

QT-Brightek PLCC6 Series

PLCC6 Mid Power RGB LED

Part No.: QBHP688-RGB3H

RGB3: Black Face with Water Clear Lens

H:150mA

Table of Contents:

Introduction	3
Electrical / Optical Characteristic (Ta=25 °C)	4
Absolute Maximum Rating Per Chip	4
Characteristic Curves.....	6
Solder Profile & Footprint.....	7
Packing	8
Labeling	9
Ordering Information	9
Revision History	10
Disclaimer	10

Introduction

Feature:

- Water clear lens
- Package in tape and reel
- Ultra bright PLCC6 RGB LED
- InGaN technology for IB/IG
- AlInGaP technology for R
- Viewing Angle: 120 deg typ.
- Black Face

Description:

This ultra bright PLCC6 RGB LED has a height profile of 1.00mm. Combination of high brightness output and direct drive capability, these LEDs are ideal for architecture lighting, status indication, and color mixing applications.

Application:

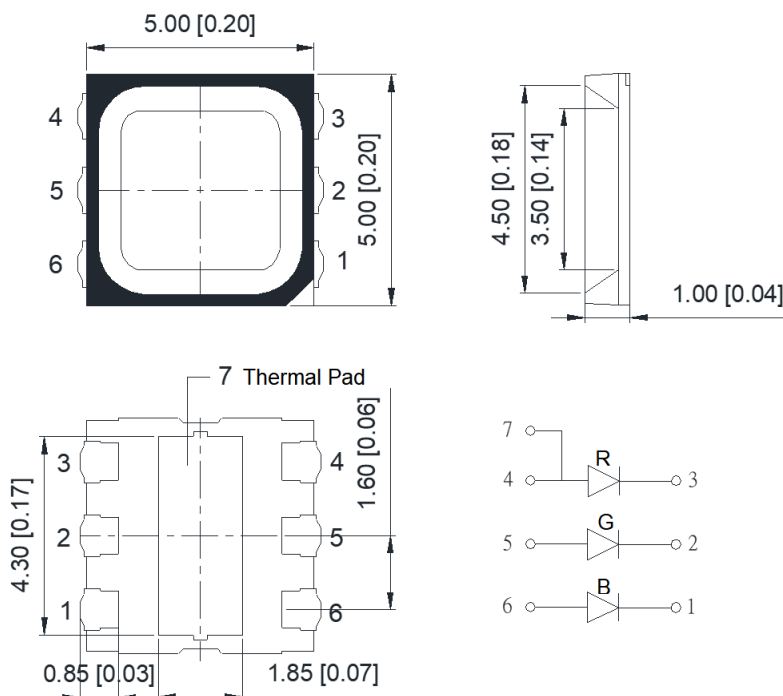
- Back lighting application
- Architecture lighting
- Decoration lighting

Certification & Compliance:

- ISO9001
- RoHS Compliant



Dimension:



*Note: Thermal pad (Pin 7) is connected to the anode of Red (Pin 4)

Units: mm / tolerance = +/-0.2mm

Electrical / Optical Characteristic (Ta=25 °C)

Product	Color	I _F (mA)	V _F (V)			λ _D (nm)			Φ _V (lm)		
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min	Typ.	Max.
QBHP688-RGB3H	Red	150	1.9	2.4	2.7	615	620	630	8	12.5	18
	True Green	150	2.8	3.5	3.7	520	525	530	20	28	35
	Blue	150	2.8	3.1	3.7	460	465	470	5	8	12

Absolute Maximum Rating Per Chip

Material	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)**
AlInGaP (R)	432	160	1020	5	-40 to +80	-40 to +85	260
InGaN (IB/IG)	592	160	1020	5	-40 to +80	-40 to +85	260

*Duty 1/8 @ 1KHz

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

Forward Voltage V_F for AlInGaP @ I_F=150mA

Bin	Min.	Max.	Unit
□	1.9	2.7	V

Forward Voltage V_F for InGaN @ I_F=150mA

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

Luminous Flux Φ_V for Red (R) @ I_F=150mA

Bin	Min.	Max.	Unit
1	8	11	lm
2	11	14	
3	14	18	

Luminous Flux Φ_V for True Green (IG) @ I_F=150mA

Bin	Min.	Max.	Unit
1	20	25	lm
2	25	30	
3	20	35	

Luminous Flux Φ_v for Blue (IB) @ $I_F=150\text{mA}$

Bin	Min.	Max.	Unit
1	5	7	lm
2	7	10	
3	10	12	

Dominant Wavelength λ_D for Red (R) @ $I_F=150\text{mA}$

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

Dominant Wavelength λ_D for True Green (IG) @ $I_F=150\text{mA}$

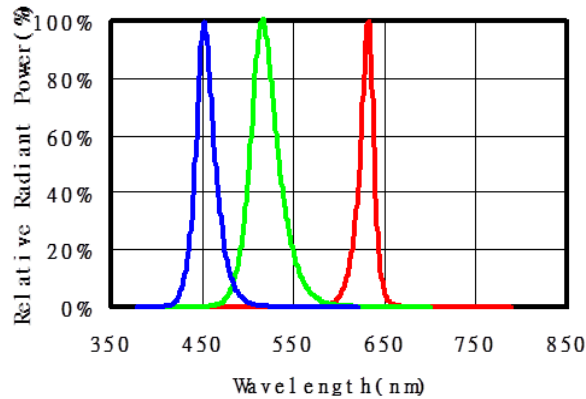
Bin	Min.	Max.	Unit
U	520	522.5	nm
V	522.5	525	
W	525	527.5	
X	527.5	530	

Dominant Wavelength λ_D for Blue (IB) @ $I_F=150\text{mA}$

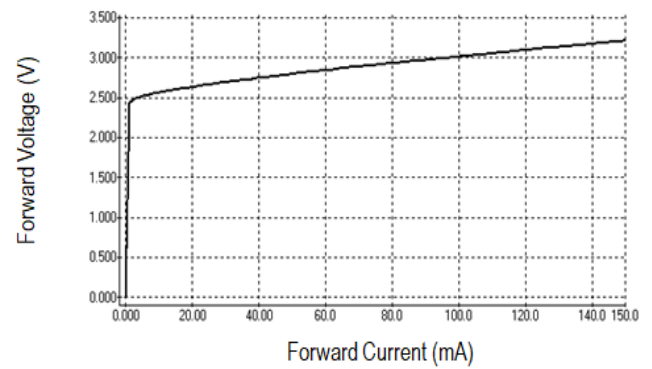
Bin	Min.	Max.	Unit
E	460	462.5	nm
F	462.5	465	
G	465	467.5	
H	467.5	470	

Characteristic Curves

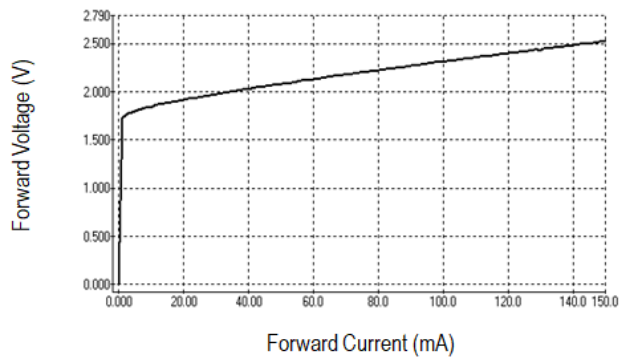
Relative Spectral Power Distribution(Ta=25°C)



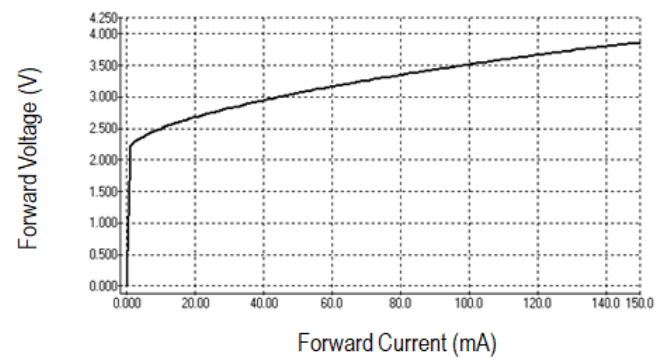
Forward Current vs. Forward Voltage (Blue)



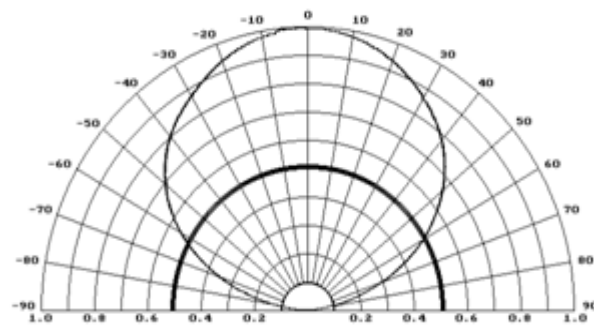
Forward Current vs. Forward Voltage (Red)



Forward Current vs. Forward Voltage (True Green)

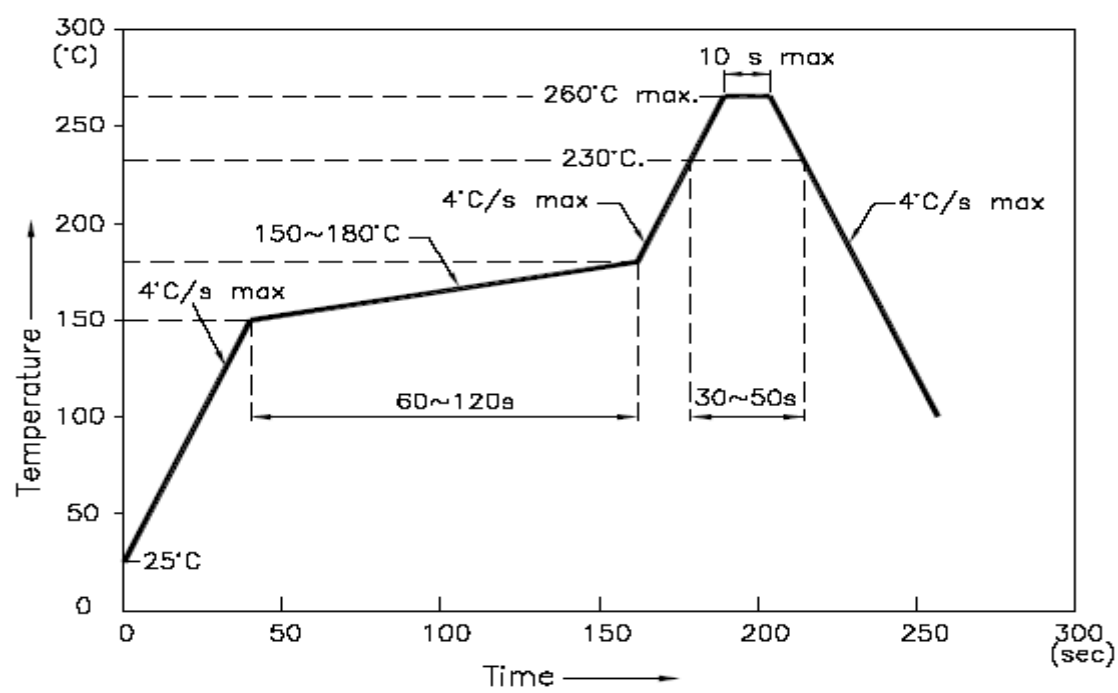


Directive Characteristics

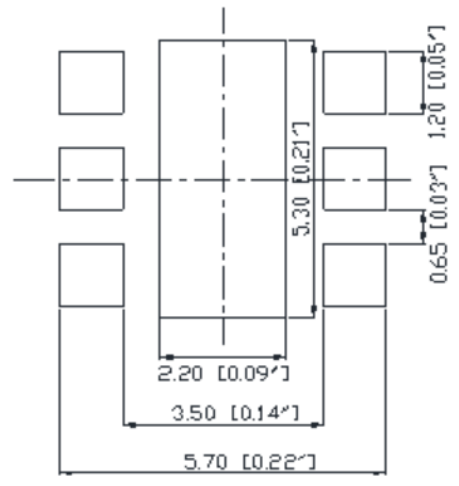


Solder Profile & Footprint

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



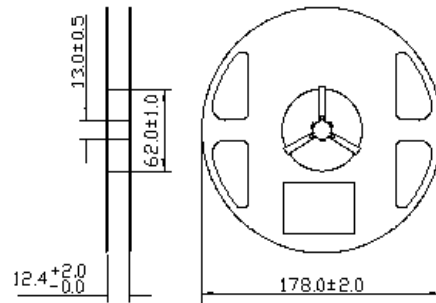
Recommend Pad Layout



Units: mm

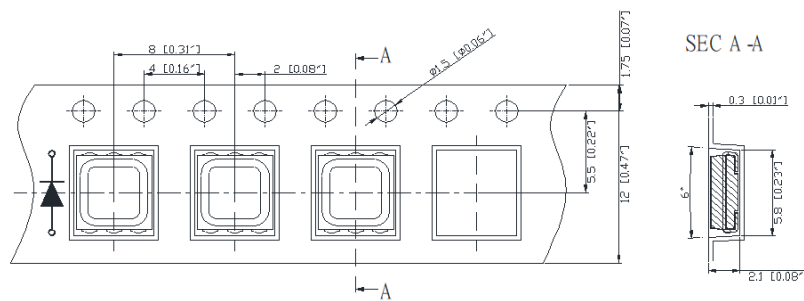
Packing

Reel Dimension:



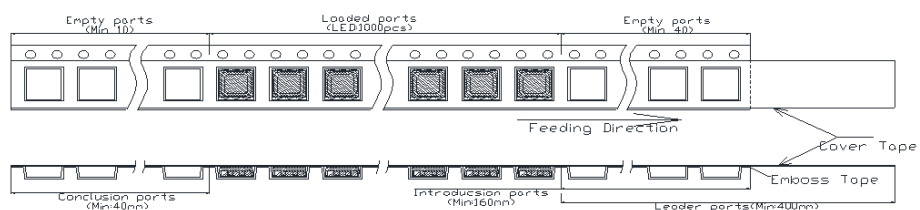
Unit: mm

Tape Dimension:

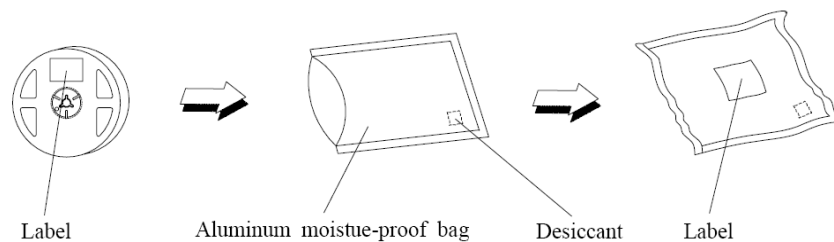


Unit: mm

Arrangement of Tape:



Packaging Specification:



Labeling



Part No: _____

Customer P/N: _____

Item: _____

Q'ty: _____

Vf: _____

Iv: _____

WI: _____

Date: _____

Made in China

Ordering Information

Orderable Part #	Spec Range	Quantity per reel
QBLP688-RGB3H	Red: $\Phi_v=12.5\text{lm typ. @ }150\text{mA} / \lambda_D = 615\text{nm to }630\text{nm}$	1000 units
	True Green: $\Phi_v = 28\text{lm typ.} / \lambda_D = 520\text{nm to }530\text{nm}$	
	Blue: $\Phi_v=8\text{lm typ.} / \lambda_D = 460\text{nm to }470\text{nm}$	



Revision History

Description:	Revision #	Revision Date
New Release of QBHP688-RGB3H	V1.0	10/08/2020
Leadframe Dimension Update	V1.1	08/03/2021
Update pad layout instruction	V1.2	04/26/2022

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.

Product: QBHP688-RGB3H	Date: April 26, 2022	Page 10 of 10
	Version# 1.2	