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

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.

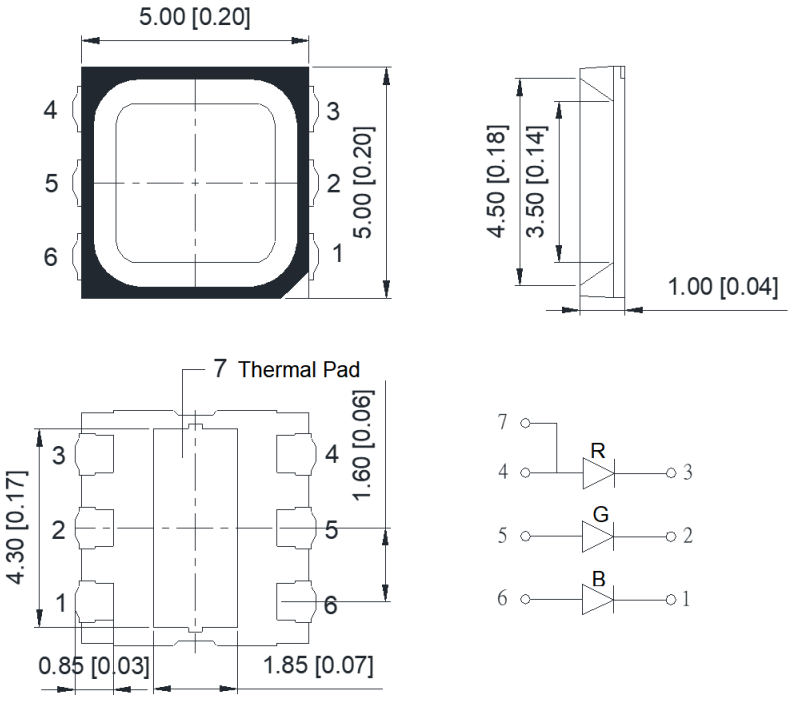
Application:

- Back lighting application
- Architecture lighting
- Decoration lighting

Certification & Compliance:

- TS16949
- ISO9001
- IEC60529
- 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)			ΦV (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	125	5	-40 to +80	-40 to +85	260
InGaN (IB/IG)	592	160	125	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=150mA

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

Dominant Wavelength λ_D for Red (R) @ I_F=150mA

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

Dominant Wavelength λ_D for True Green (IG) @ I_F=150mA

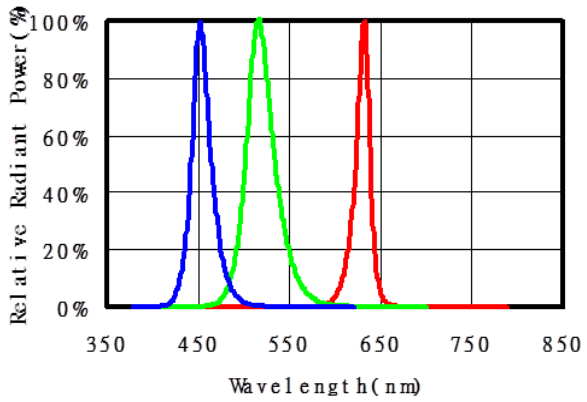
Bin	Min.	Max.	Unit
U	520	522.5	nm
V	522.5	525	
W	525	527.5	
X	527.5	530	

Dominant Wavelength λ_D for Blue (IB) @ I_F=150mA

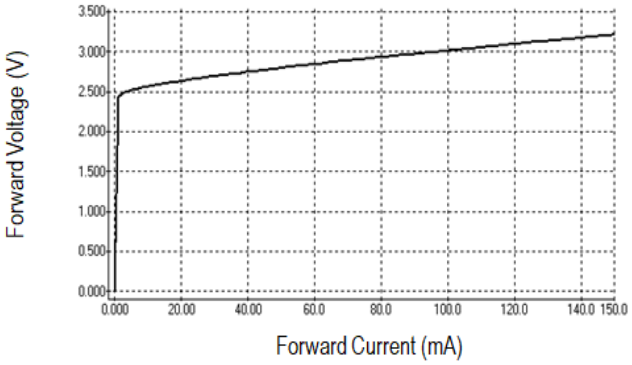
Bin	Min.	Max.	Unit
E	460	462.5	nm
F	462.5	465	
G	465	467.5	
H	467.5	470	

Characteristic Curves

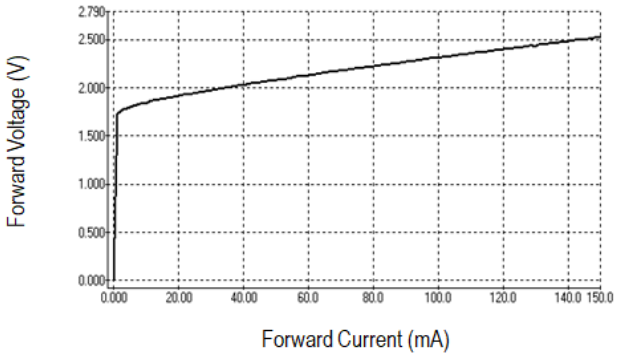
Relative Spectral Power Distribution(Ta=25℃)



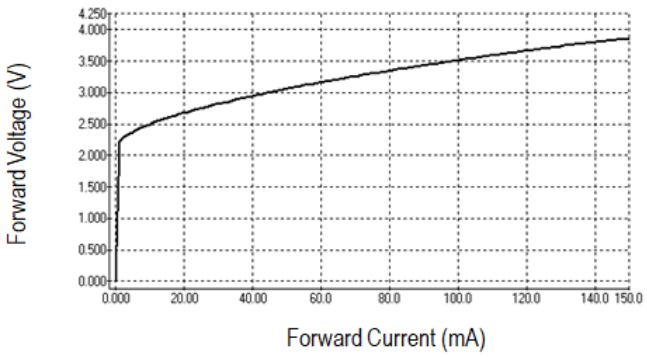
Forward Current vs. Forward Voltage (Blue)



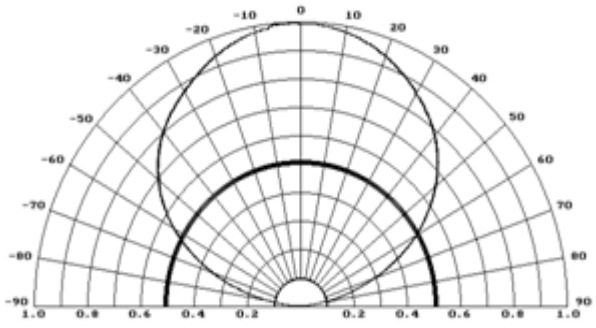
Forward Current vs. Forward Voltage (Red)



Forward Current vs. Forward Voltage (True Green)

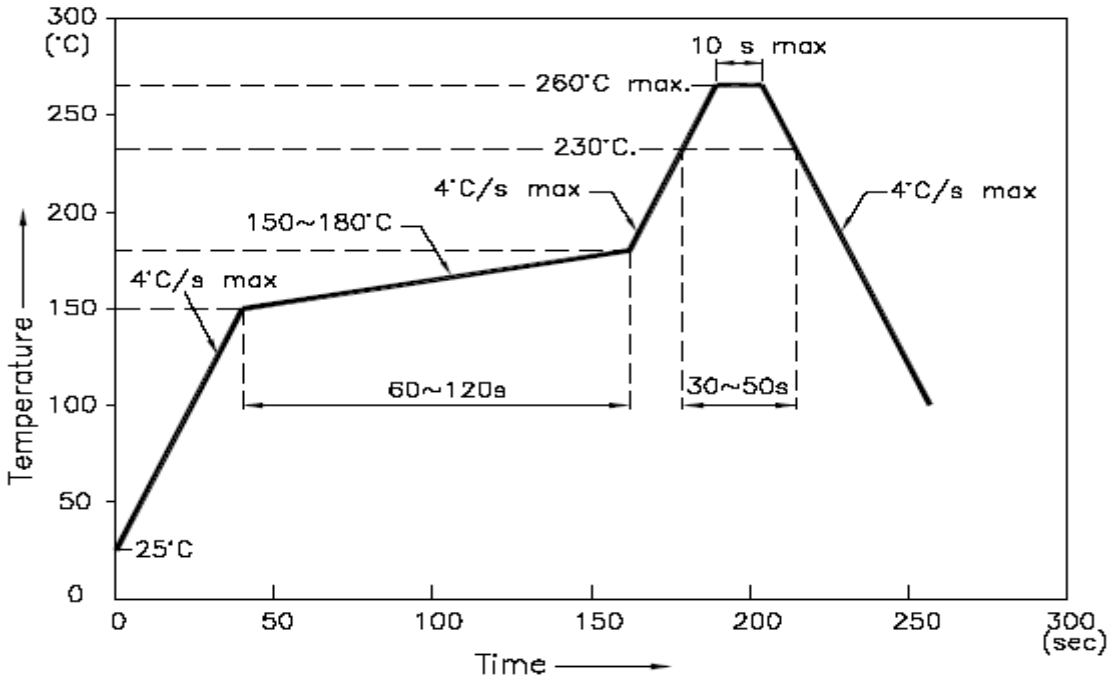


Directive Characteristics

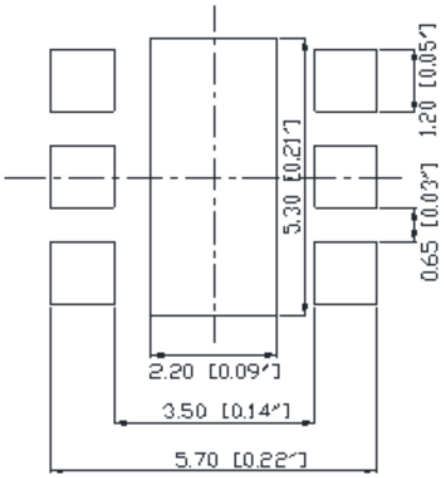


Solder Profile & Footprint

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



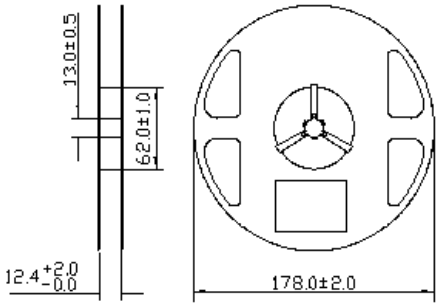
Recommend Pad Layout



Units: mm

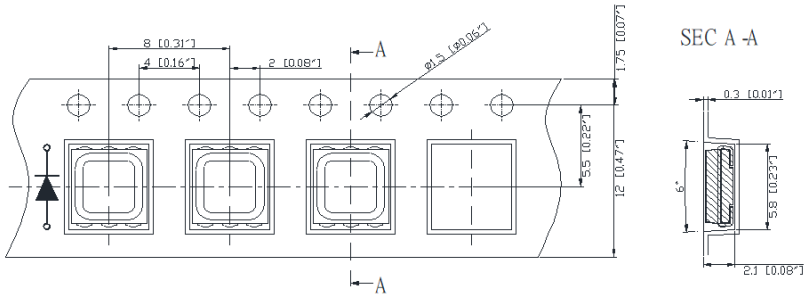
Packing

Reel Dimension:



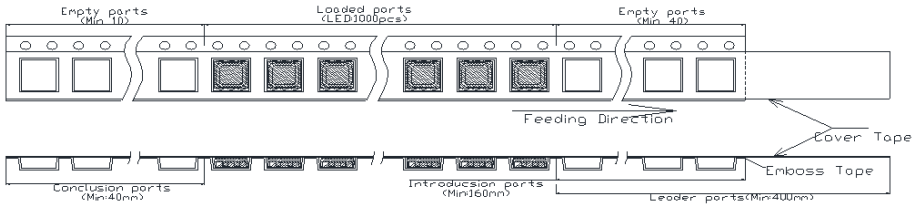
Unit: mm

Tape Dimension:

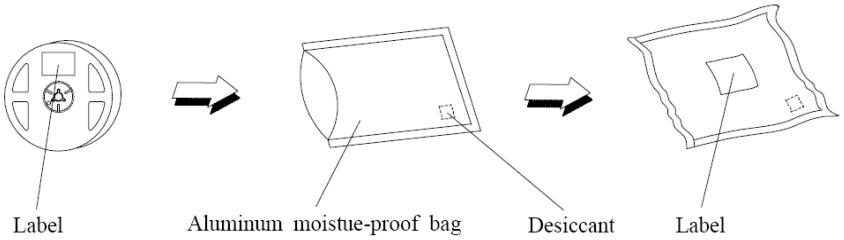


Unit: mm

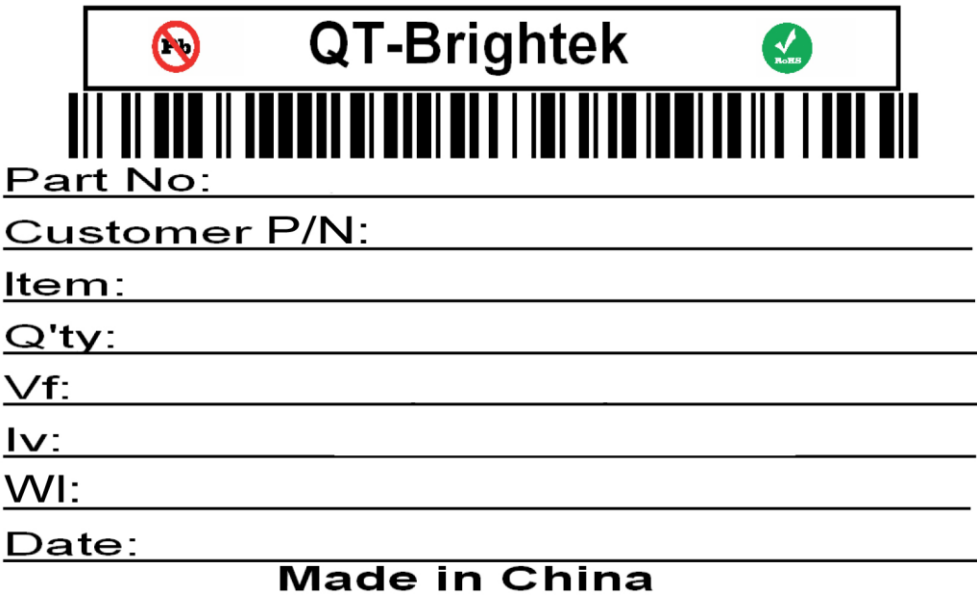
Arrangement of Tape:



Packaging Specification:



Labeling



Ordering Information

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

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

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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.