

QT-Brightek High Power Series

3W High Power LED

Part No.: QBHP684UE-IWV-XX

XX = WW/NW/CW

V = 700mA

Product: QBHP684UE-IWV-XX	Date: April 30, 2014	Page 1 of 13
	Version# 1.2	

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Introduction

Feature:

- 3W High Bright LED
- Packed in tape and reel
- Low thermal resistance $<4^{\circ}\text{C/W}$
- Super high flux and luminance
- InGaN White
- 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:

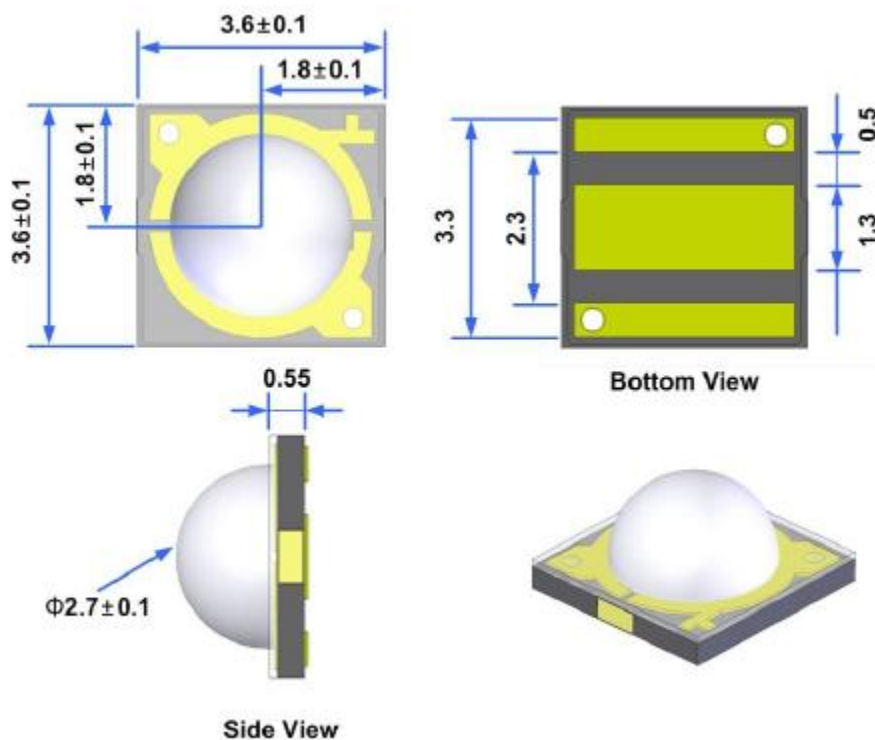
- Architectural and outdoor lighting
- Household appliances
- General lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant

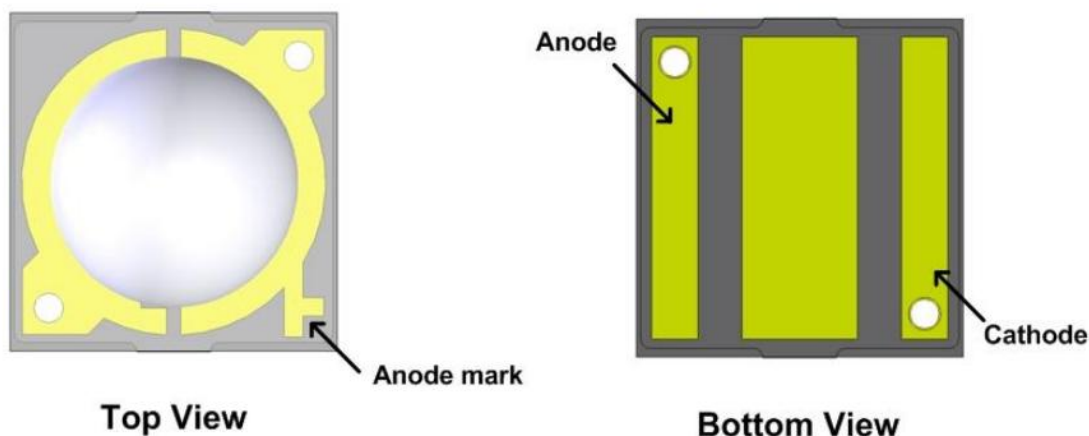


Dimensions:



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)		CCT (K)			Φ_v (lm)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBHP684UE-IWV-WW	Warm White	700	3.8	4.0	2870	3000	3220	140	144
QBHP684UE-IWV-NW	Natural White		3.8	4.0	3710	4000	4260	155	165
QBHP684UE-IWV-CW	Cool White		3.8	4.0	5310	5700	6020	170	180

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	2.52	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 Φ_v @ $I_F=700\text{mA}$

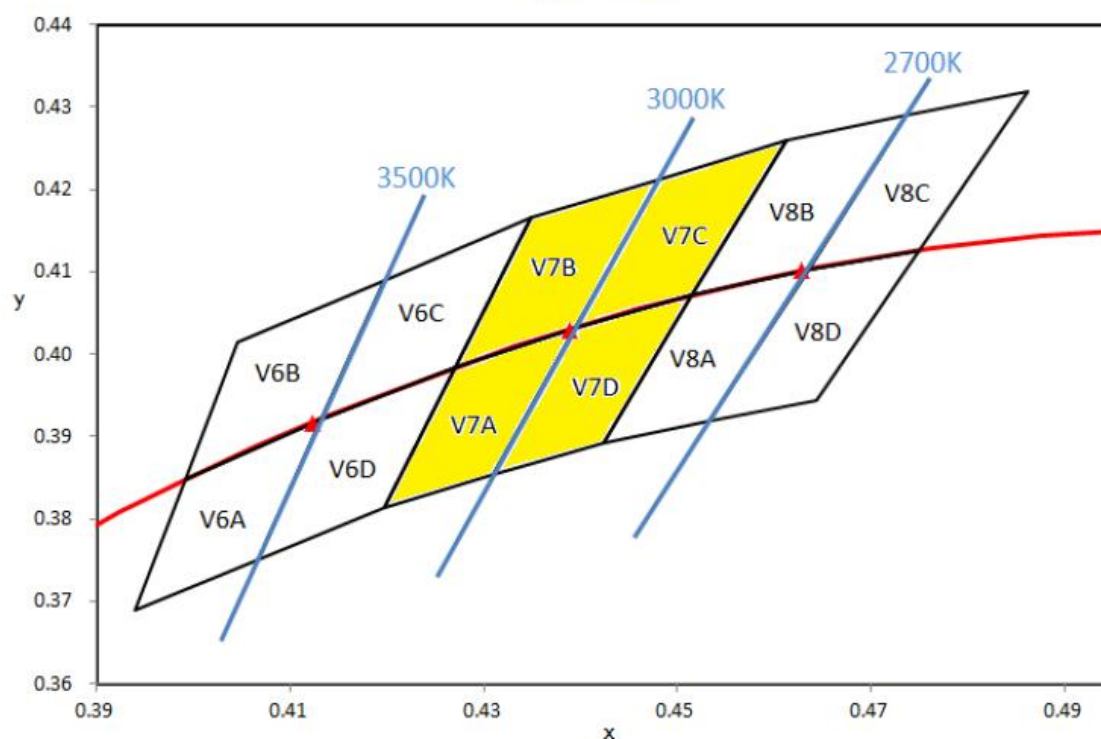
Bin	Min.	Max.	Unit
WD	140	155	lm
WE	155	170	
WF	170	190	
WG	190	210	
WH	210	230	
WI	230	250	
WJ	250	280	

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

Warm White

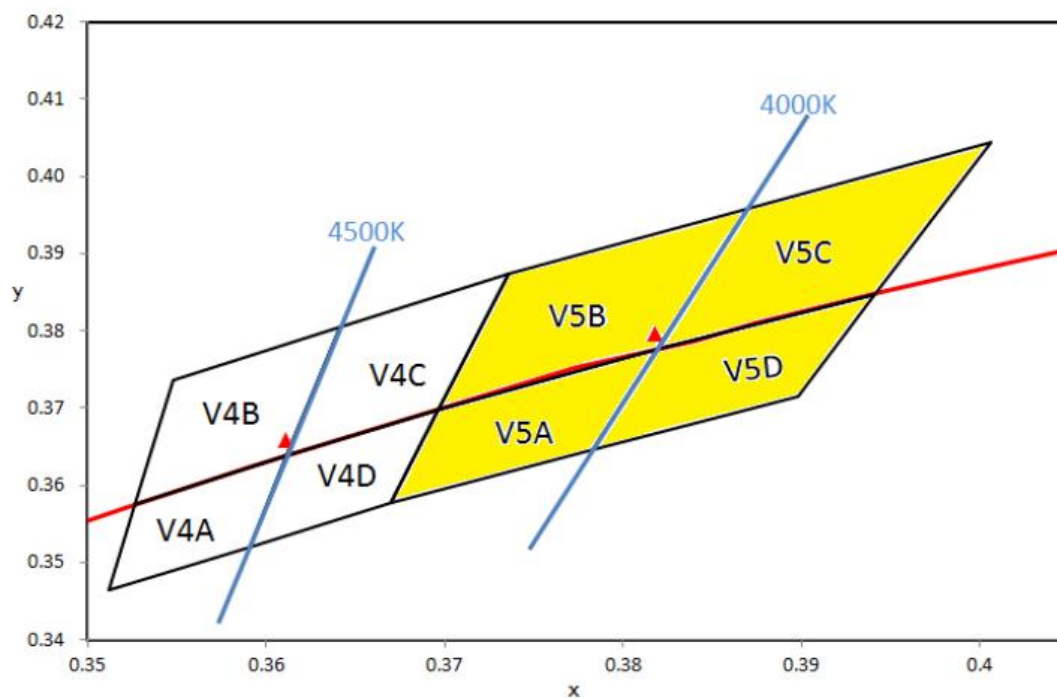


Nominal	Bin code	x	y
3000K	V7A	0.4344	0.4032
		0.4221	0.3984
		0.4147	0.3814
		0.4260	0.3853
	V7B	0.4344	0.4032
		0.4430	0.4212
		0.4299	0.4165
		0.4221	0.3984
	V7C	0.4344	0.4032
		0.4430	0.4212
		0.4562	0.4260
		0.4465	0.4071
	V7D	0.4344	0.4032
		0.4430	0.4212
		0.4562	0.4260
		0.4465	0.4071

Note:

Tolerance of measurement of color coordinates: ± 0.01

Natural White

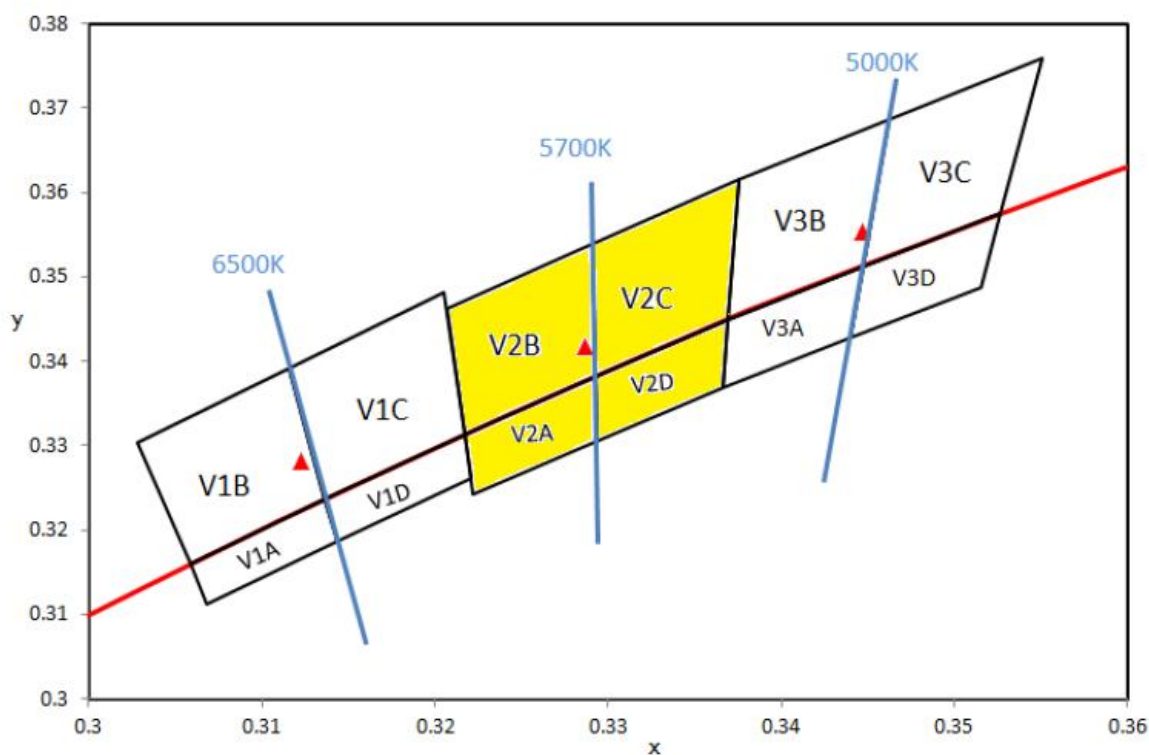


Nominal	Bin code	x	y
4000K	V5A	0.3819	0.3776
		0.3697	0.3697
		0.3670	0.3578
		0.3783	0.3646
		0.3819	0.3776
	V5B	0.3870	0.3958
		0.3736	0.3874
		0.3697	0.3697
		0.3819	0.3776
		0.3870	0.3958
	V5C	0.4006	0.4044
		0.3870	0.3958
		0.3819	0.3776
		0.3941	0.3848
		0.4006	0.4044
	V5D	0.3941	0.3848
		0.3819	0.3776
		0.3783	0.3646
		0.3898	0.3716
		0.3941	0.3848

Note:

 Tolerance of measurement of color coordinates: ± 0.01

Cool White



Nominal	Bin code	x	y
5700K	V2A	0.3292	0.3382
		0.3217	0.3314
		0.3222	0.3243
		0.3293	0.3305
		0.3292	0.3382
	V2B	0.3292	0.3382
		0.3291	0.3538
		0.3207	0.3462
		0.3217	0.3314
		0.3292	0.3382
	V2C	0.3292	0.3382
		0.3369	0.3449
		0.3376	0.3616
		0.3291	0.3538
		0.3292	0.3382
	V2D	0.3292	0.3382
		0.3293	0.3305
		0.3366	0.3369
		0.3369	0.3449
		0.3292	0.3382

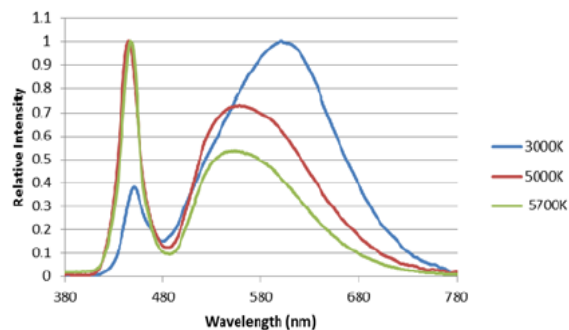
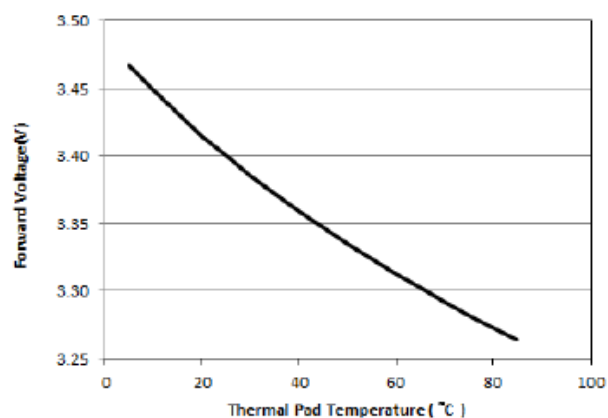
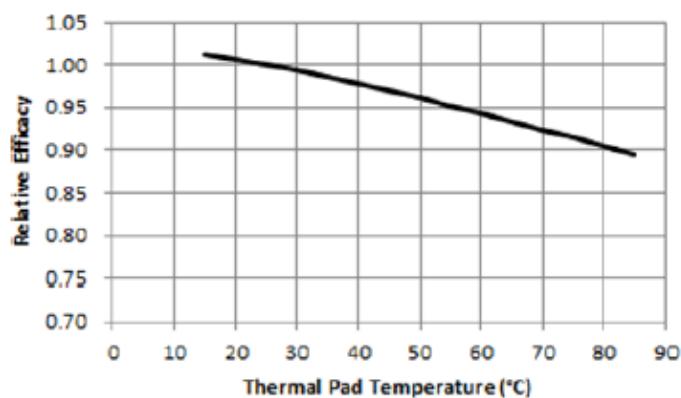
Note:

 Tolerance of measurement of color coordinates: ± 0.01

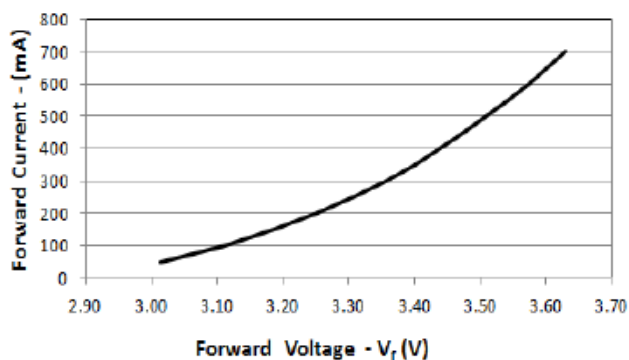
Characteristic Curves

Relative Spectral Distribution vs. Wavelength Characteristics

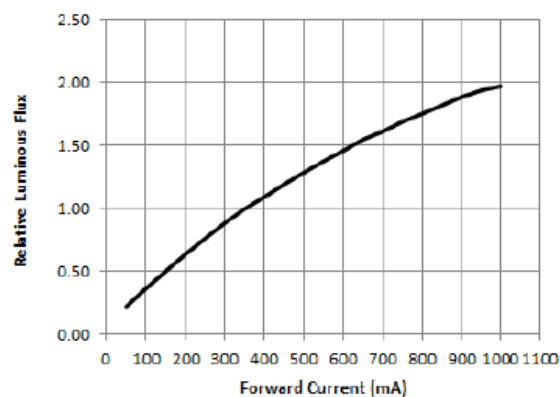
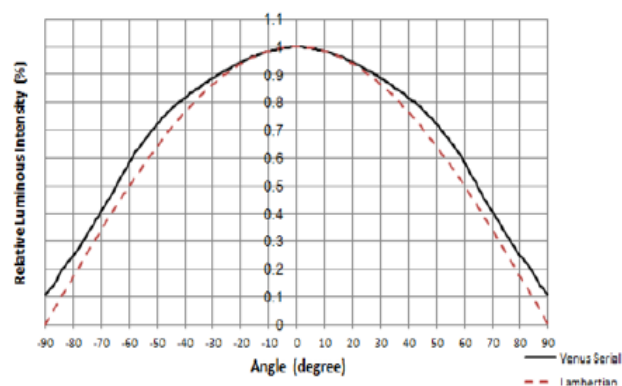
Nominal 3000K, 5000K and 5700K - Thermal Pad Temperature = 25°C


Forward Voltage vs. Thermal Pad Temperature

Typical Efficacy vs. Thermal Pad Temperature

Typical Forward Current Characteristics

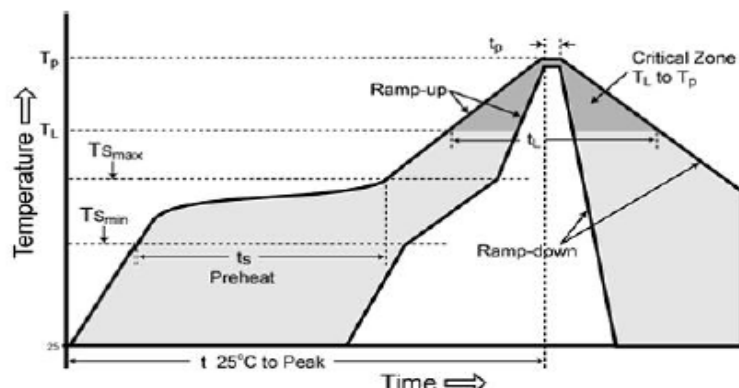
Pad Temperature = 25°C


Typical Relative Luminous Flux vs. Forward Current

Thermal Pad Temperature = 25°C

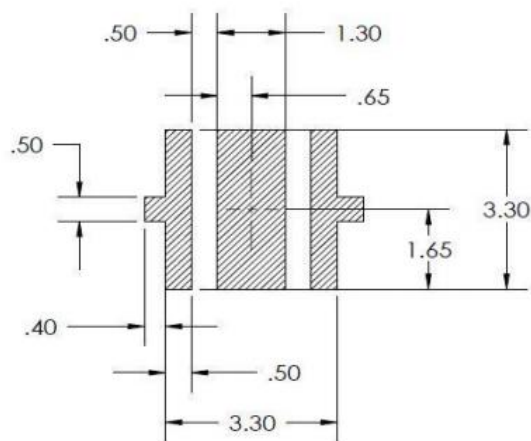

Typical Radiation Patterns


IR Reflow Soldering Profile

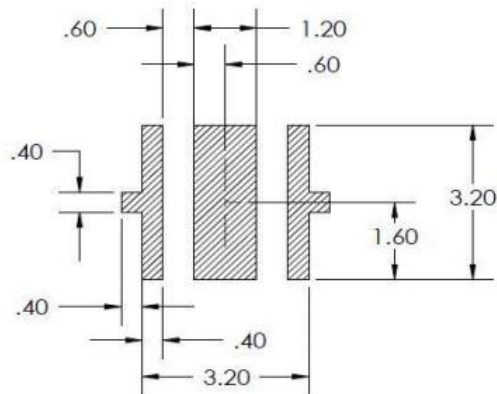


Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
Temperature Min (T_{smin})	150°C
Temperature Max (T_{smax})	200°C
Time (min to max) (t_s)	60-180 seconds
Time maintained above:	
Temperature (T_L)	217°C
Time (t_L)	60-150 seconds
Peak/Classification Temperature (T_p)	240°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Recommended Soldering Pad:



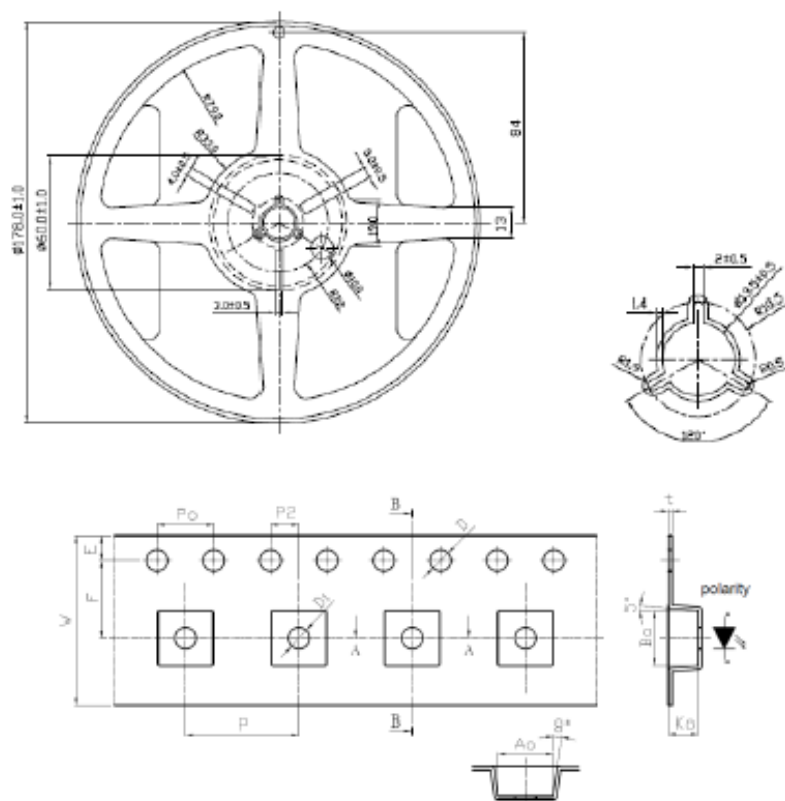
RECOMMENDED PCB SOLDER PAD


 RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

Unit: mm

Packing

Tape and Reel:



Notes: Dimensions are in millimeters.

Symbol	Dimension
W	12.00 ± 0.10
P	8.00 ± 0.10
E	1.75 ± 0.10
F	5.50 ± 0.05
P2	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	40.00 ± 0.20
A0	3.90 ± 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-IWV-WW	QBHP684UE-IWV-WW	$\Phi_v=144\text{lm typ.}$, CCT=2870K ~ 3220K @ $I_F=700\text{mA}$	1000 units
QBHP684UE-IWV-NW	QBHP684UE-IWV-NW	$\Phi_v=165\text{lm typ.}$, CCT=3710K ~ 4260K @ $I_F=700\text{mA}$	1000 units
QBHP684UE-IWV-CW	QBHP684UE-IWV-CW	$\Phi_v=180\text{lm typ.}$, CCT=5310K ~ 6020K @ $I_F=700\text{mA}$	1000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBHP684UE-IWV-XX	V1.0	08/26/2013
Add bin code, update spec (luminous flux)	V1.1	10/11/2013
Update luminous flux bin	V1.2	04/30/2014

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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.