627\text{nm}$ | 2,000 units |
| QBLP669-S0 | QBLP669-S0 | Iv=160mcd typ. @ 20mA/ $\lambda_D=625\text{nm to }635\text{nm}$ | 2,000 units |
| QBLP669-S | QBLP669-S | Iv=320mcd typ. @ 20mA/ $\lambda_P=630\text{nm to }635\text{nm}$ | 2,000 units |
| QBLP669-Y | QBLP669-Y | Iv=230mcd typ. @ 20mA/ $\lambda_D=585\text{nm to }595\text{nm}$ | 2,000 units |
| QBLP669E-IG | QBLP669E-IG | Iv=1100mcd typ. @ 20mA/ $\lambda_D=520\text{nm to }530\text{nm}$ | 2,000 units |
| QBLP669E-IB | QBLP669E-IB | Iv=230mcd typ. @ 20mA/ $\lambda_D=465\text{nm to }475\text{nm}$ | 2,000 units |

Revision History

| Description: | Revision # | Revision Date |
|-------------------------------|------------|---------------|
| New Release of QBLP669 Series | V1.0 | 09/08/2021 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Disclaimer

QT-BRIGHTTEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. QT-BRIGHTTEK 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-BRIGHTTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTTEK. 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.