



**THE DATASHEET OF
QBLP601-IG**



QT-Brightek Chip LED Series

SMD 0603 LED

Part No.: QBLP601 series

Table of Contents:

Introduction	3
Electrical / Optical Characteristic (Ta=25 °C)	4
Absolute Maximum Rating	4
CIE Chromaticity Diagram.....	7
Solder Profile & Footprint.....	10
Packing	11
Labeling	12
Ordering Information	12
Revision History	13
Disclaimer	13

Introduction

Feature:

- Water clear lens
- Yellow diffused lens for IW
- Package in tape and reel
- Ultra bright 0603 LED package
- InGaN technology for IB/IG/IW
- AlInGaP technology for R/S/AG/Y/O
- Viewing Angle = 140 deg typ.

Description:

These ultra bright 0603 LEDs have a height profile of 0.60mm. Combination of high brightness output and small footprint, these LEDs are ideal for keypad backlighting and status indication.

Application:

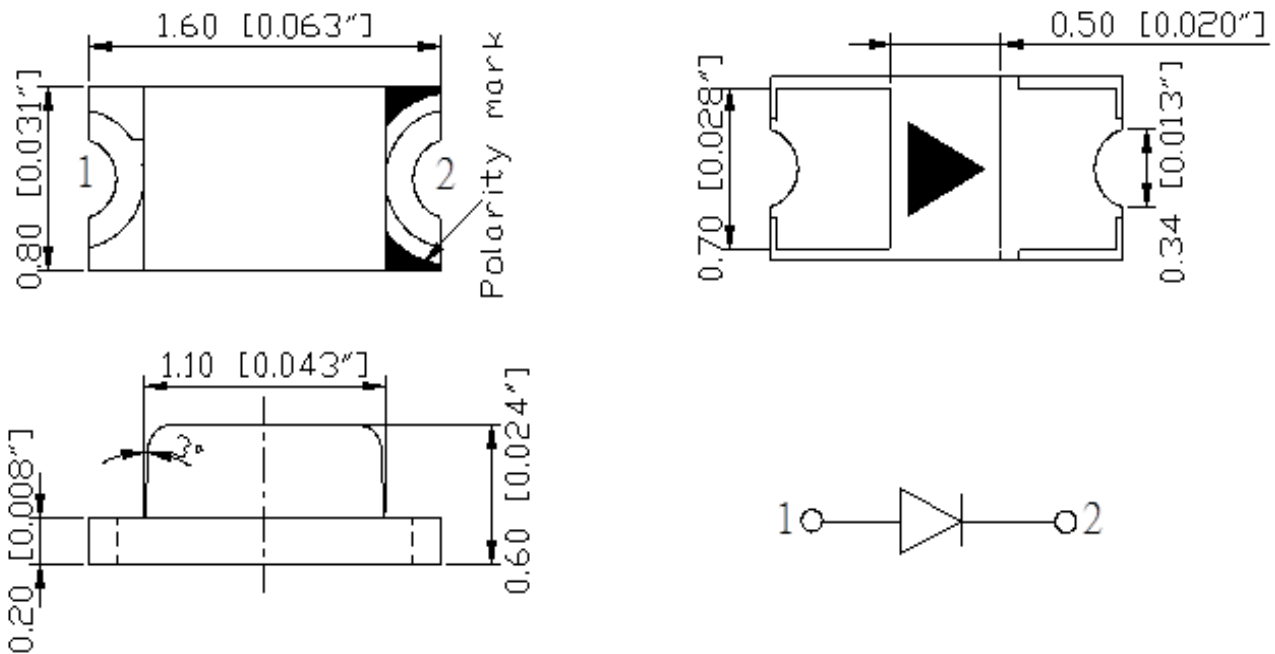
- Status indication
- Back lighting application

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant



Dimension:



Units: mm / tolerance = +/-0.1mm

Electrical / Optical Characteristic (Ta=25 °C)

Product	Color	I _F (mA)	V _F (V)		λ _D (nm)			I _V (mcd)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBLP601-IB	Blue	20	3.2	3.7	465	470	475	50	90
QBLP601-IG	True Green	20	3.2	3.7	520	525	530	250	450
QBLP601-IW	White	20	3.2	3.7	-	X=0.28 Y=0.26	-	200	330
QBLP601-R	Red	20	2.0	2.5	620	625	630	80	100
QBLP601-S	Deep Red	20	2.0	2.5	630	640	650	25	45
QBLP601-AG	Yellow Green	20	2.0	2.5	565	570	576	32	45
QBLP601-Y	Yellow	20	2.0	2.5	585	590	595	80	150
QBLP601-O	Orange	20	2.0	2.5	600	605	610	80	165

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 (IB/IG/IW)	111	30	125	5	-40 ~ +80	-40 ~ +100	260
AllnGaP (R/S/AG/Y/O)	75	30	125	5	-40 ~ +80	-40 ~ +100	260

*Duty 1/8 @ 1KHz

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

Forward Voltage V_F @ $I_F=20mA$

Bin	Min.	Max.	Unit
b	1.6	1.9	V
c	1.9	2.2	
d	2.2	2.5	
e	2.5	2.8	
f	2.8	3.1	
g	3.1	3.4	
h	3.4	3.7	

Luminous Intensity I_V @ $I_F=20mA$

Bin	Min.	Max.	Unit
D	25	32	mcd
E	32	40	
F	40	50	
G	50	63	
H	63	80	
I	80	100	
J	100	125	
K	125	160	
L	160	200	
M	200	250	
N	250	320	
O	320	400	
P	400	500	
Q	500	630	
R	630	800	

Dominant Wavelength λ_D for Blue @ $I_F=20mA$

Bin	Min.	Max.	Unit
G	465	467.5	nm
H	467.5	470	
I	470	472.5	
J	472.5	475	

Dominant Wavelength λ_D for True Green @ $I_F=20mA$

Bin	Min.	Max.	Unit
U	520	522.5	nm
V	522.5	525	
W	525	527.5	
X	527.5	530	

Dominant Wavelength λ_D for Red @ $I_F=20mA$

Bin	Min.	Max.	Unit
t	620	625	nm
u	625	630	

Dominant Wavelength λ_D for Deep Red @ $I_F=20mA$

Bin	Min.	Max.	Unit
v	630	635	nm
w	635	650	

Dominant Wavelength λ_D for Yellow Green @ $I_F=20mA$

Bin	Min.	Max.	Unit
h	565	568	nm
i	568	572	
j	572	576	

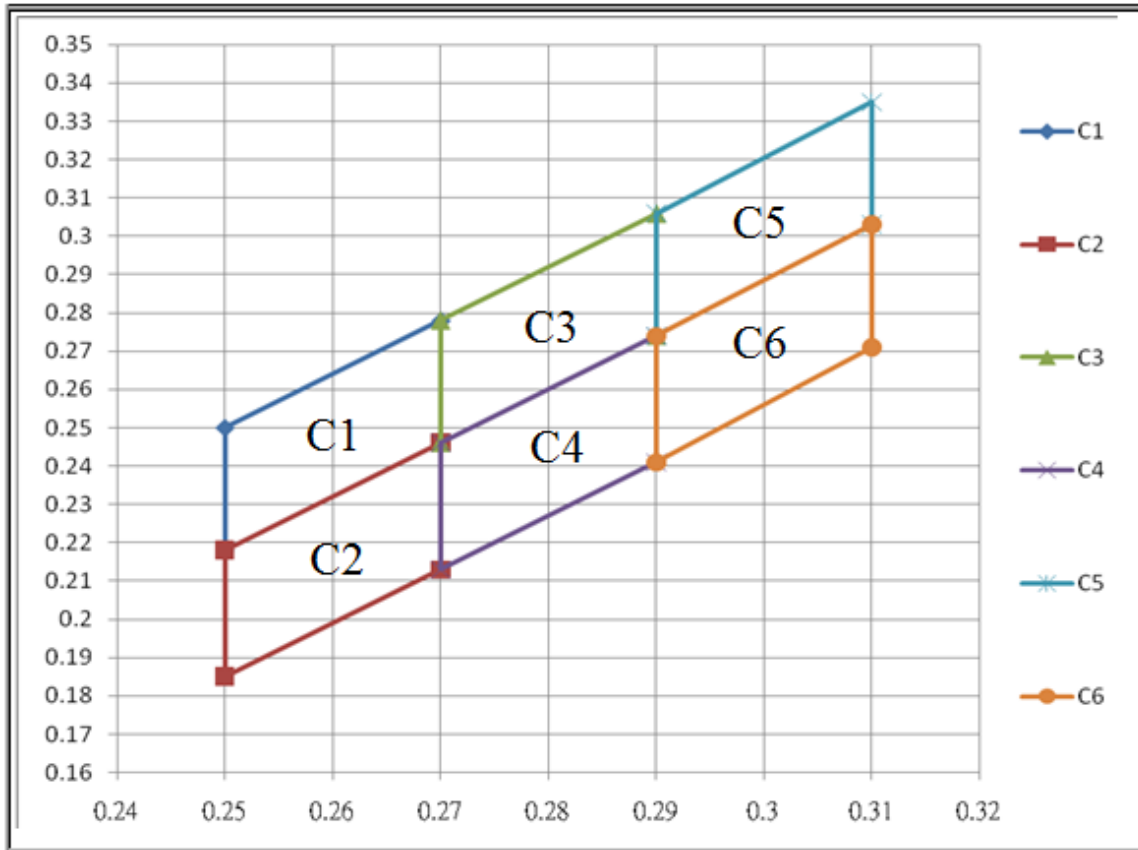
Dominant Wavelength λ_D for Yellow @ $I_F=20mA$

Bin	Min.	Max.	Unit
m	585	590	nm
n	590	595	

Dominant Wavelength λ_D for Orange @ $I_F=20mA$

Bin	Min.	Max.	Unit
p	600	605	nm
q	605	610	

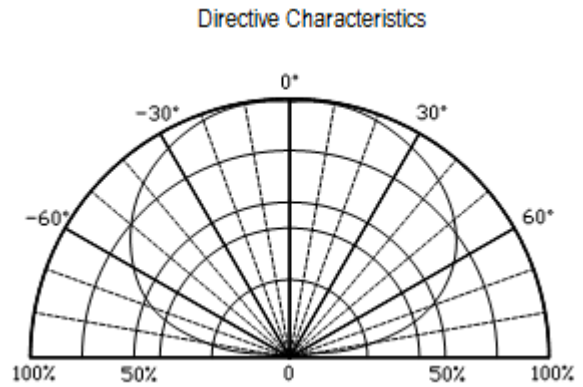
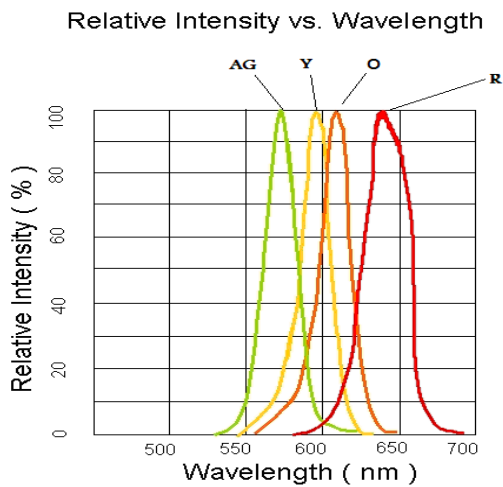
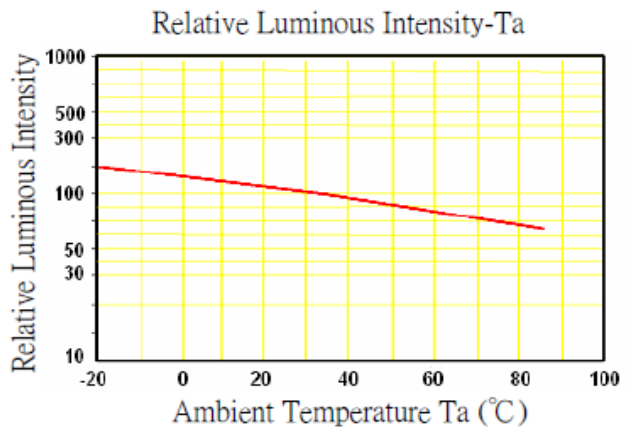
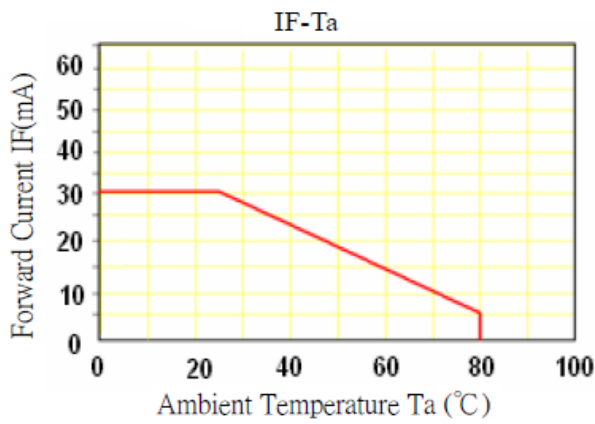
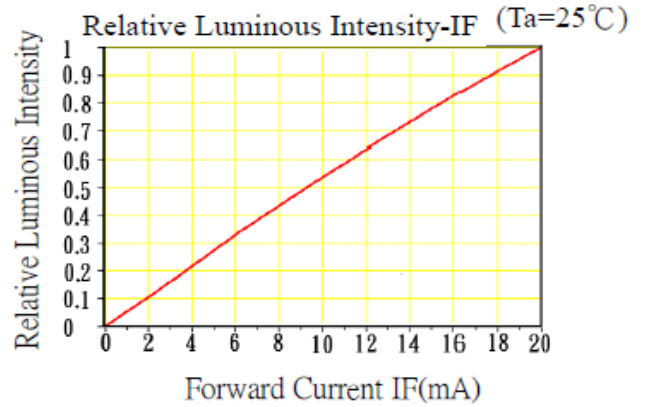
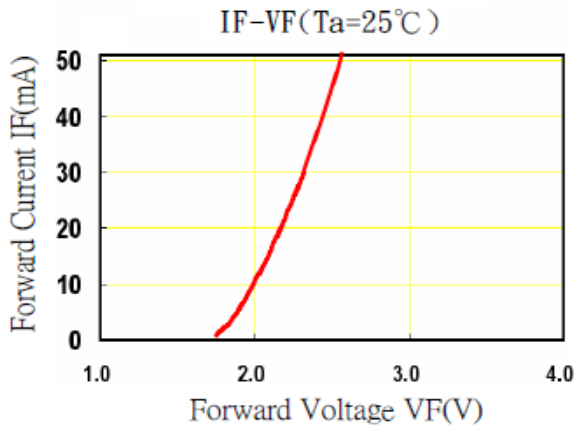
CIE Chromaticity Diagram



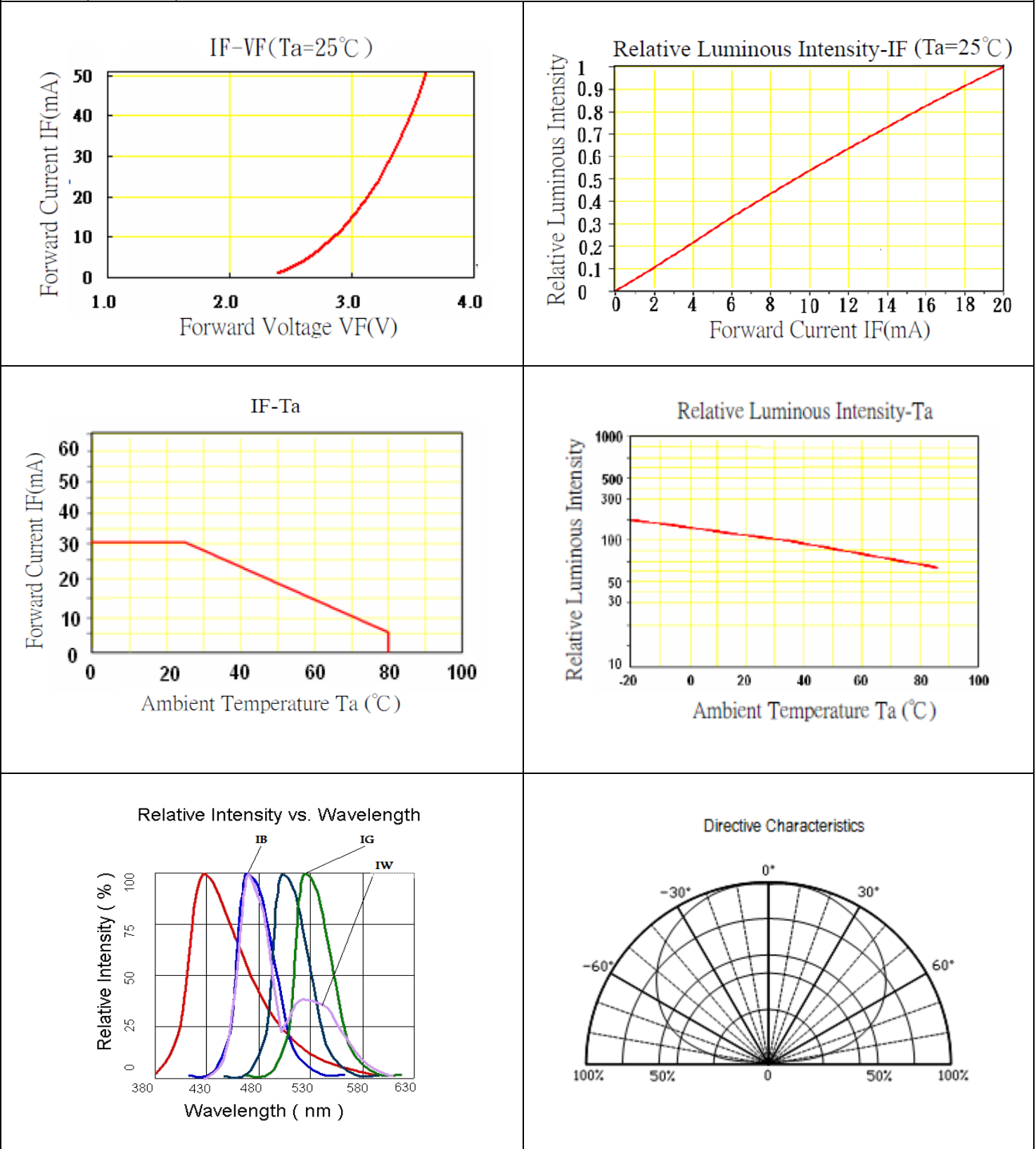
Chromaticity coordinates Ranks combination (IF=20mA)					
Rank		Chromaticity coordinates			
C1	X	0.250	0.250	0.270	0.270
	Y	0.218	0.250	0.278	0.246
C2	X	0.250	0.250	0.270	0.270
	Y	0.185	0.218	0.246	0.213
C3	X	0.270	0.270	0.290	0.290
	Y	0.246	0.278	0.306	0.274
C4	X	0.270	0.270	0.290	0.290
	Y	0.213	0.246	0.274	0.241
C5	X	0.290	0.290	0.310	0.310
	Y	0.274	0.306	0.335	0.303
C6	X	0.290	0.290	0.310	0.310
	Y	0.241	0.274	0.303	0.271

Characteristic Curves

AllnGaP (R/S/AG/Y/O)

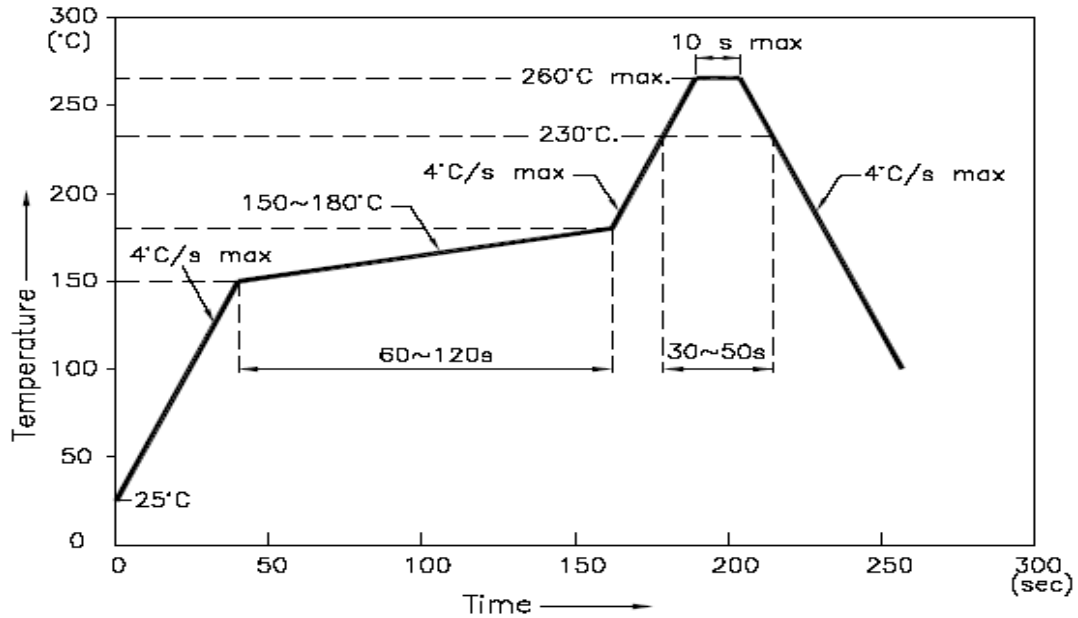


InGaN (IB/IG/IW)

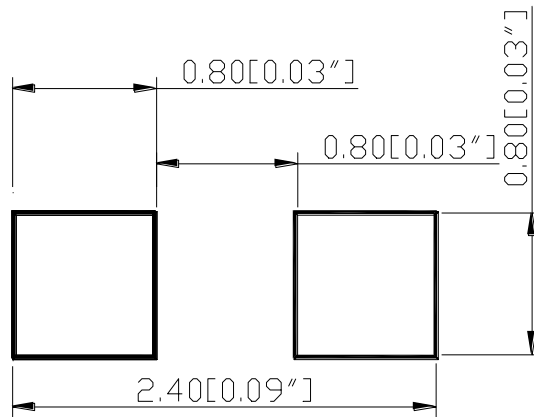


Solder Profile & Footprint

- Recommended tin solder specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



Recommended Pad Layout

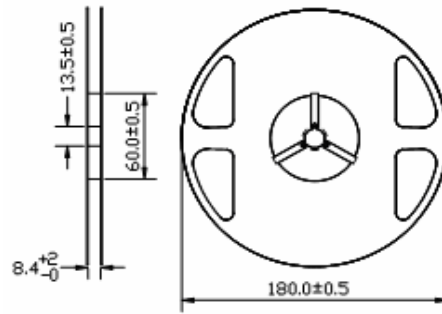


Units: mm

Tolerance: ± 0.1mm

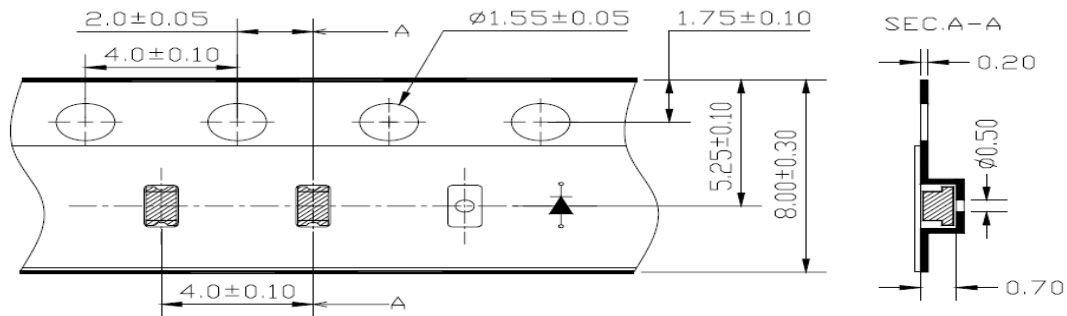
Packing

Reel Dimension:



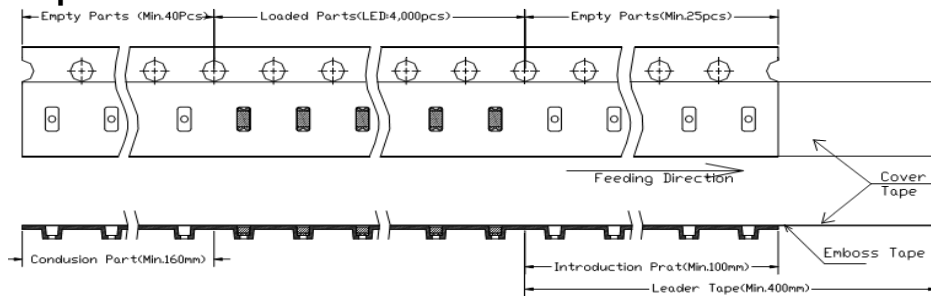
Unit: mm

Tape Dimension:

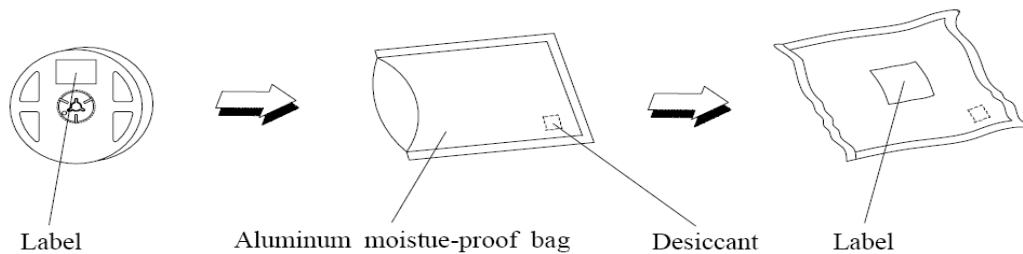


Unit: mm

Arrangement of Tape:



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
QBLP601-IB	QBLP601-IB	Iv=90mcd Typ. @ I _F =20mA / Color=465nm-475nm	4,000 units
QBLP601-IG	QBLP601-IG	Iv=450mcd Typ. @ I _F =20mA / Color=520nm-530nm	4,000 units
QBLP601-IW	QBLP601-IW	Iv=330mcd Typ. @ I _F =20mA / CCT: (X=0.28, Y=0.26) typ.	4,000 units
QBLP601-R	QBLP601-R	Iv=100mcd Typ. @ I _F =20mA / Color=620nm-630nm	4,000 units
QBLP601-S	QBLP601-S	Iv=45mcd Typ. @ I _F =20mA / Color=630nm-635nm	4,000 units
QBLP601-AG	QBLP601-AG	Iv=45mcd Typ. @ I _F =20mA / Color=565nm-576nm	4,000 units
QBLP601-Y	QBLP601-Y	Iv=150mcd Typ. @ I _F =20mA / Color=585nm-595nm	4,000 units
QBLP601-O	QBLP601-O	Iv=165mcd Typ. @ I _F =20mA / Color=600nm-610nm	4,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP601 series	V1.0	9/20/2010
Update opto specifications	V2.0	02/03/2011
Added QBLP601-O	V2.1	06/16/2011
Added Bin Code/ update Electrical/ Optical Characteristic	V2.2	10/04/2011
Update Format	V2.3	03/23/2012
Update orange brightness	V2.4	06/07/2012
Update white (x,y) coordinates	V2.5	05/30/2013
Update outline dimensions and spec	V3.0	11/04/2013
Information update	V3.1	02/13/2014
Add deep red (QBLP601-S)	V3.2	11/13/2014
Update Viewing Angle	V3.3	09/27/2021

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