

QT-Brightek High Power Series

0.5W High Power 2835 LED

Part No.: QBHP686-IWH-XX

XX = WW/NW/CW

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Introduction

Feature:

- Diffused lens
- Package in tape and reel
- 0.5W high power
- Low thermal resistance
- Super high flux and luminance
- InGaN White
- CRI 80

Description:

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

Application:

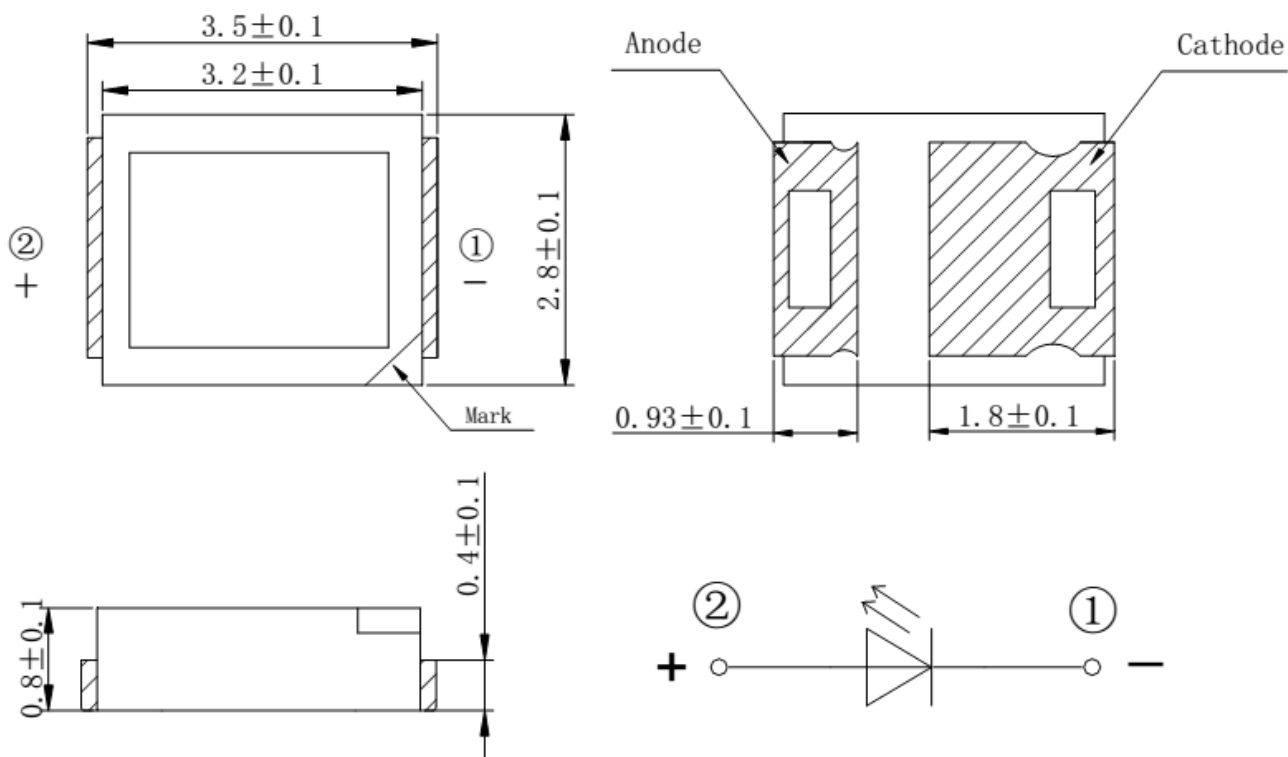
- Architectural lighting
- Household appliances
- General Lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Dimension:



Units: mm / tolerance = +/-0.1mm

Electrical / Optical Characteristic (T=25 °C)

Product	Color	I _F (mA)	V _F (V)		CCT (K)			Φ _v (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP686-IWH-WW	Warm White	150	3.2	3.4	2760	3000	3260	37	42
QBHP686-IWH-NW	Natural White	150	3.2	3.4	3640	4000	4240	40	44
QBHP686-IWH-CW	Cool White	150	3.2	3.4	5300	6020	7050	40	44

Absolute Maximum Rating

Material	P _d (mW)	I _F (mA)	I _{FP} (mA)*	I _R (μA) @ V _R =5V	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)**
InGaN	550	160	300	10	-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 @ $I_F=150\text{mA}$

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

Luminous Flux Φ_V for Warm White @ $I_F=150\text{mA}$

Bin	Min.	Max.	Unit
L1	37	42	lm
L2	42	47	
L3	47	52	
L4	52	57	

Luminous Flux Φ_V for Natural White @ $I_F=150\text{mA}$

Bin	Min.	Max.	Unit
L1	40	42	lm
L2	42	47	
L3	47	52	
L4	52	57	

Luminous Flux Φ_V for Cool White @ $I_F=150\text{mA}$

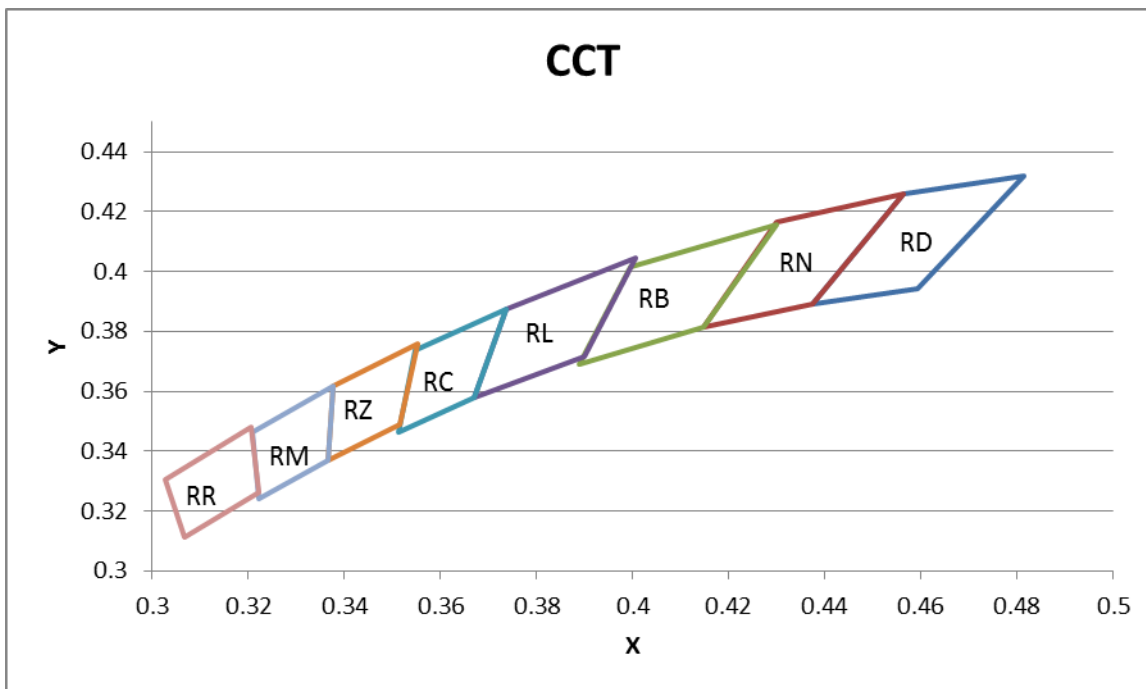
Bin	Min.	Max.	Unit
L1	40	42	lm
L2	42	47	
L3	47	52	
L4	52	57	

Note:

Tolerance of measurement of forward voltage: $\pm 0.1\text{V}$ Tolerance of measurement of luminous flux: $\pm 10\%$ **Correlated Color Temperature (CCT) @ $I_F=150\text{mA}$**

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

Correlated Color Temperature Chart

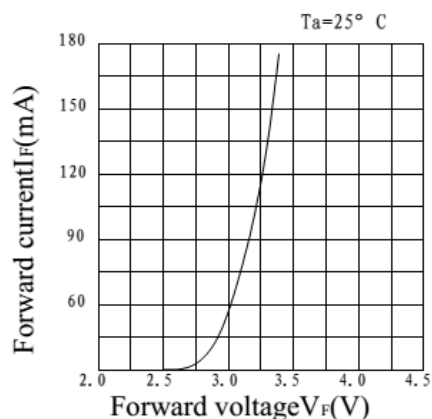


Color Ranks @ $I_F=150\text{mA}$							
RD		RN		RB		RL	
0.4813	0.4319	0.4562	0.426	0.4299	0.4156	0.4006	0.4044
0.4562	0.426	0.4299	0.4165	0.3996	0.4015	0.3736	0.3874
0.4373	0.3893	0.4147	0.3814	0.3889	0.369	0.367	0.3578
0.4593	0.3944	0.4373	0.3893	0.4147	0.3814	0.3898	0.3716
0.4813	0.4319	0.4562	0.426	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

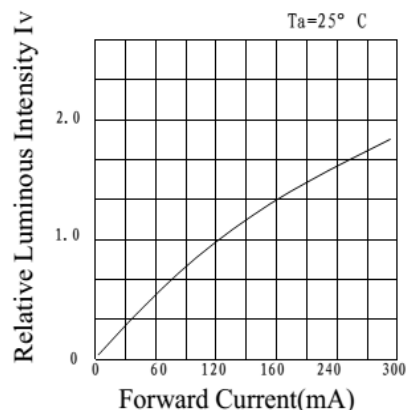
Note:

Tolerance of measurement of color coordinates: ± 0.01

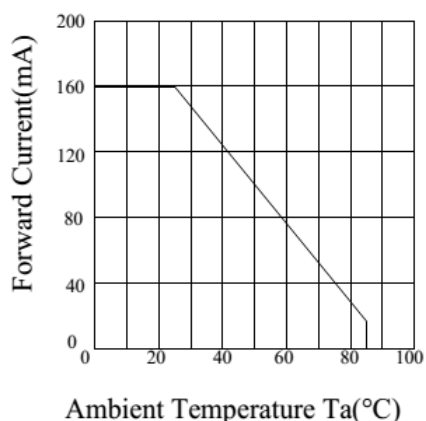
Characteristic Curves



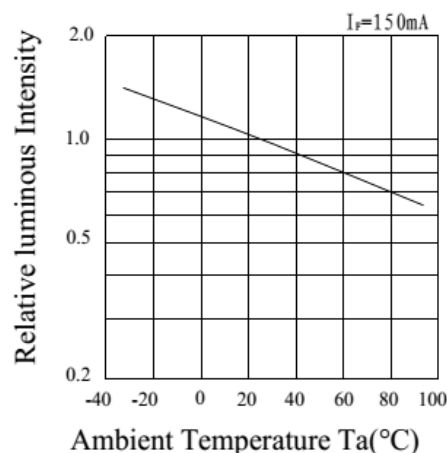
a) FORWARD CURRENT VS. FORWARD VOLTAGE



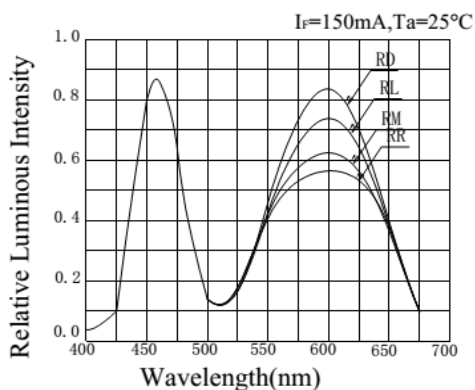
b) RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



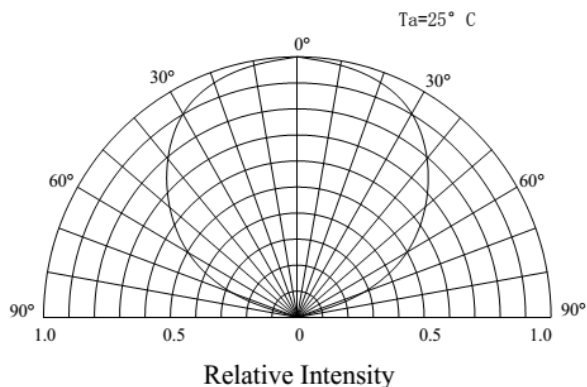
c) FORWARD CURRENT VS. AMBIENT TEMPERATURE



d) RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



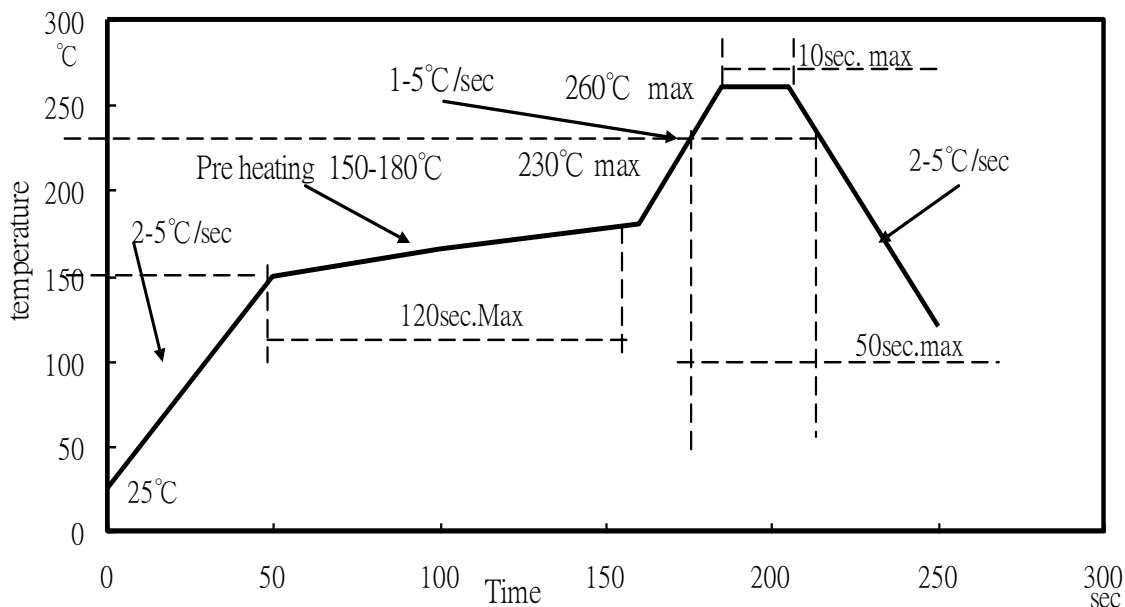
e) RELATIVE INTENSITY VS. WAVELENGTH



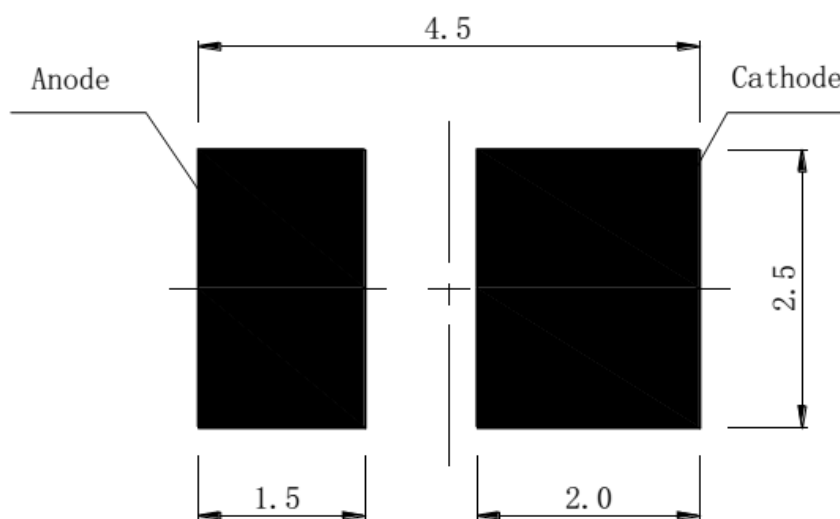
f) RADIATION PATTERN

Solder Profile

Lead-Free soldering Profile



Recommended Pad Layout

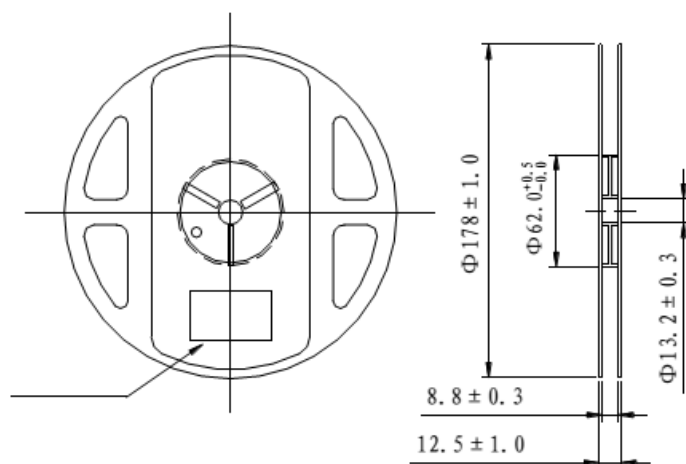


Units: mm

Tolerance: $\pm 0.2\text{mm}$

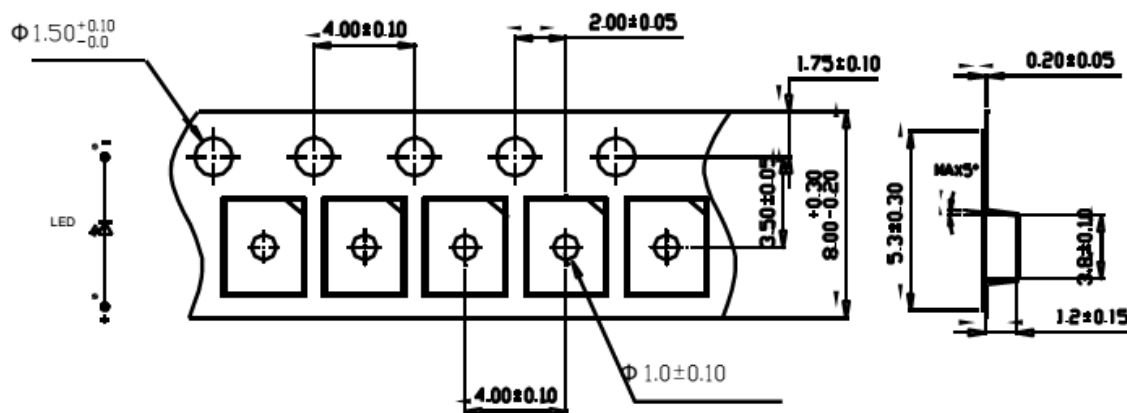
Packing

Reel Dimension:



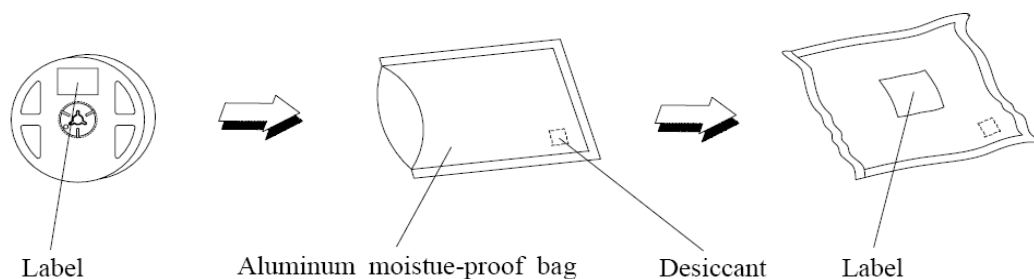
Unit: mm

Tape Dimension:



Unit: mm

Packaging Specifications:



Product: QBHP686-IWH-XX	Date: December 10, 2013	Page 9 of 11
	Version# 2.1	

Labeling

	QT-Brightek	
		
Part No: _____		
Customer P/N: _____		
Item: _____		
Q'ty: _____		
Vf: _____		
Iv: _____		
Wl: _____		
Date: _____		
Made in China		

Ordering Information

Part #	Orderable Part #	Spec Range	Quantity per reel
QBHP686-IWH-WW	QBHP686-IWH-WW	Iv=42lm typ. @ I _F =150mA / CCT= 2760-3260K	2,000 units
QBHP686-IWH-NW	QBHP686-IWH-NW	Iv=44lm typ. @ I _F =150mA / CCT= 3640-4240K	2,000 units
QBHP686-IWH-CW	QBHP686-IWH-CW	Iv=44lm typ. @ I _F =150mA / CCT= 5300-7050K	2,000 units

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

Disclaimer

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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.