

QT-Brightek High Power Series

3W High Power LED

Part No.: QBHP684U-XXV series

**XX = Color Code
V = 700mA**

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Introduction

Feature:

- Package in tape and reel
- 3W High Bright LED
- Low thermal resistance < 4°C/W
- Super high flux and luminance
- AlInGaP technology for R and Y
- InGaN technology for IB and IG
- ESD Protection (IB and IG)
- ESD protection up to 8KV

Description:

This 3W high bright high power LED has compact size of 3.6 x 3.6mm. It is ideal for both in door and outdoor lighting

Application:

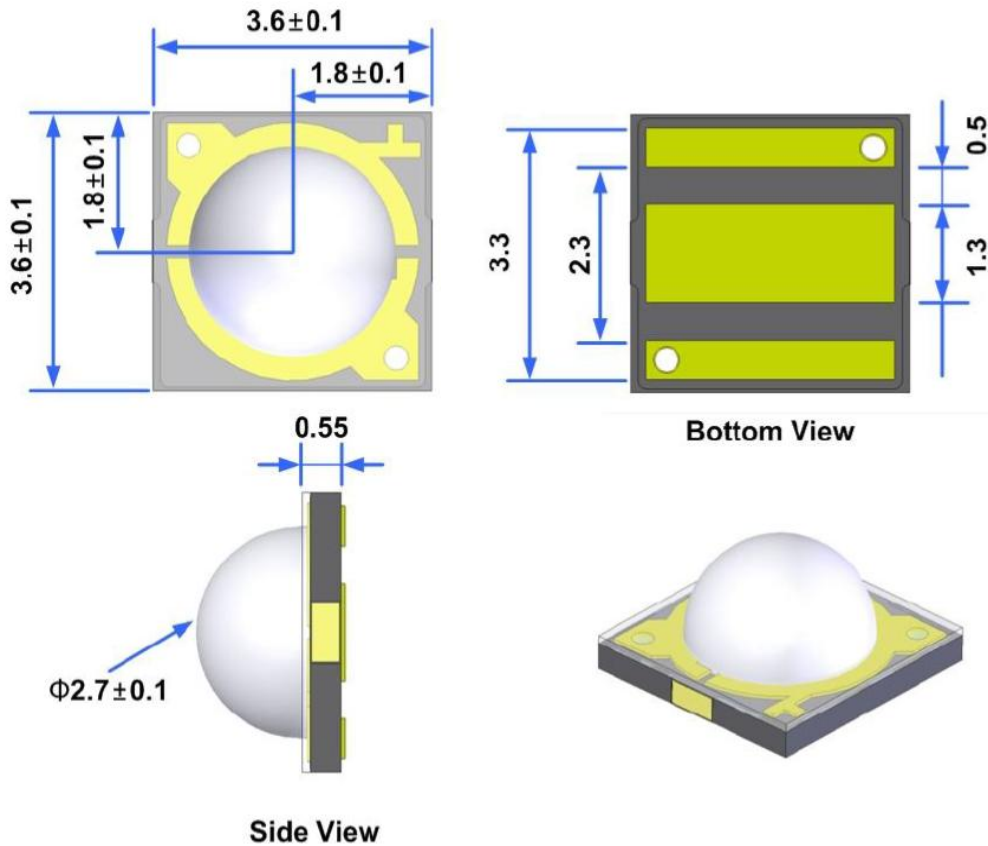
- Architectural and outdoor lighting
- Household appliances
- General lighting

Certification & Compliance:

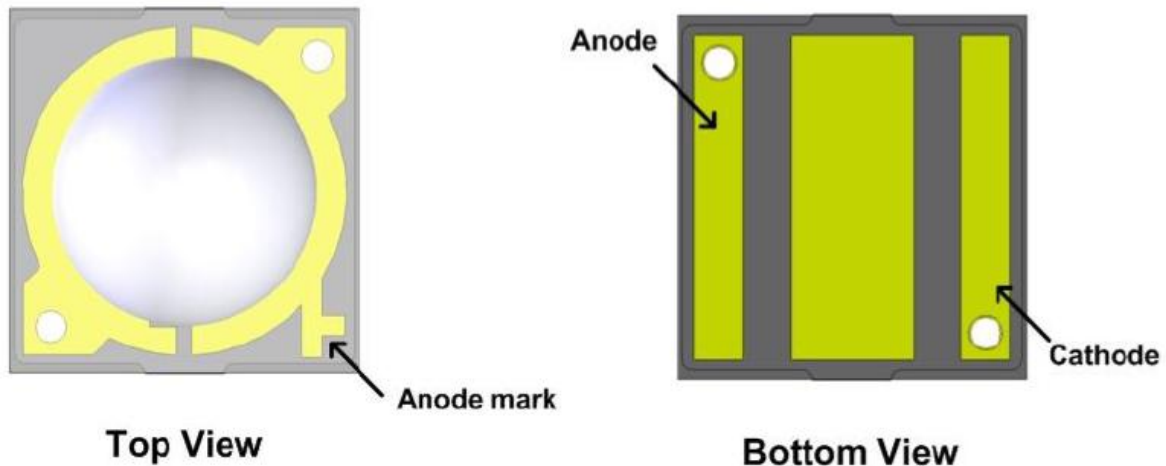
- TS16949
- ISO9001
- RoHS Compliant



Dimension:



Units: mm / tolerance = +/-0.1mm

Pad Configuration:

Electrical / Optical Characteristic ($T_A=25^\circ\text{C}$)

Product	Color	I_F (mA)	V_F (V)		λ_D (nm)			Φ_v (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP684U-RV	Red	700	2.6	2.8	620	625	630	80	91
QBHP684U-YV	Yellow	700	2.6	2.8	585	590	595	65	66
QBHP684UE-IGV	Green	700	3.6	4.0	520	525	530	140	145
QBHP684UE-IBV	Blue	700	3.6	4.0	450	455	460	20	34

Absolute Maximum Rating

Material	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	T_{OP} ($^\circ\text{C}$)	T_{ST} ($^\circ\text{C}$)	T_{SOL} ($^\circ\text{C}$)
AllnGaP (R/Y)	1.96	700	1000	5	-40 to +85	-40 to +100	260
InGaN (IB/IG)	2.66	700	1000	5	-40 to +85	-40 to +100	260

*Duty 1/10 @0.1ms Pulse Width

Forward Voltage V_F for AlInGaP @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
D	2.0	2.2	V
E	2.2	2.4	
F	2.4	2.6	
G	2.6	2.8	

Forward Voltage V_F for InGaN @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
I	3.0	3.2	V
J	3.2	3.4	
K	3.4	3.6	
L	3.6	3.8	
M	3.8	4.0	

Dominant Wavelength λ_D for Red @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
R2	620	625	nm
R3	625	630	

Dominant Wavelength λ_D for Yellow @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
A1	585	590	nm
A2	590	595	

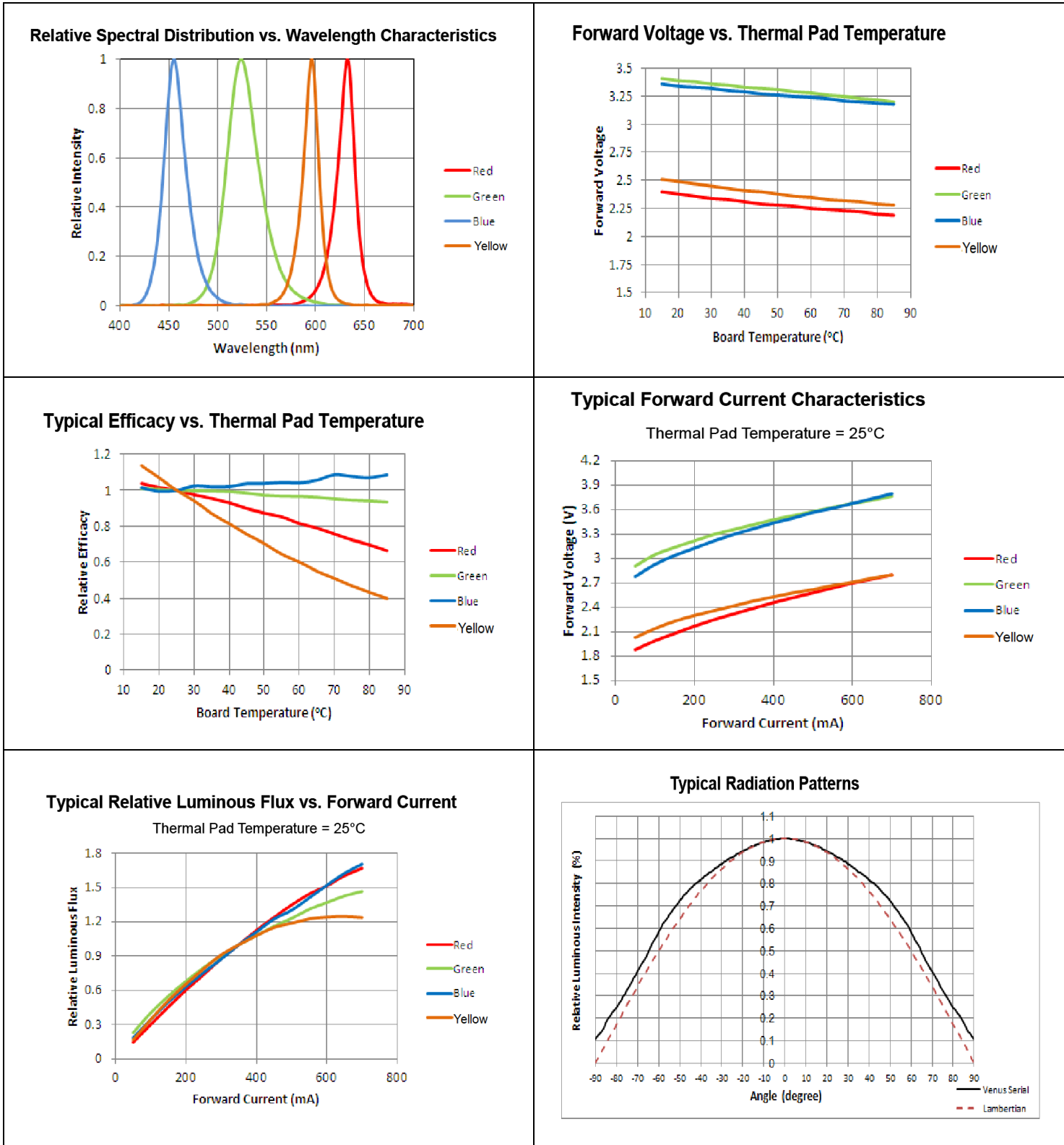
Dominant Wavelength λ_D for Green @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
G2	520	525	nm
G3	525	530	

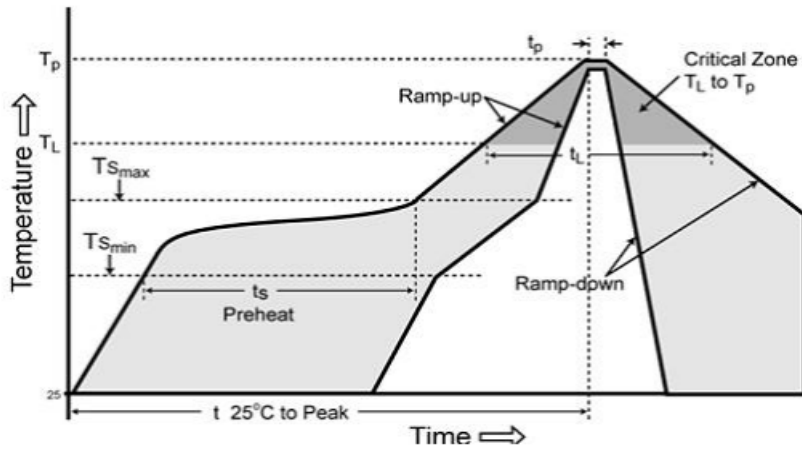
Dominant Wavelength λ_D for Blue @ $I_F=700\text{mA}$

Bin	Min.	Max.	Unit
B2	450	460	nm

Characteristic Curves

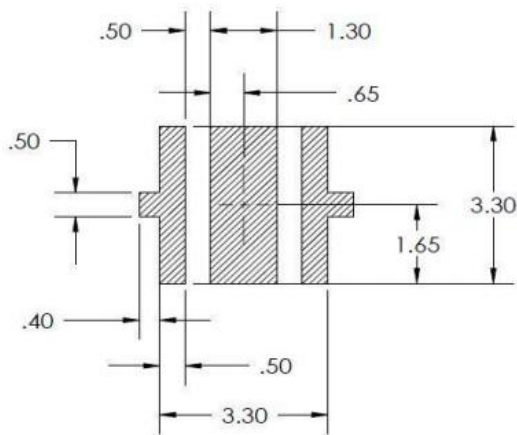


Solder Profile & Footprint

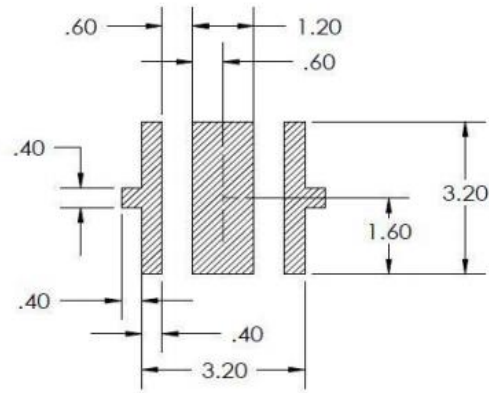


Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat	
Temperature Min (T _{smin})	150°C
Temperature Max (T _{smax})	200°C
Time (min to max) (t _s)	60-180 seconds
Time maintained above:	
Temperature (TL)	217°C
Time (t _L)	60-150 seconds
Peak/Classification Temperature (T _p)	240°C
Time within 5°C of actual Peak Temperature (t _p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Recommended Soldering Pattern:



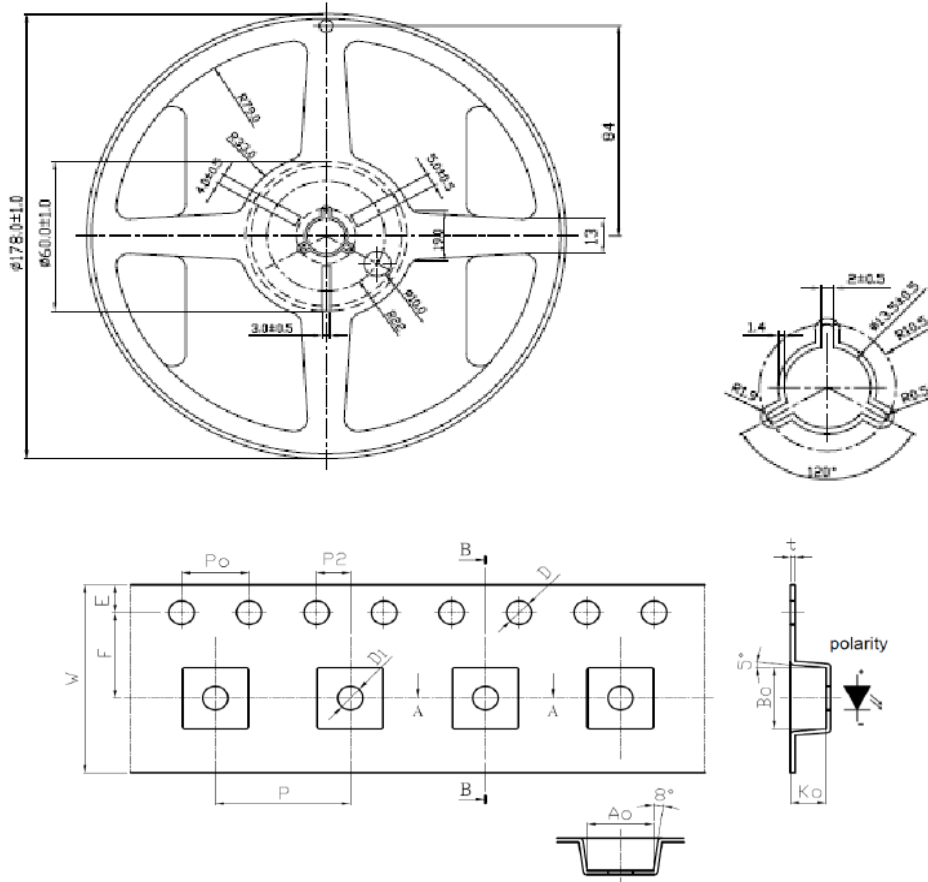
RECOMMENDED PCB SOLDER PAD



RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

Packing

Tape and Reel:




Unit: mm

Labeling



No **QT-Brightek** Yes



Part No: _____
Customer P/N: _____
Item: _____
Q'ty: _____
Vf: _____
Iv: _____
WI: _____
Date: _____

Made in Taiwan

Ordering Information

Part #	Orderable Part #	Spec Range	Quantity per reel
QBHP684U-RV	QBHP684U-RV	$\Phi_v=91\text{lm typ. @ } I_F=700\text{mA} /$ $\lambda_D=620\text{nm to } 630\text{nm}$	1000 units
QBHP684U-YV	QBHP684U-YV	$\Phi_v=66\text{lm typ. @ } I_F=700\text{mA} /$ $\lambda_D=585\text{nm to } 595\text{nm}$	1000 units
QBHP684UE-IGV	QBHP684UE-IGV	$\Phi_v=145\text{lm typ. @ } I_F=700\text{mA} /$ $\lambda_D=520\text{nm to } 530\text{nm}$	1000 units
QBHP684UE-IBV	QBHP684UE-IBV	$\Phi_v=34\text{lm typ. @ } I_F=700\text{mA} /$ $\lambda_D=450\text{nm to } 460\text{nm}$	1000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBHP684U-XXV series	V1.0	08/26/2013
Update soldering pattern	V1.1	09/24/2013
Update green luminous flux	V1.2	10/17/2013
Add VF bin	V1.3	03/27/2014
Update luminous flux	V1.4	04/30/2014

Disclaimer

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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.