



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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**QT-Brightek High Power Series**  
**3W High Power 3535 PC-Amber LED**

**Part No.: QBHP684UE-PCAV**

**PCA = PC-Amber**  
**V = 700mA**

Product: QBHP684UE-PCAV	Date: August 05, 2015	Page 1 of 10
	Version# 2.0	

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## Introduction

**Feature:**

- 3W High Bright LED
- Phosphor-Converted (PC) Amber
- Packed in tape and reel
- Low thermal resistance <math><4^{\circ}\text{C}/\text{W}</math>
- Super high flux and luminance
- InGaN Material
- ESD protection up to 8KV
- Viewing Angle 130°

**Description:**

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

**Application:**

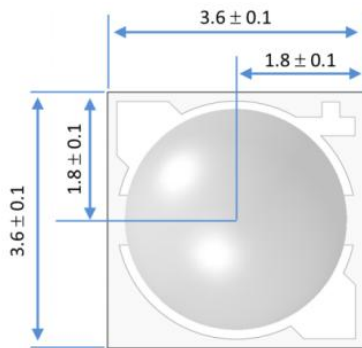
- Architectural and outdoor lighting
- Household appliances
- General lighting

**Certification & Compliance:**

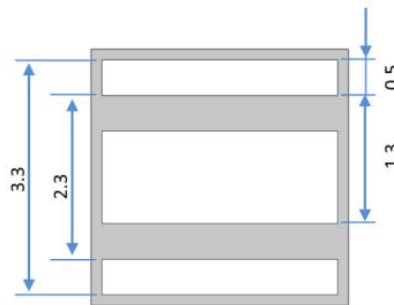
- TS16949
- ISO9001
- RoHS Compliant



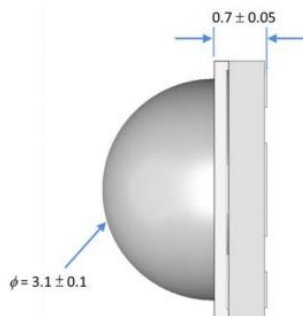
## Dimensions:



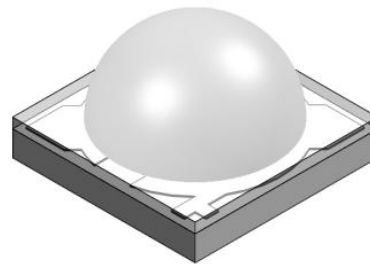
**Top View**



**Bottom View**

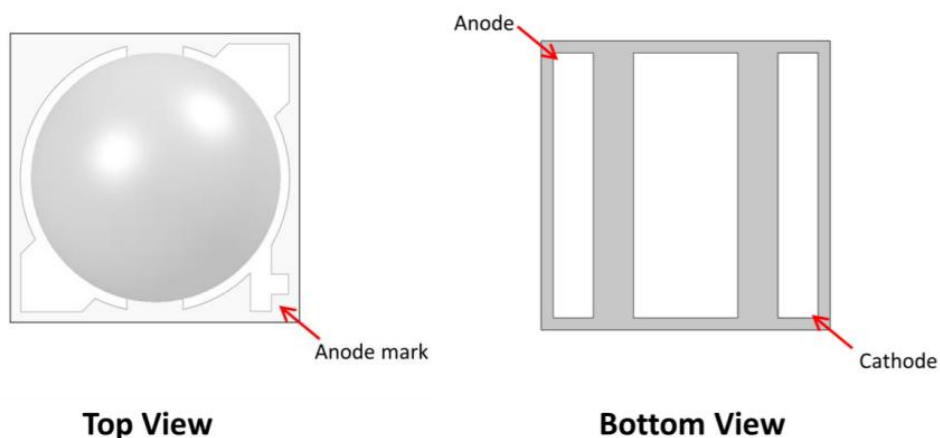


**Side View**



Units: mm / tolerance = +/-0.1mm

## Pad Configurations:


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

Product Number	Color	$I_F$ (mA)	$V_F$ (V)		$\lambda_D$ (nm)			$\Phi_v$ (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP684UE-PCAV	PC Amber	700	3.8	4.0	-	590	-	95	105

**Absolute Maximum Rating**

Material	$P_d$ (W)	$I_F$ (mA)	$I_{FP}$ (mA)*	$V_R$ (V)	$T_{OP}$ ( $^{\circ}\text{C}$ )	$T_{ST}$ ( $^{\circ}\text{C}$ )	$T_{SOL}$ ( $^{\circ}\text{C}$ )
InGaN	2.8	700	1000	5	-40 to +85	-40 to +100	240

\*Duty 1/10 @ 0.1ms Pulse Width

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

Bin	Min.	Max.	Unit
H	3.2	3.4	V
I	3.4	3.6	
J	3.6	3.8	
K	3.8	4.0	

**Luminous Flux  $\Phi_v$  @  $I_F=700\text{mA}$** 

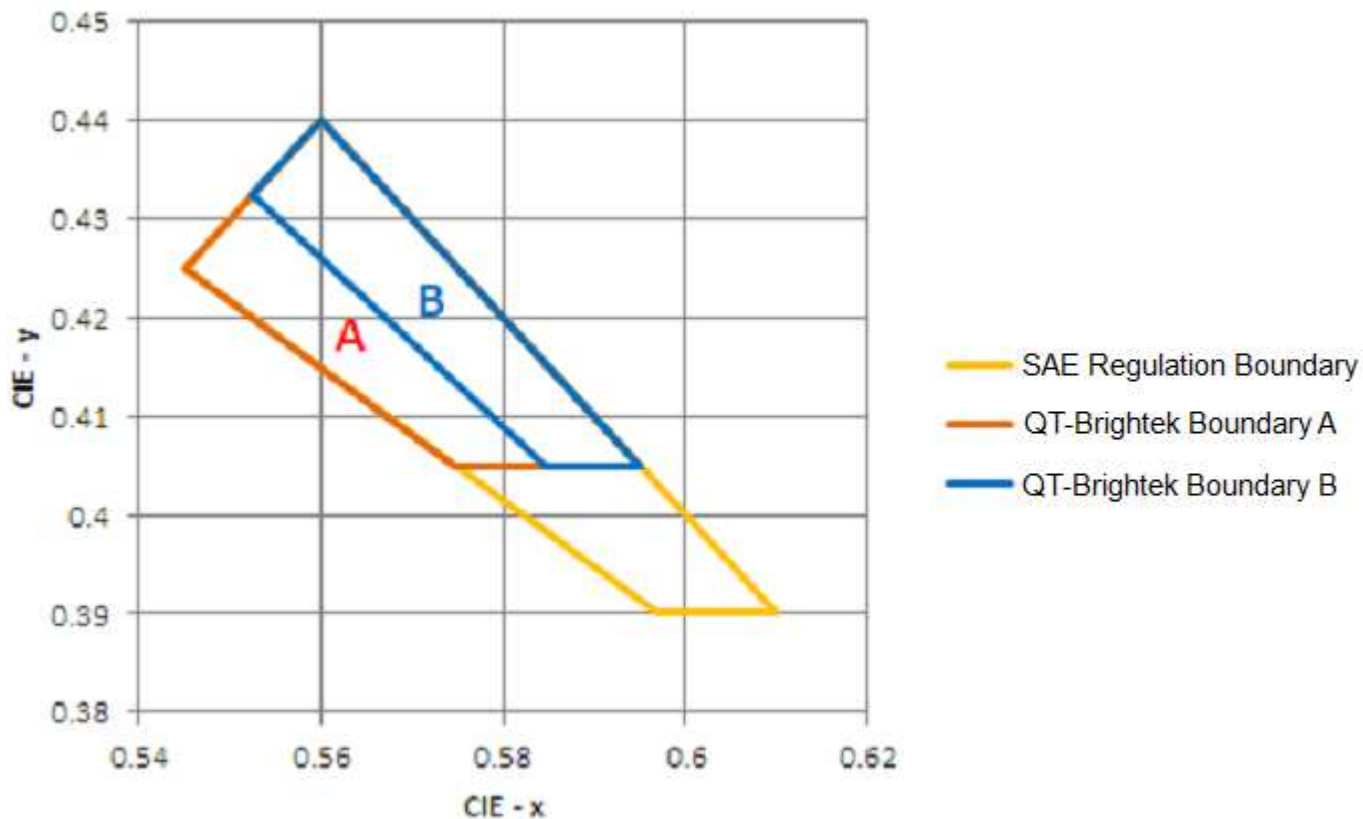
Bin	Min.	Max.	Unit
AA	95	110	lm
AB	110	125	
AC	125	140	
AD	140	155	
AE	155	170	
AF	170	185	
AG	185	200	

Note:

 Tolerance of measurement of forward voltage:  $\pm 0.1\text{V}$ 

 Tolerance of measurement of luminous flux:  $\pm 10\%$

## Correlated Color Temperature and Chromaticity Correlation



SAE Regulation		A		B	
x	y	x	y	x	y
0.56	0.44	0.552455	0.432455	0.56	0.44
0.54491	0.42491	0.54491	0.42491	0.552455	0.432455
0.59701	0.39	0.57462	0.405	0.58481	0.405
0.61	0.39	0.58481	0.405	0.595	0.405
0.56	0.44	0.552455	0.432455	0.56	0.44

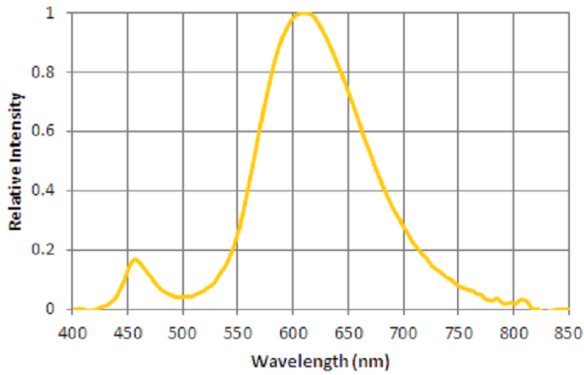
**Note:**

Tolerance of measurement of color coordinates:  $\pm 0.01$

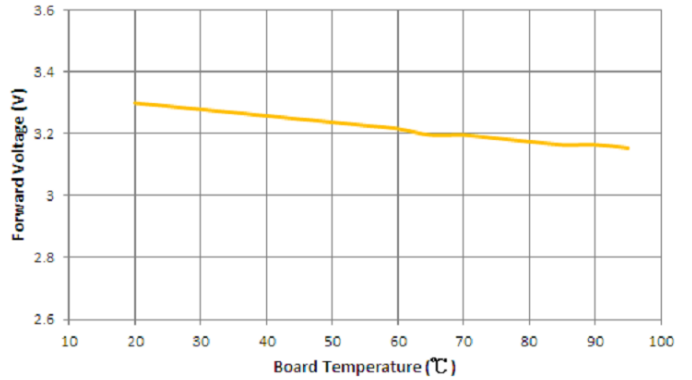
## Characteristic Curves

**Relative Spectral Distribution vs. Wavelength Characteristics**

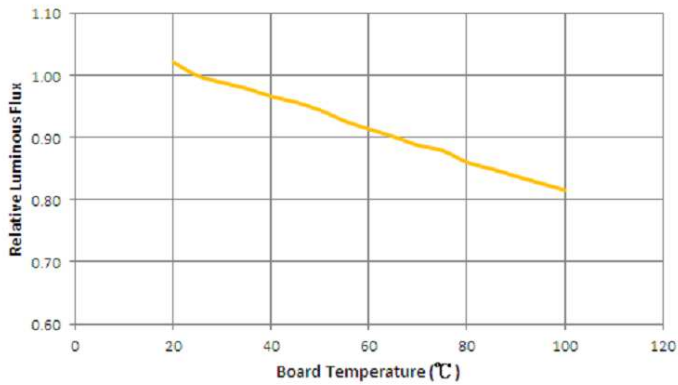
Thermal Pad Temperature = 25°C



**Forward Voltage vs. Thermal Pad Temperature**

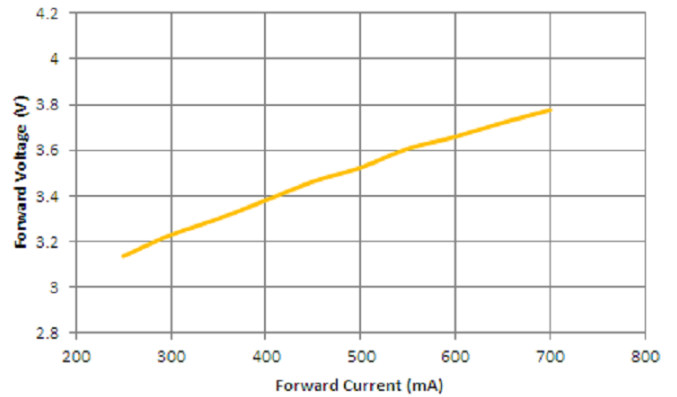


**Relative Luminous Flux vs. Thermal Pad Temperature**



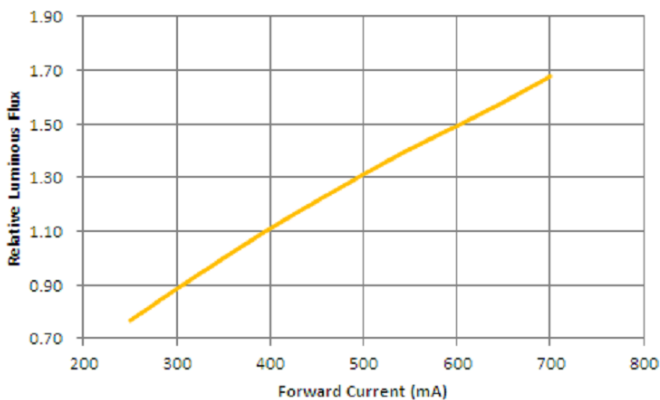
**Typical Forward Current Characteristics**

Thermal Pad Temperature = 25°C

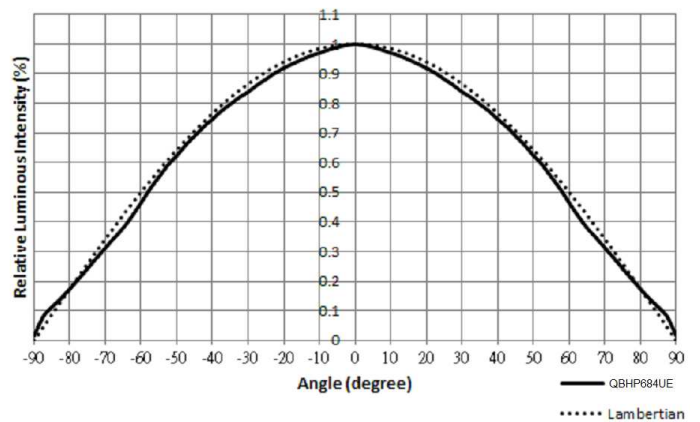


**Typical Relative Luminous Flux vs. Forward Current**

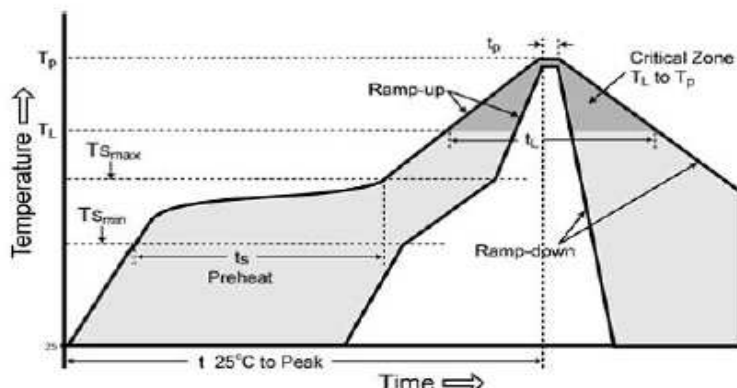
Thermal Pad Temperature = 25°C



**Typical Radiation Patterns**

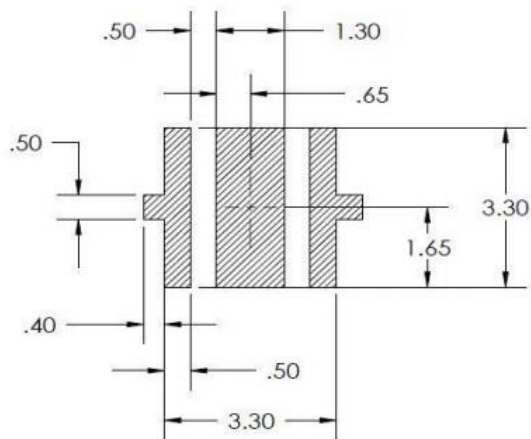


## IR Reflow Soldering Profile

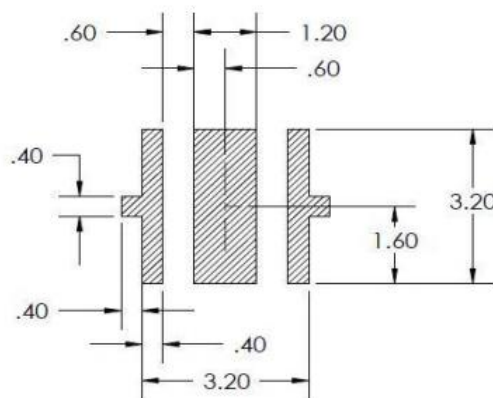


Profile Feature	Pb-Free Assembly
Average ramp-up rate (TL to TP)	3°C/second max.
Preheat	
Temperature Min (T <sub>smin</sub> )	150°C
Temperature Max (T <sub>smax</sub> )	200°C
Time (min to max) (t <sub>s</sub> )	60-180 seconds
Time maintained above:	
Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L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

### Recommended Soldering Pad:



RECOMMENDED PCB SOLDER PAD



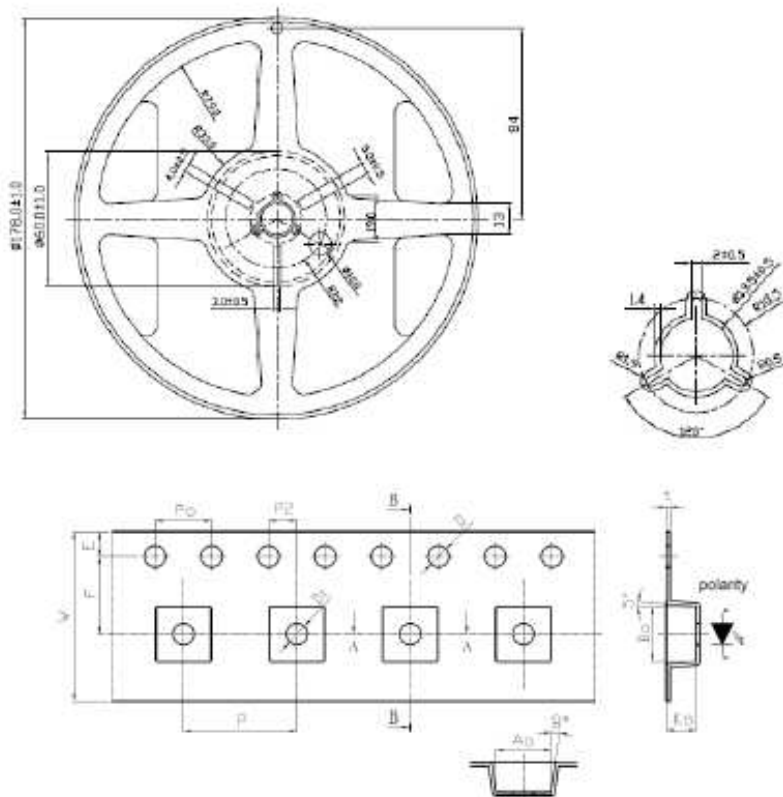
RECOMMENDED STENCIL PATTERN  
(HATCHED AREA IS OPENING)

Unit: mm



## Packing

### Tape and Reel:



Notes: Dimensions are in millimeters.

Symbol	Dimension
W	11.00 ± 0.10
P	8.00 ± 0.10
E	1.75 ± 0.10
F	5.50 ± 0.05
F2	2.00 ± 0.05
D	1.50 + 0.10 or 1.50 - 0.00
D1	1.50 ± 0.10
P0	4.00 ± 0.10
10P0	46.00 ± 0.20
A0	3.50 ± 0.10
B0	3.90 ± 0.10
K0	2.15 ± 0.1
t	0.26 ± 0.05

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
QBHP684UE-PCAV	QBHP684UE-PCAV	$\Phi_v=105\text{lm typ. @ } I_F=700\text{mA}$	1000 units

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## Revision History

Description:	Revision #	Revision Date
New Release of QBHP684UE-PCAV	V1.0	09/27/2013
Update Luminous Flux Bin	V1.1	04/30/2014
Update package drawing color to reflect ceramic substrate	V2.0	08/05/2015

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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.