

QT-Brightek High Power Series

0.5W High Power LED

Part No.: QBHP687-IWH-XX

XX = WW/NW/CW

Product: QBHP687-IWH-XX	Date: November 05, 2013	Page 1 of 10
	Version# 2.3	

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Introduction

Features:

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

Description:

This low profile 0.5W high bright LED has a height profile of 0.77mm. It is ideal for indoor lighting and general use.

Application:

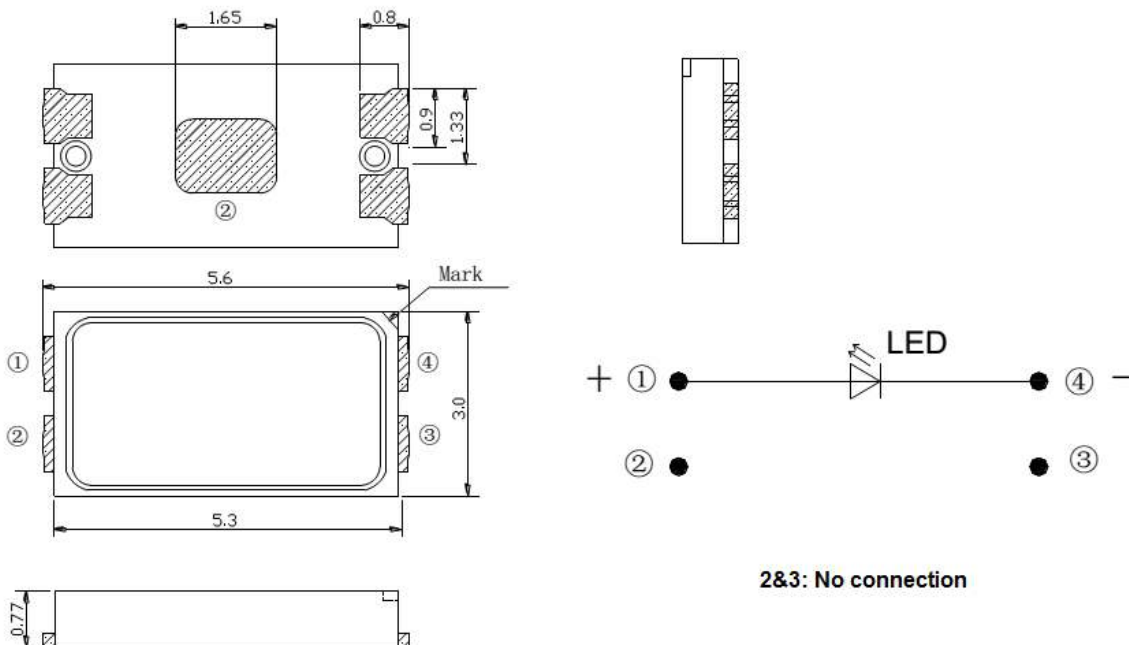
- Architectural lighting
- Household appliances
- General lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Outline Dimensions:



Units: mm / tolerance = +/-0.2mm

Electrical / Optical Characteristic (T=25 °C)

Product Number	Color	I _F (mA)	V _F (V)		CCT (K)			Φ _v (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP687-IWH-WW	Warm White	150	3.3	3.6	2760	3000	3260	42	44
QBHP687-IWH-NW	Natural White	150	3.3	3.6	3640	4000	4240	42	50
QBHP687-IWH-CW	Cool White	150	3.3	3.6	5300	6020	7050	42	50

Absolute Maximum Rating

Material	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _{OP} (°C)	T _{ST} (°C)	T _{SOL} (°C)**
InGaN	580	180	300	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=150mA

Bin	Min.	Max.	Unit
H	2.8	3.0	V
J	3.0	3.2	
K	3.2	3.4	
M	3.4	3.6	

Luminous Flux Φ_v @ I_F=150mA

Bin	Min.	Max.	Unit
L1	42	52	lm
L2	52	64	
L3	64	80	

Note:

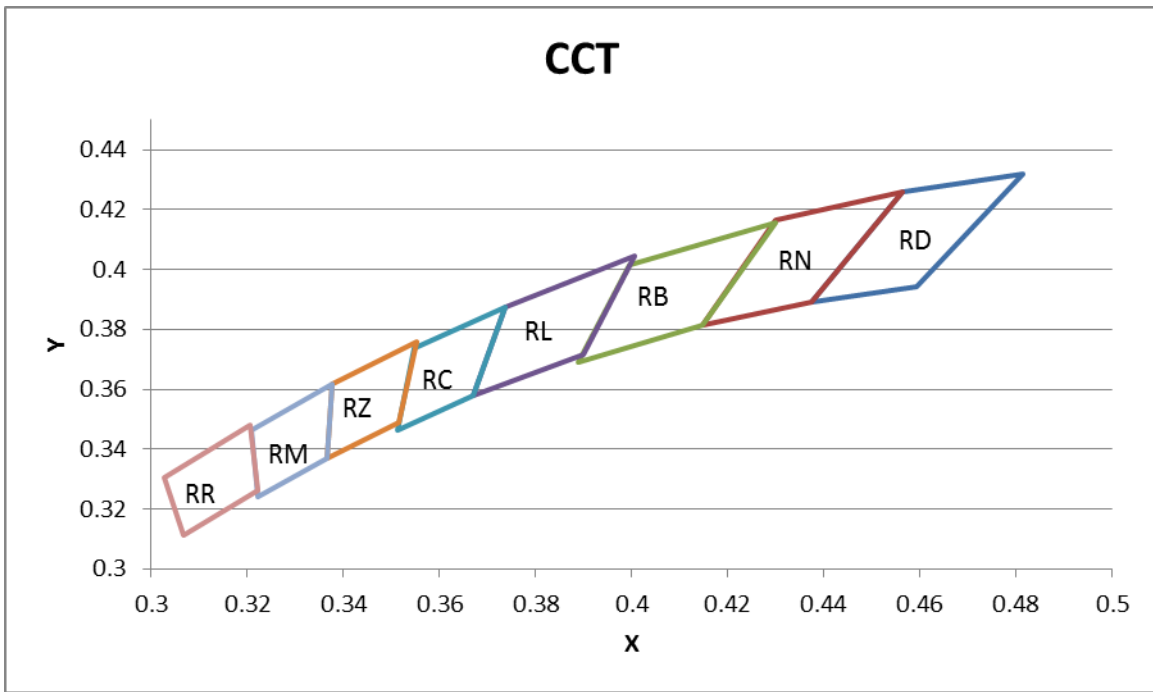
Tolerance of measurement of forward voltage: ±0.1V

Tolerance of measurement of luminous flux: ±10%

Correlated Color Temperature (CCT) @ I_F=150mA

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

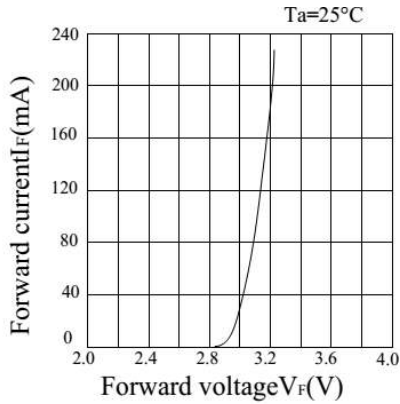
Correlated Color Temperature and Chromaticity Correlation



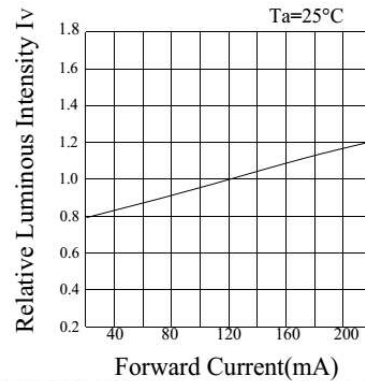
Color Ranks @ $I_F=150\text{mA}$							
RD		RN		RB		RL	
0.4813	0.4319	0.4562	0.426	0.4299	0.4156	0.4006	0.4044
0.4562	0.426	0.4299	0.4165	0.3996	0.4015	0.3736	0.3874
0.4373	0.3893	0.4147	0.3814	0.3889	0.369	0.367	0.3578
0.4593	0.3944	0.4373	0.3893	0.4147	0.3814	0.3898	0.3716
0.4813	0.4319	0.4562	0.426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

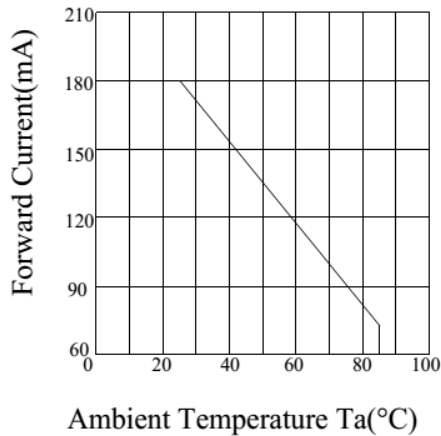
Characteristic Curves



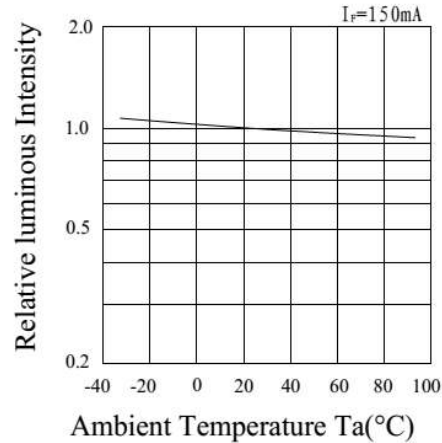
a) FORWARD CURRENT VS. FORWARD VOLTAGE



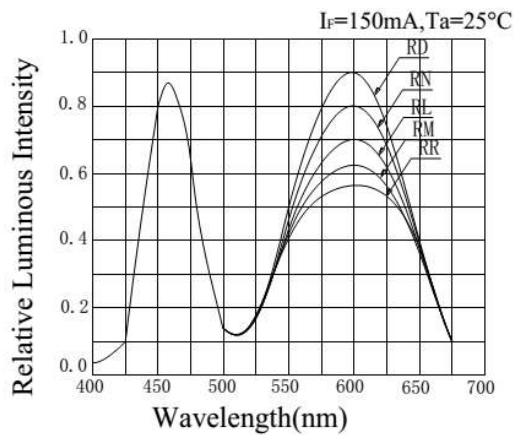
b) RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



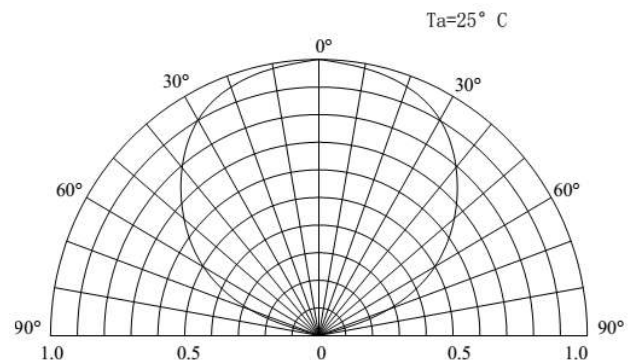
c) FORWARD CURRENT VS. AMBIENT TEMPERATURE



d) RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



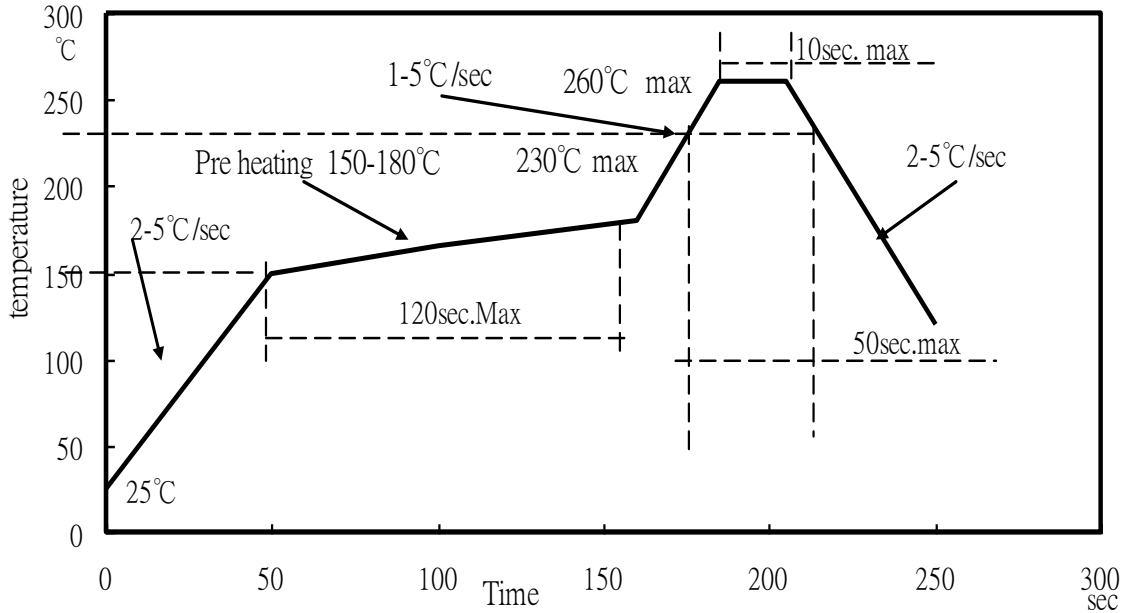
e) RELATIVE INTENSITY VS. WAVELENGTH



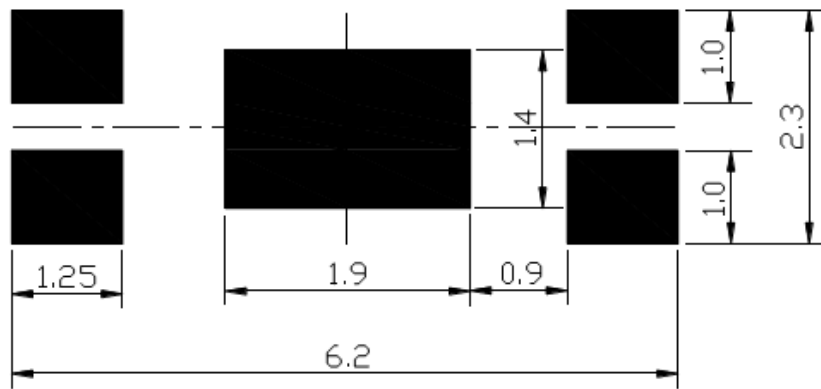
f) RADIATION PATTERN

Solder Profile

Lead-Free Soldering Profile



Recommended Pad Layout

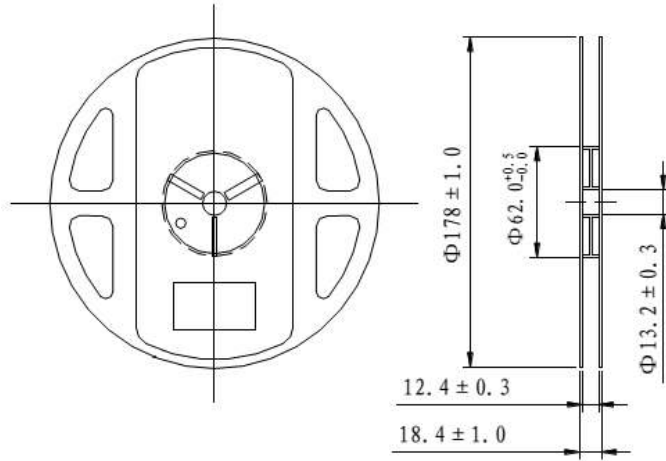


Units: mm

Tolerance: ± 0.2mm

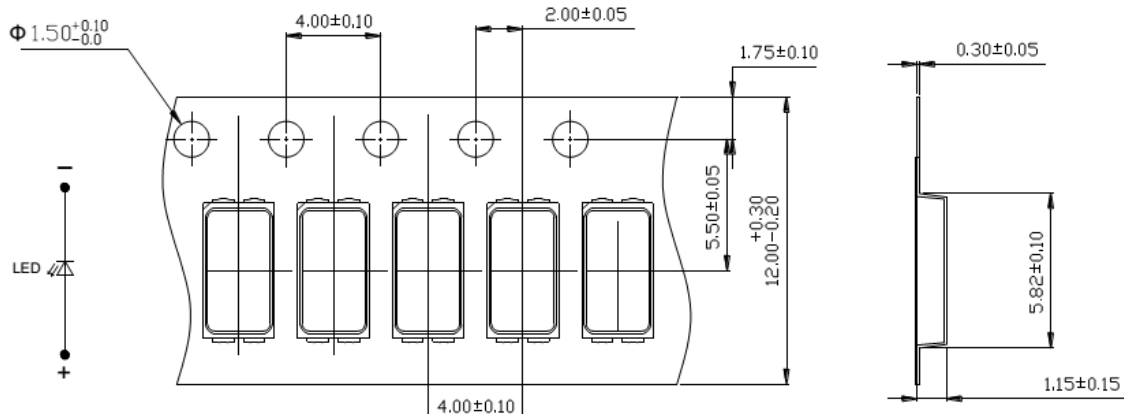
Packing

Reel Dimension:



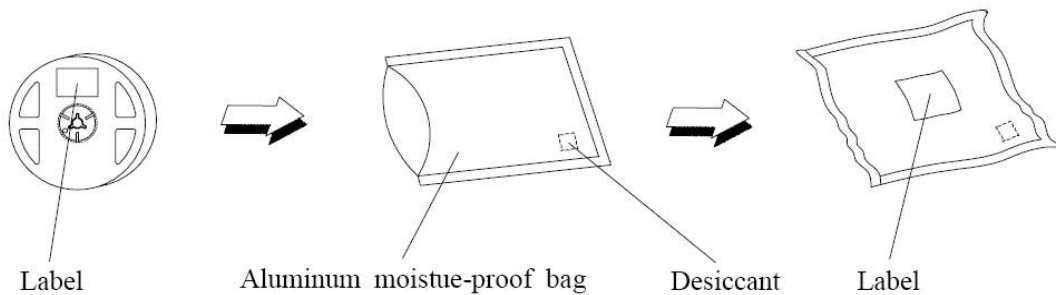
Unit: mm

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
QBHP687-IWH-WW	QBHP687-IWH-WW	$\Phi_v=44\text{lm typ. @ } I_F=150\text{mA} /$ CCT=2760-3260K	2,000 units
QBHP687-IWH-NW	QBHP687-IWH-NW	$\Phi_v=50\text{lm typ. @ } I_F=150\text{mA} /$ CCT=3640-4240K	2,000 units
QBHP687-IWH-CW	QBHP687-IWH-CW	$\Phi_v=50\text{lm typ. @ } I_F=150\text{mA} /$ CCT=5300-7050K	2,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBHP687-IWH	V1.0	04/06/2011
Spec Update	V1.1	10/31/2011
Datasheet Format Update	V1.2	02/20/2012
Updated Binning	V1.3	2/29/2012
Updated Part Number to QBHP687E-IWH-XX	V1.4	03/05/2012
Update part number to QBHP687-IWH-XX / Update binning	V2.0	01/31/2013
Amend the dimension/ binning/ recommend solder pad layout	V2.1	08/01/2013
Update luminous flux and binning	V2.2	10/18/2013
Update pulse current test condition	V2.3	11/05/2013

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.