

# QT-Brightek Mid Power Series

## 0.5W Mid Power 2835 LED

**Part No.: QBHP686-IWH-XX**

**H: 150mA**  
**XX = WW/NW/CW**

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## Introduction

**Feature:**

- Yellow diffused lens
- Package in tape and reel
- 0.5W Mid power
- InGaN White
- CRI 80 typ.

**Description:**

The low profile 0.5W high bright LED has height of 0.8mm. It is ideal for indoor lighting and general used.

**Application:**

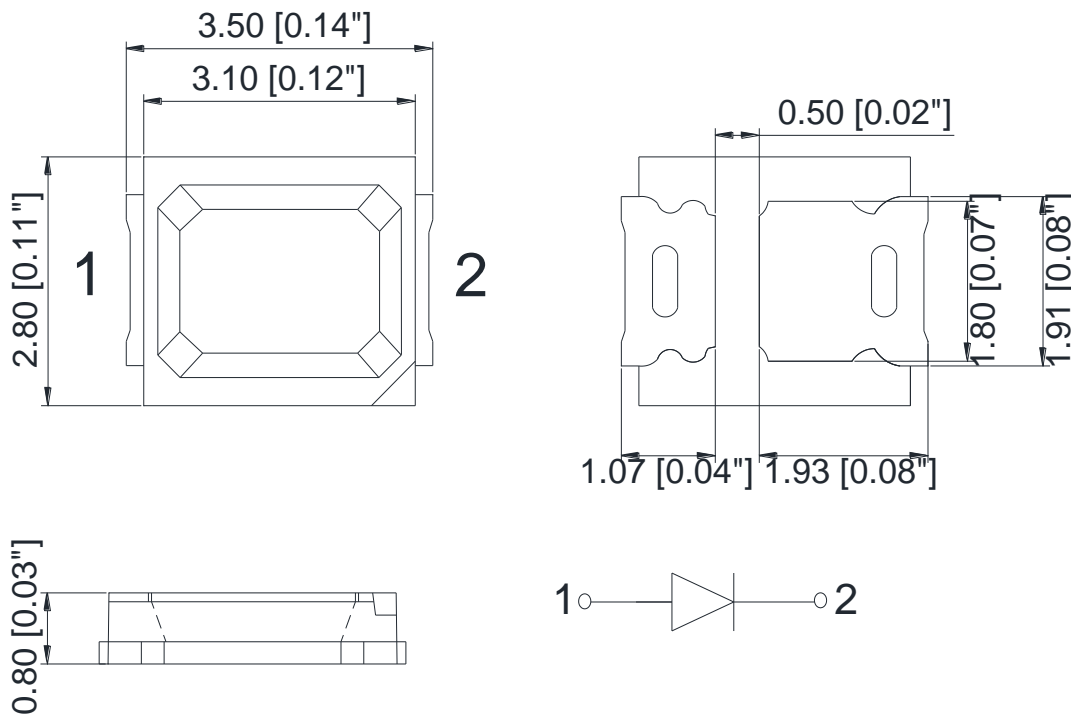
- Architectural lighting
- Household appliances
- General Lighting

**Certification & Compliance:**

- TS16949
- ISO9001
- RoHS Compliant



**Dimension:**



Units: mm / tolerance = +/-0.2mm

**Electrical / Optical Characteristic (Ta=25 °C)**

Product	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		CIE Coordinate	Φ <sub>v</sub> (lm)	
			Typ.	Max.	Typ.	Min.	Typ.
QBHP686-IWH-WW	Warm White	150	3.2	3.4	X=0.4338, Y=0.4030	52	61
					CCT: 3000K		
QBHP686-IWH-NW	Natural White	150	3.2	3.4	X=0.3818, Y=0.3797	52	63
					CCT: 4000K		
QBHP686-IWH-CW	Cool White	150	3.2	3.4	X=0.3214, Y=0.3357	52	61
					CCT: 6000K		

**Absolute Maximum Rating**

Material	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> (mA)*	I <sub>R</sub> (μA) @ V <sub>R</sub> =5V	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)	T <sub>SOL</sub> (°C)**
InGaN	540	160	250	10	-40 to +85	-40 to +100	260

\*Duty 1/10 @ 10KHz

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

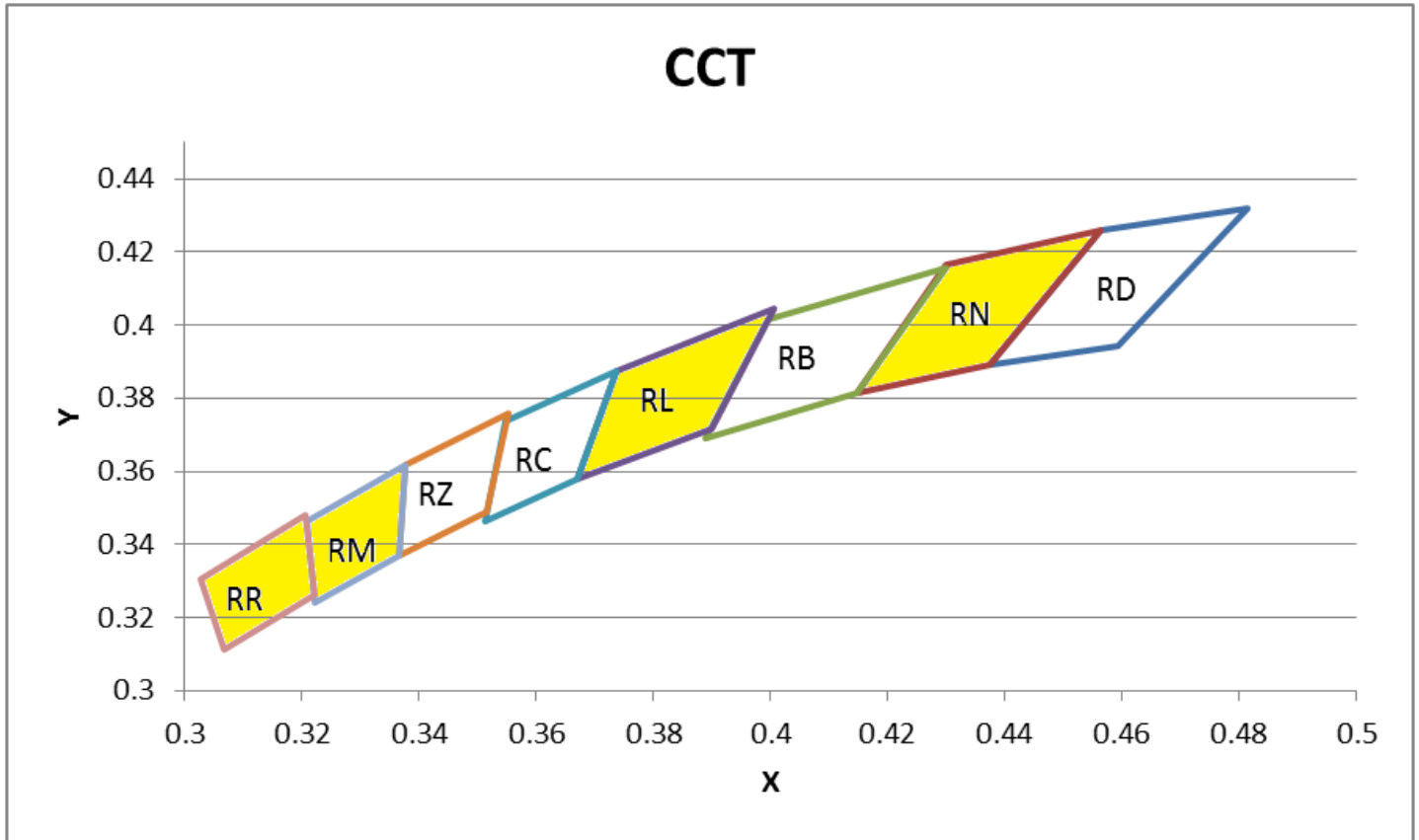
**Forward Voltage V<sub>F</sub> @ I<sub>F</sub>=150mA**

Bin	Min.	Max.	Unit
H	2.8	3.0	V
J	3.0	3.2	
K	3.2	3.4	

**Luminous Flux Φ<sub>v</sub> @ I<sub>F</sub>=150mA**

Bin	Min.	Max.	Unit
L4	52	57	lm
L5	57	62	
L6	62	67	

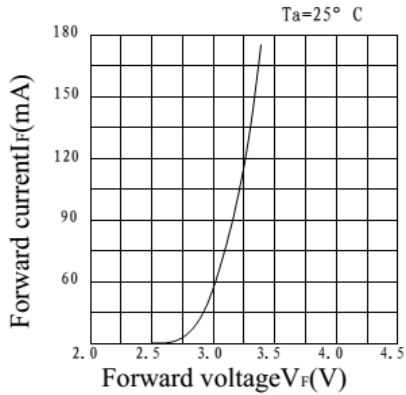
**Correlated Color Temperature Chart**



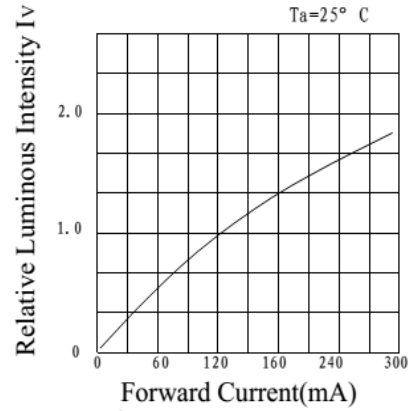
P/N	QBHP686-IWH-CW				QBHP686-IWH-NW		QBHP686-IWH-WW	
CCT Bin	RR		RM		RL		RN	
	X	Y	X	Y	X	Y	X	Y
Chromaticity Coordinates	0.3205	0.3481	0.3376	0.3616	0.4006	0.4044	0.4562	0.4260
	0.3028	0.3304	0.3207	0.3462	0.3736	0.3874	0.4299	0.4165
	0.3068	0.3113	0.3222	0.3243	0.3670	0.3578	0.4147	0.3814
	0.3221	0.3261	0.3366	0.3369	0.3898	0.3716	0.4373	0.3893
	0.3205	0.3481	0.3376	0.3616	0.4006	0.4044	0.4562	0.4260

Note:  
Tolerance of measurement of color coordinates: ±0.01

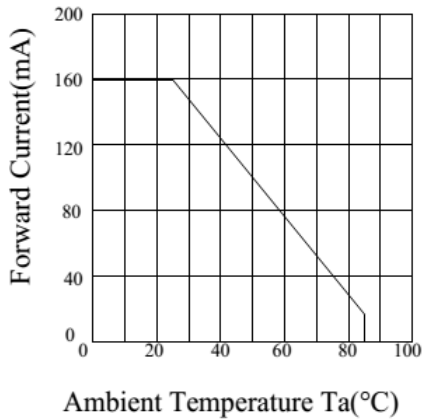
## Characteristic Curves



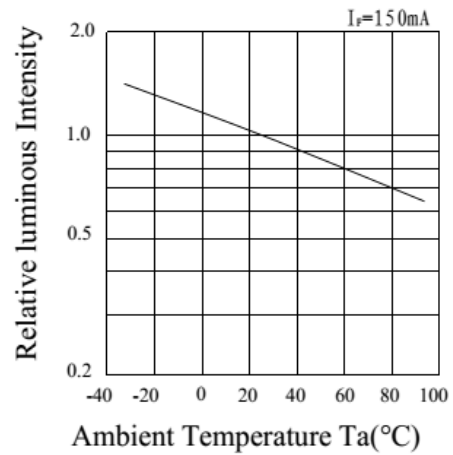
a) FORWARD CURRENT VS. FORWARD VOLTAGE



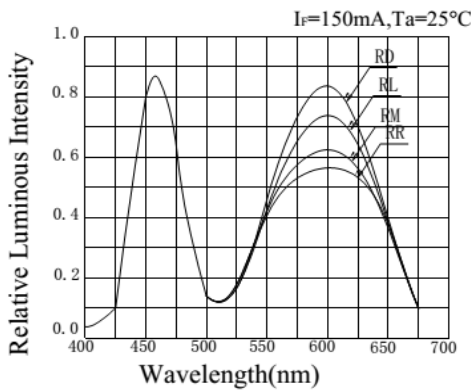
b) RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



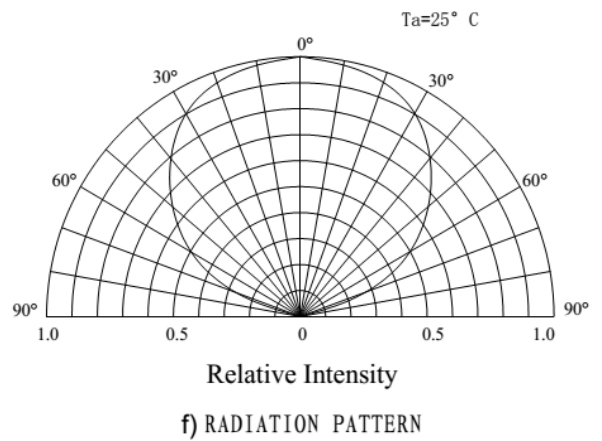
c) FORWARD CURRENT VS. AMBIENT TEMPERATURE



d) RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



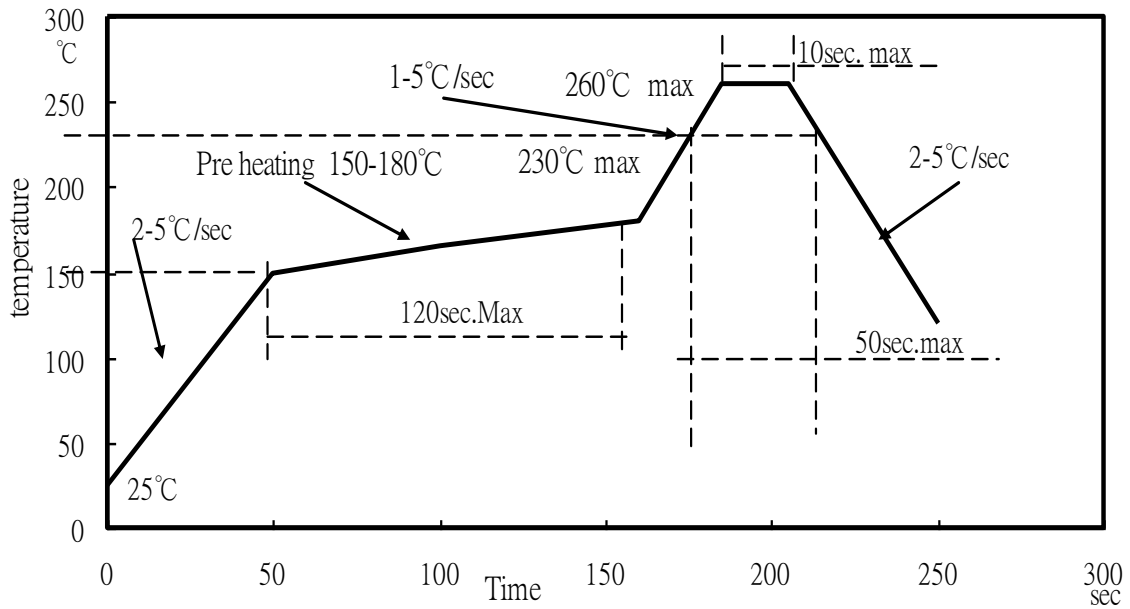
e) RELATIVE INTENSITY VS. WAVELENGTH



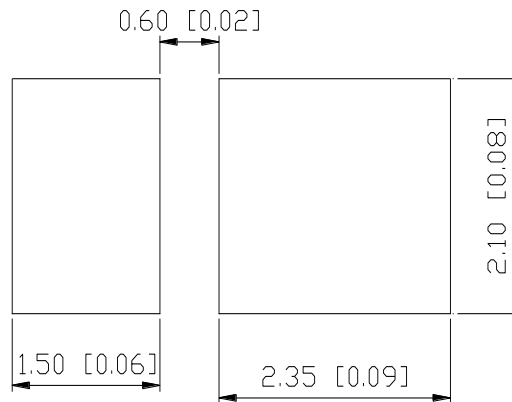
f) RADIATION PATTERN

## Solder Profile

### Lead-Free soldering Profile



### Recommended Pad Layout

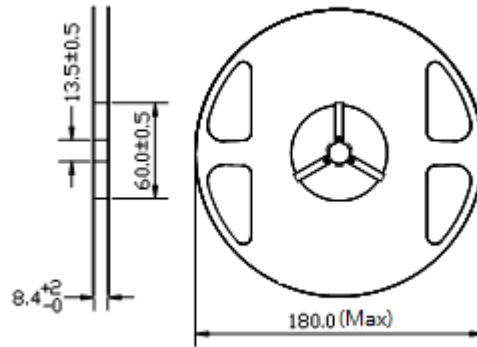


Units: mm

Tolerance: ± 0.2mm

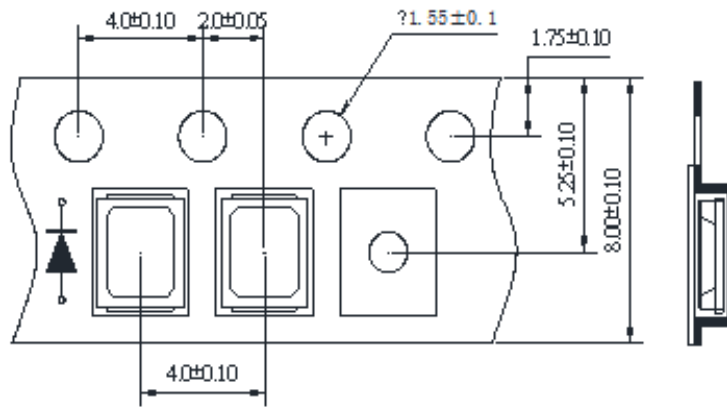
## Packing

Reel Dimension:



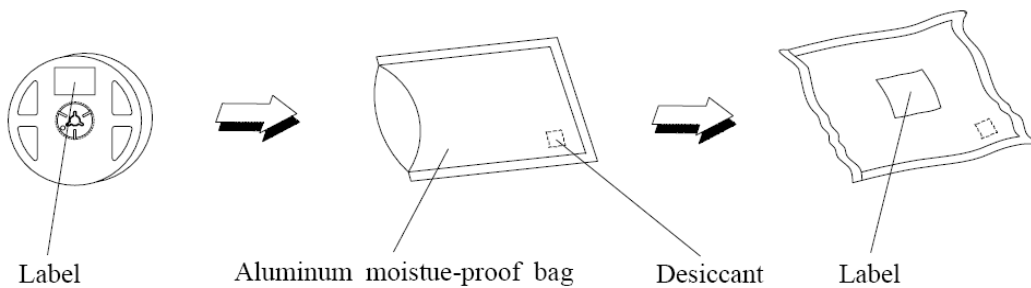
Unit: mm

Tape Dimension:



Unit: mm

Packaging Specifications:



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	Version# 3.1	



**Labeling**

Part No: \_\_\_\_\_

Customer P/N: \_\_\_\_\_

Item: \_\_\_\_\_

Q'ty: \_\_\_\_\_

Vf: \_\_\_\_\_

Iv: \_\_\_\_\_

WI: \_\_\_\_\_

Date: \_\_\_\_\_

**Made in China****Ordering Information**

Part #	Orderable Part #	Spec Range	Quantity per reel
QBHP686-IWH-WW	QBHP686-IWH-WW	Iv=61lm typ. @ I <sub>F</sub> =150mA / CCT=3000K typ.	2,000 units
QBHP686-IWH-NW	QBHP686-IWH-NW	Iv=63lm typ. @ I <sub>F</sub> =150mA / CCT=4000K typ.	2,000 units
QBHP686-IWH-CW	QBHP686-IWH-CW	Iv=61lm typ. @ I <sub>F</sub> =150mA / CCT=6000K typ.	2,000 units

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## Revision History

Description:	Revision #	Revision Date
New Release of QBHP686-IWH	V1.0	1/20/2011
CCT updates	V1.1	3/24/2011
Amend CCT Chart	V1.2	06/08/2011
Updated the part number	V1.3	02/15/2012
Updated format	V1.4	03/08/2012
Information Update	V1.5	08/23/2012
Update spec, drawing and binning	V2.0	10/22/2013
Update dimension drawing tolerance	V2.1	12/10/2013
Update drawing dimension	V3.0	08/04/2017
Update brightness bin	V3.1	08/05/2021

## 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.