

# QT-Brightek High Power Series

## 0.2W Mid Power 2835 LED

Part No.: QBHP686-IWK-XX

XX = WW/NW/CW

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## Introduction

**Feature:**

- Diffused lens
- Package in tape and reel
- 0.2W mid power
- Low thermal resistance
- Super high flux and luminance
- InGaN White
- CRI 80

**Description:**

The low profile 0.2W high bright LED has height of 0.8mm. It is ideal for indoor lighting and general used.

**Application:**

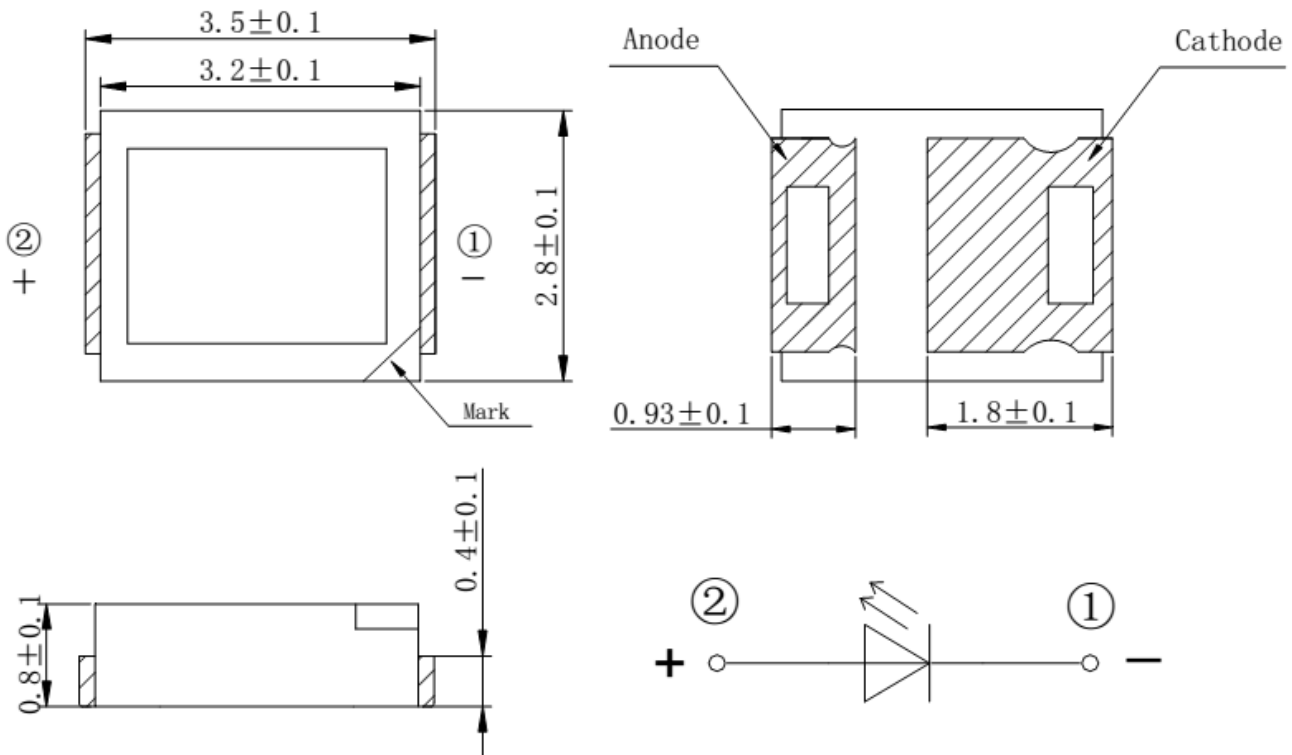
- Architectural lighting
- Household appliances
- General Lighting

**Certification & Compliance:**

- TS16949
- ISO9001
- RoHS Compliant



**Dimension:**



Units: mm / tolerance = +/-0.1mm

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

Product	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		CCT (K)			Φ <sub>v</sub> (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP686-IWK-WW	Warm White	60	3.2	3.4	2760	3000	3260	17	18
QBHP686-IWK-NW	Natural White	60	3.2	3.4	3640	4000	4240	18	19
QBHP686-IWK-CW	Cool White	60	3.2	3.4	5300	6020	7050	18	19

**Absolute Maximum Rating**

Material	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> (mA)*	V <sub>R</sub> (V)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)	T <sub>SOL</sub> (°C)**
InGaN	250	75	140	5	-30 to +85	-40 to +100	260

\*Duty 1/10 @ 1KHz

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

**Forward Voltage  $V_F$  @  $I_F=60mA$** 

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

**Luminous Flux  $\Phi_V$  for Warm White @  $I_F=60mA$** 

Bin	Min.	Max.	Unit
L1	17	20	lm
L2	20	23	
L3	23	26	
L4	26	29	

**Luminous Flux  $\Phi_V$  for Natural White @  $I_F=60mA$** 

Bin	Min.	Max.	Unit
L1	18	20	lm
L2	20	23	
L3	23	26	
L4	26	29	

**Luminous Flux  $\Phi_V$  for Cool White @  $I_F=60mA$** 

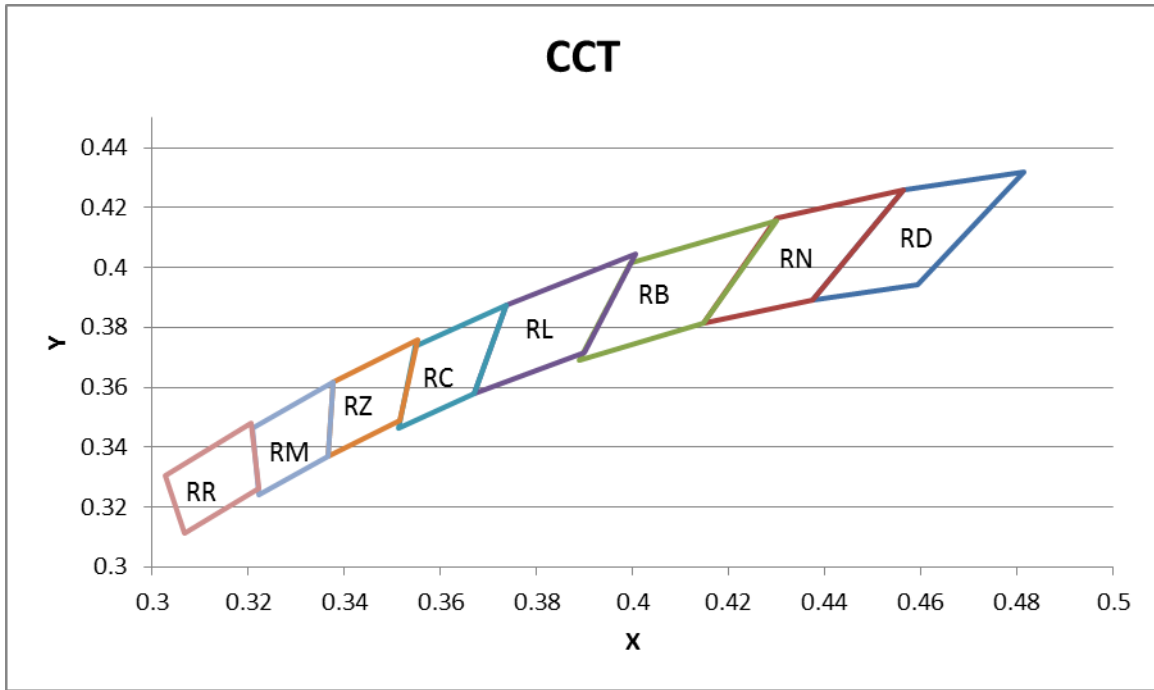
Bin	Min.	Max.	Unit
L1	18	20	lm
L2	20	23	
L3	23	26	
L4	26	29	

Note:

Tolerance of measurement of forward voltage:  $\pm 0.1V$ Tolerance of measurement of luminous flux:  $\pm 10\%$ **Correlated Color Temperature (CCT) @  $I_F=60mA$** 

Bin	Min.	Max.	Unit
RN	2760	3260	K
RL	3640	4240	
RM	5300	6020	
RR	6020	7050	

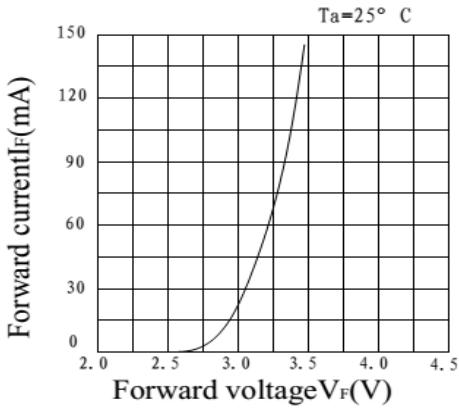
### Correlated Color Temperature Chart



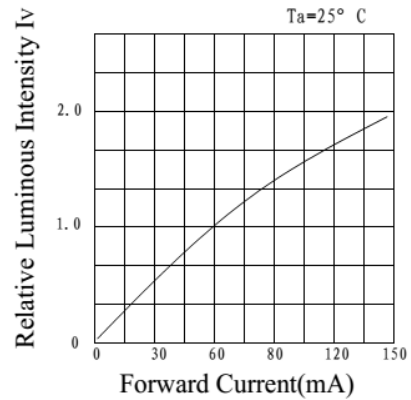
Color Ranks @ I <sub>F</sub> =60mA							
RD		RN		RB		RL	
0.4813	0.4319	0.4562	0.426	0.4299	0.4156	0.4006	0.4044
0.4562	0.426	0.4299	0.4165	0.3996	0.4015	0.3736	0.3874
0.4373	0.3893	0.4147	0.3814	0.3889	0.369	0.367	0.3578
0.4593	0.3944	0.4373	0.3893	0.4147	0.3814	0.3898	0.3716
0.4813	0.4319	0.4562	0.426	0.4299	0.4156	0.4006	0.4044
RC		RZ		RM		RR	
0.3736	0.3874	0.3551	0.376	0.3376	0.3616	0.3205	0.3481
0.3548	0.3736	0.3376	0.3616	0.3207	0.3462	0.3028	0.3304
0.3512	0.3465	0.3366	0.3369	0.3222	0.3243	0.3068	0.3113
0.367	0.3578	0.3515	0.3487	0.3366	0.3369	0.3221	0.3261
0.3736	0.3874	0.3551	0.376	0.3376	0.3616	0.3205	0.3481

Note:  
Tolerance of measurement of color coordinates: ±0.01

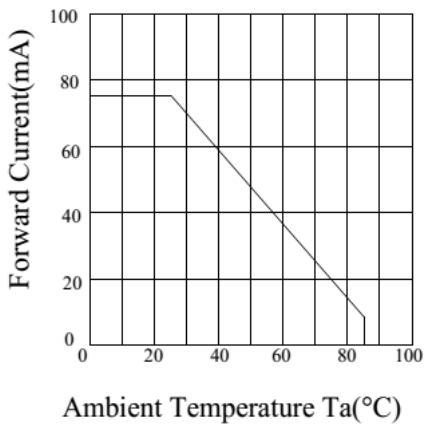
**Characteristic Curves**



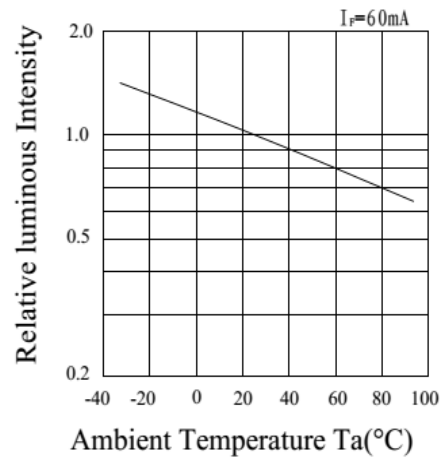
a) FORWARD CURRENT VS. FORWARD VOLTAGE



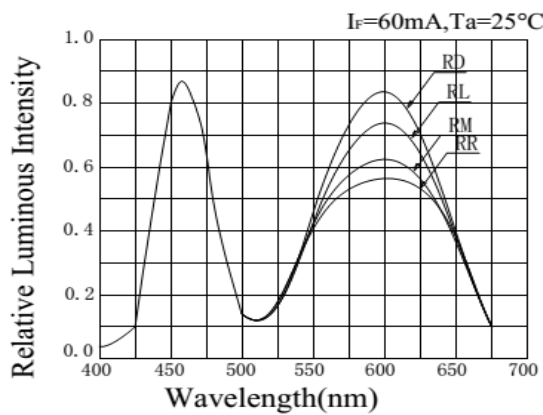
b) RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



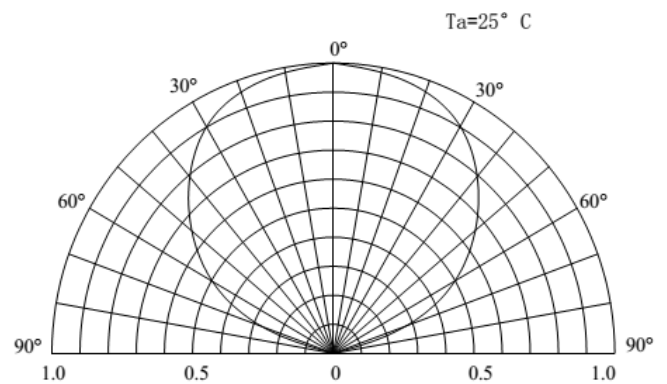
c) FORWARD CURRENT VS. AMBIENT TEMPERATURE



d) RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



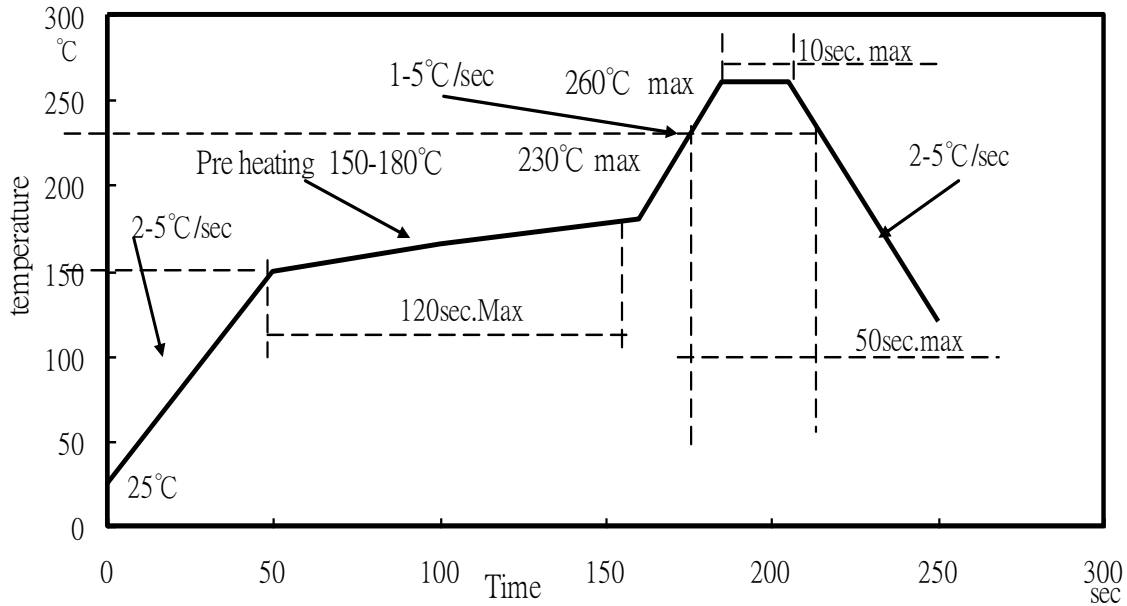
e) RELATIVE INTENSITY VS. WAVELENGTH



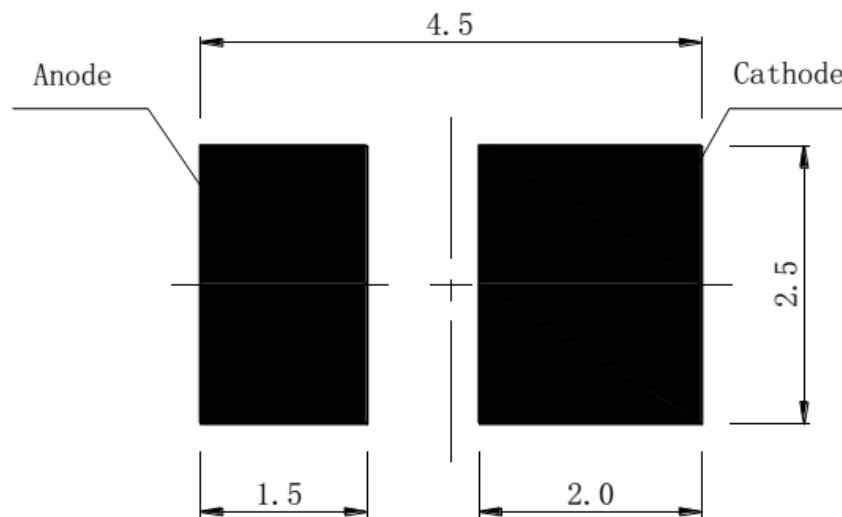
f) RADIATION PATTERN

## Solder Profile

### Lead-Free soldering Profile



### Recommended Pad Layout



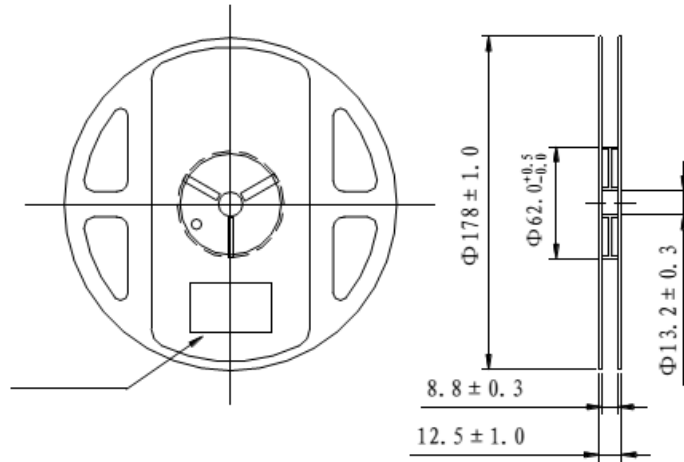
Units: mm

Tolerance: ± 0.2mm



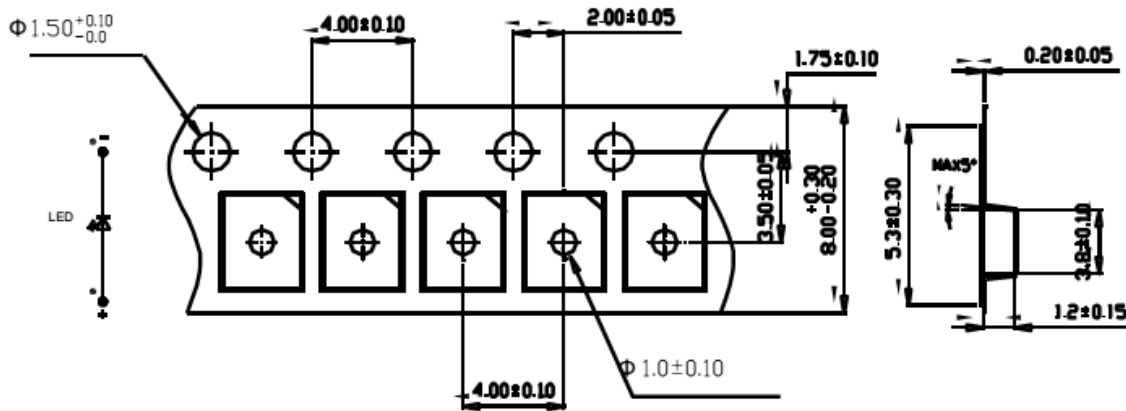
**Packing**

Reel Dimension:



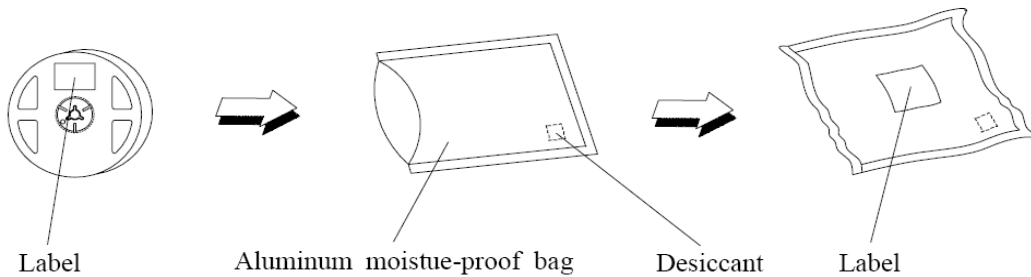
Unit: mm

Tape Dimension:



Unit: mm

Packaging Specifications:



**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-IWK-WW	QBHP686-IWK-WW	Iv=18lm typ. @ I <sub>F</sub> =60mA / CCT= 2760-3260K	2,000 units
QBHP686-IWK-NW	QBHP686-IWK-NW	Iv=19lm typ. @ I <sub>F</sub> =60mA / CCT= 3640-4240K	2,000 units
QBHP686-IWK-CW	QBHP686-IWK-CW	Iv=19lm typ. @ I <sub>F</sub> =60mA / CCT= 5300-7050K	2,000 units

## Revision History

Description:	Revision #	Revision Date
New Release of QBHP686-IWK	V1.0	1/20/2011
CCT Updates	V1.1	03/24/2011
Amend CCT	V2.0	05/13/2011
Add CCT- 5000K & bin	V2.1	08/19/2011
Update Spec	V2.2	03/14/2012
Update Spec and drawing	V3.0	10/18/2013
Update dimension tolerance	V3.1	12/10/2013

## Disclaimer

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QT-BRIGHTTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTTEK. As used herein:

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.

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