

QT-Brightek High Power Series

1W High Power LED

Part No.: QBHP684-XXBU Series

XX: Color Code
B: 125° Viewing Angle
U: 350mA

Product: QBHP684-XXBU	Date: June 14, 2018	Page 1 of 11
	Version# 1.2	

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Introduction

Feature:

- 1W High Power LED
- Packed in tape and reel
- Super high flux and luminance
- AlInGaP technology for R, S, Y, O
- InGaN technology for IB/IG/RB
- TVS Zener Protection Device for IB/IG/RB
- Viewing Angle: 125° typ.

Description:

This 1W high bright high power LED has compact size of 3.5 x 3.5mm. It is ideal for both indoor and outdoor lighting

Application:

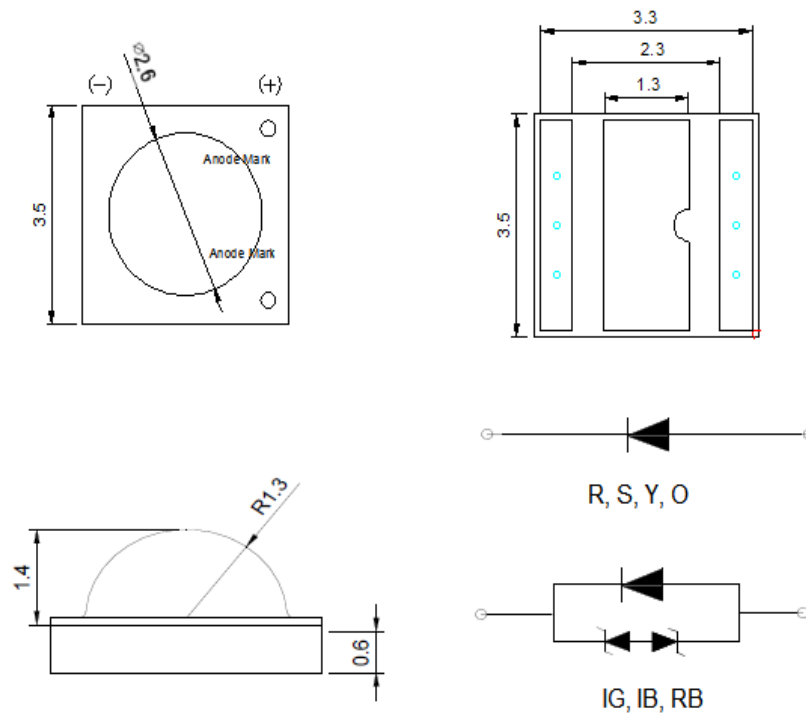
- Architectural and outdoor lighting
- Household appliances
- General lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Outline Dimensions:



Units: mm / tolerance = +/-0.2mm

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

Product Number	Color	I_F (mA)	V_F (V)			λ_D [R, Y, IG, IB, RB] / λ_P [S] (nm)			Φ_V (lm)	
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP684-RBU	Red	350	1.8	2.4	2.6	620	625	630	40	55
QBHP684-SBU	Deep Red		1.4	2.2	2.6	650	660	670	15	20
QBHP684-OBU	Orange		1.8	2.2	2.6	605	610	615	60	70
QBHP684-YBU	Yellow		1.8	2.4	2.6	585	590	595	50	60
QBHP684E-IGBU	True Green		2.8	3.2	3.8	515	525	535	90	100
QBHP684E-IBBU	Blue		2.8	3.2	3.8	460	465	470	25	28
QBHP684E-RBBU	Royal Blue		2.8	3.2	3.8	450	455	460	15	20

Absolute Maximum Rating

Material	P_d (W)	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/S/Y)	1.96	700	1000	5	-40 to +85	-40 to +100	260
InGaN (IG/IB/RB)	2.38	700	1000	5	-40 to +85	-40 to +100	260

*Duty 1/10 @ 0.01s Pulse Width

**IR Reflow for no more than 10 sec @ 260 $^\circ\text{C}$

Forward Voltage V_F for AllnGaP @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
V14	1.4	1.6	V
V16	1.6	1.8	
V18	2.0	2.2	
V20	2.2	2.4	
V22	2.4	2.6	

Forward Voltage V_F for InGaN @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
V28	2.8	3.0	V
V30	3.0	3.2	
V32	3.2	3.4	
V34	3.4	3.6	
V36	3.6	3.8	

Luminous Flux Φ_v for Red @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
R24	40	45	lm
R25	45	50	
R26	50	55	
R27	55	60	

Luminous Flux Φ_v for Deep Red @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
R15	15	20	lm
R20	20	25	
R25	25	30	

Luminous Flux Φ_v for Yellow @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
A50	50	55	lm
A55	55	60	
A60	60	65	
A65	65	70	

Luminous Flux Φ_v for True Green @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
G80	80	90	lm
G90	90	100	
GH1	100	110	

Luminous Flux Φ_v for Blue @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
B15	15	20	lm
B20	20	25	
B25	25	30	

Luminous Flux Φ_v for Royal Blue @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
B15	15	20	lm
B20	20	25	
B25	25	30	

Dominant Wavelength λ_D for Red @ $I_F=350\text{mA}$

Bin	Min.	Max.	Unit
R1	620	625	nm
R2	625	630	

Peak Wavelength λ_P for Deep Red @ $I_F=350mA$

Bin	Min.	Max.	Unit
DR1	650	660	nm
DR2	660	670	

Dominant Wavelength λ_D for Yellow @ $I_F=350mA$

Bin	Min.	Max.	Unit
Y1	585	590	nm
Y2	590	595	

Dominant Wavelength λ_D for True Green @ $I_F=350mA$

Bin	Min.	Max.	Unit
G1	515	520	nm
G2	520	525	
G3	525	530	
G4	520	535	

Dominant Wavelength λ_D for Blue @ $I_F=350mA$

Bin	Min.	Max.	Unit
B1	460	465	nm
B2	465	470	

Dominant Wavelength λ_D for Royal Blue @ $I_F=350mA$

Bin	Min.	Max.	Unit
RB1	450	455	nm
RB2	455	460	

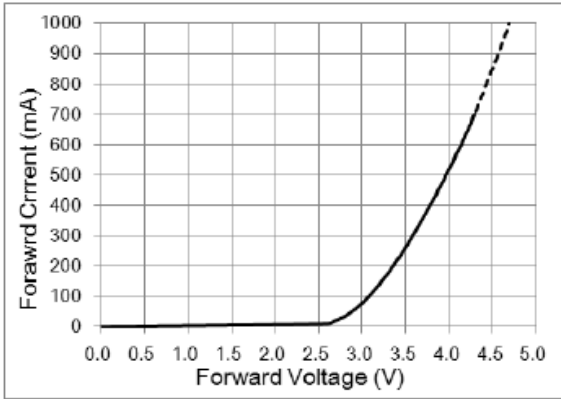
Note:

Tolerance of measurement of forward voltage: $\pm 0.1V$ Tolerance of measurement of luminous flux: $\pm 10\%$ Tolerance of measurement of dominant wavelength: $\pm 2nm$

Characteristic Curves

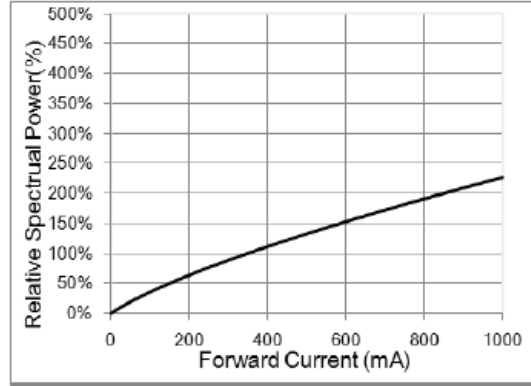
Forward Current vs. Forward Voltage

InGaN (IG/IB/RB) (Ta=25°C)



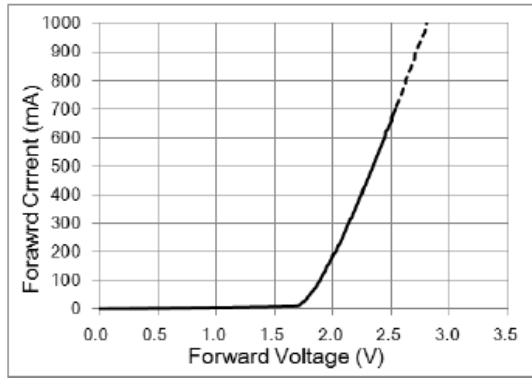
Relative luminous Flux vs. Forward Current

InGaN (IG/IB/RB) (Ta=25°C)



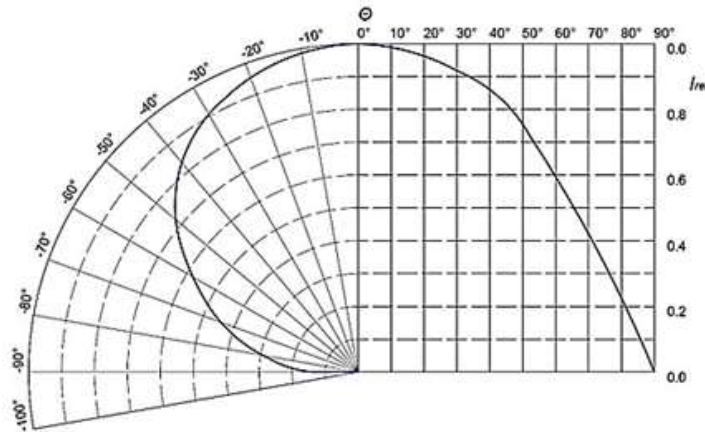
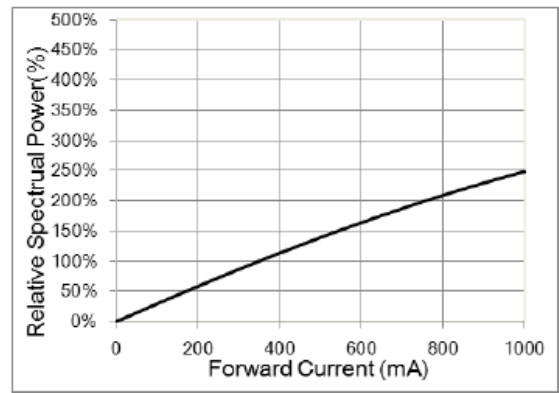
Forward Current vs. Forward Voltage

AllnGaP (R/S/O/Y) (Ta=25°C)



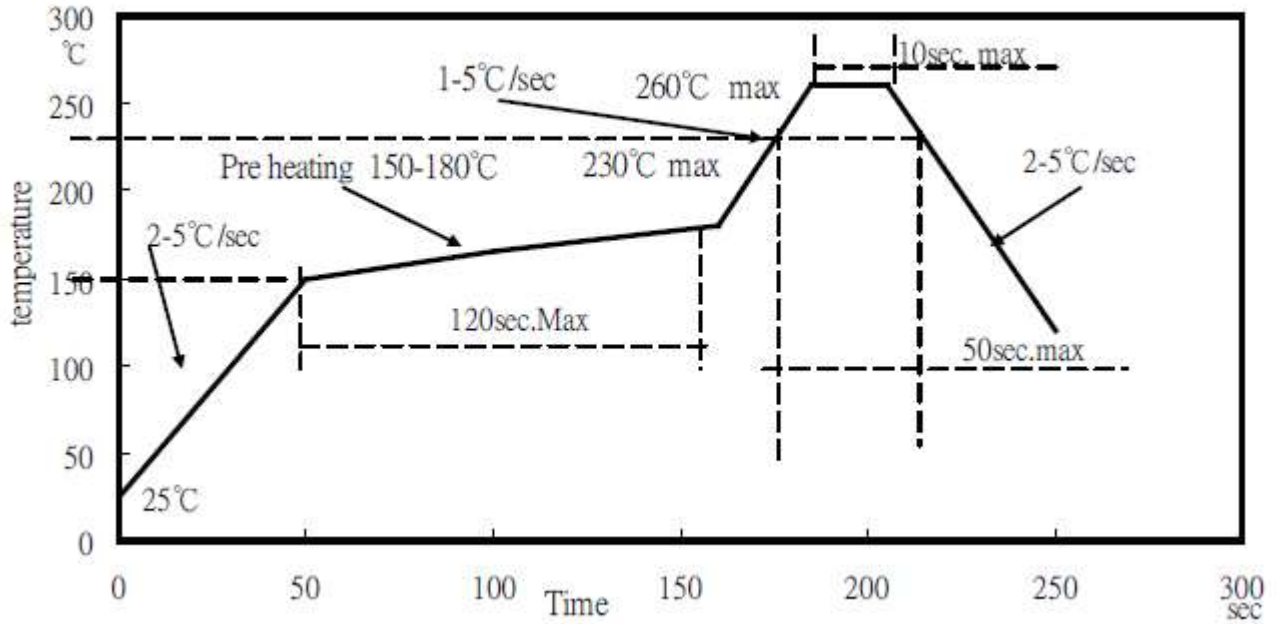
Relative luminous Flux vs. Forward Current

AllnGaP (R/S/O/Y) (Ta=25°C)

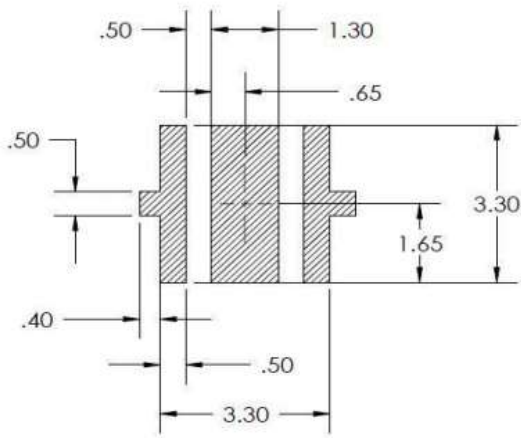


IR Reflow Soldering Profile

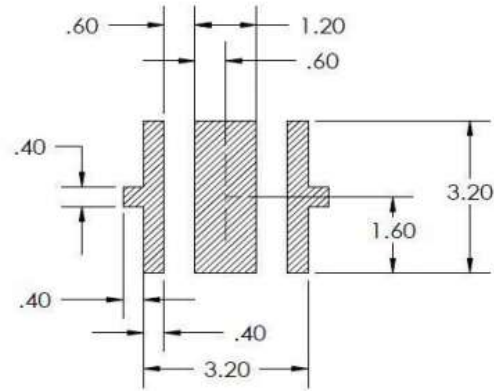
Lead Free solder



Recommended Soldering Pad:



RECOMMENDED PCB SOLDER PAD

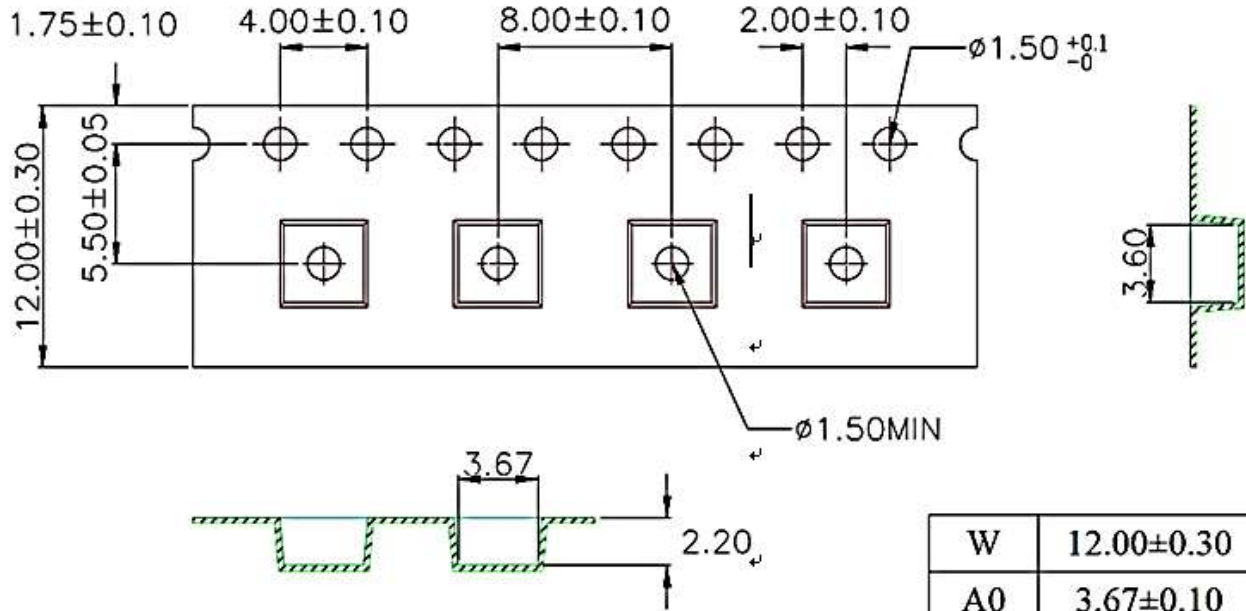


RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

Unit: mm

Packing

Tape and Reel:



1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30 ± 0.05 mm.

W	12.00±0.30
A0	3.67±0.10
B0	3.60±0.10
K0	2.20±0.10

Unit: mm

Labeling

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
QBHP684-RBU	QBHP684-RBU	$\Phi_v=55\text{lm typ., @ } I_F=350\text{mA} / \lambda_D=620\text{nm to } 630\text{nm}$	1000 units
QBHP684-SBU	QBHP684-SBU	$\Phi_v=20\text{lm typ., @ } I_F=350\text{mA} / \lambda_P=650\text{nm to } 670\text{nm}$	1000 units
QBHP684-OBU	QBHP684-OBU	$\Phi_v=70\text{lm typ., @ } I_F=350\text{mA} / \lambda_P=610\text{nm to } 615\text{nm}$	1000 units
QBHP684-YBU	QBHP684-YBU	$\Phi_v=60\text{lm typ. @ } I_F=350\text{mA} / \lambda_D=585\text{nm to } 595\text{nm}$	1000 units
QBHP684E-IGBU	QBHP684E-IGBU	$\Phi_v=100\text{lm typ. @ } I_F=350\text{mA} / \lambda_D=515\text{nm to } 535\text{nm}$	1000 units
QBHP684E-IBBU	QBHP684E-IBBU	$\Phi_v=28\text{lm typ. @ } I_F=350\text{mA} / \lambda_D=460\text{nm to } 470\text{nm}$	1000 units
QBHP684E-RBBU	QBHP684E-RBBU	$\Phi_v=16\text{lm typ., @ } I_F=350\text{mA} / \lambda_D=450\text{nm to } 460\text{nm}$	1000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBHP684-XXBU	V1.0	04/14/2016
Add bin code, update viewing angle, brightness, and wavelength spec range	V1.1	04/27/2016
Add orange color	V1.2	06/14/2018

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.