

**QT-Brightek Chip LED Series**

**SMD 1208 LED**

**Part No.: QBLP653R Series**

Product: QBLP653R_series	Date: January 09, 2017	Page 1 of 13
	Version# 2.1	

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## Introduction

**Feature:**

- Water clear lens
- Package in tap and reel
- Reverse mount
- Bright 1208 LED package
- InGaN technology for IB/IG/IW
- AllnGaP technology for R/AG/Y/O
- 15° Viewing Angle (R/AG/Y/O/IB/IG)
- 130° Viewing Angle (IW)

**Description:**

This reversed mount light weight bright 1208 LEDs have a height profile of 2.5mm. With narrow viewing angle, LED produces high bright light output.

**Application:**

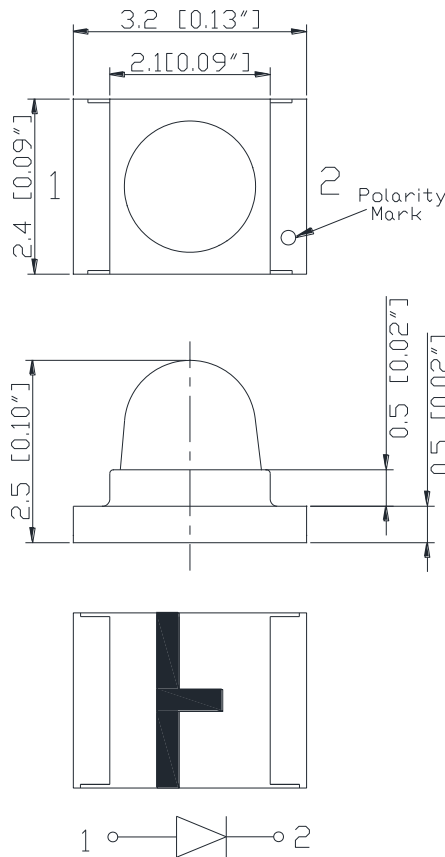
- Status indication
- Back lighting application

**Certification & Compliance:**

- TS16949
- ISO9001
- RoHS Compliant



**Dimension:**



Units: mm / tolerance = +/-0.15mm

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

Product	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		λ <sub>D</sub> (nm)			I <sub>V</sub> (mcd)	
			Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.
QBLP653R-R	Red	20	2.0	2.5	620	625	630	2000	3850
QBLP653R-Y	Yellow	20	2.0	2.5	585	590	595	1600	3400
QBLP653R-O	Orange	20	2.0	2.5	600	605	610	1600	3350
QBLP653R-AG	Yellow Green	20	2.0	2.5	565	570	576	500	1000
QBLP653R-IG	Green	20	3.2	3.7	520	525	530	4000	11000
QBLP653R-IB	Blue	20	3.2	3.7	455	460	465	400	750
QBLP653R-IW	White	20	3.1	3.7	X = 0.25 Y = 0.24	X = 0.28 Y = 0.29	X = 0.33 Y = 0.34	100	180

**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>SO L</sub> (°C)**
AllnGaP	75	30	125	5	-40 ~ +80	-40 ~ +85	260
InGaN	111	30	125	5	-40 ~ +80	-40 ~ +85	260

\*Duty 1/8 @ 1KHz

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

**Forward Voltage V<sub>F</sub> for AllnGaP @I<sub>F</sub>=20mA**

Bin	Min.	Max.	Unit
□	1.7	2.5	V

**Forward Voltage V<sub>F</sub> for InGaN @I<sub>F</sub>=20mA**

Bin	Min.	Max.	Unit
f	2.8	3.1	V
g	3.1	3.4	
h	3.4	3.7	

**Luminous Intensity  $I_V$  @  $I_F=20mA$** 

Bin	Min.	Max.	Unit
J	100	125	mcd
K	125	160	
L	160	200	
M	200	250	
N	250	320	
O	320	400	
P	400	500	
Q	500	630	
R	630	800	
S	800	1000	
T	1000	1250	
U	1250	1600	
V	1600	2000	
W	2000	2500	
X	2500	3200	
Y	3200	4000	
Z	4000	5200	
a	5200	6800	
b	6800	8800	
c	8800	11200	
d	11200	14200	
e	14200	18000	

**Dominant Wavelength  $\lambda_D$  for Red @  $I_F=20mA$** 

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

**Dominant Wavelength  $\lambda_D$  for Yellow @  $I_F=20mA$** 

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

**Dominant Wavelength  $\lambda_D$  for Yellow Green @  $I_F=20mA$** 

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

**Dominant Wavelength  $\lambda_D$  for Blue @  $I_F=20mA$** 

Bin	Min.	Max.	Unit
C	455	457.5	nm
D	457.5	460	
E	460	462.5	
F	462.5	465	

**Dominant Wavelength  $\lambda_D$  for 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	

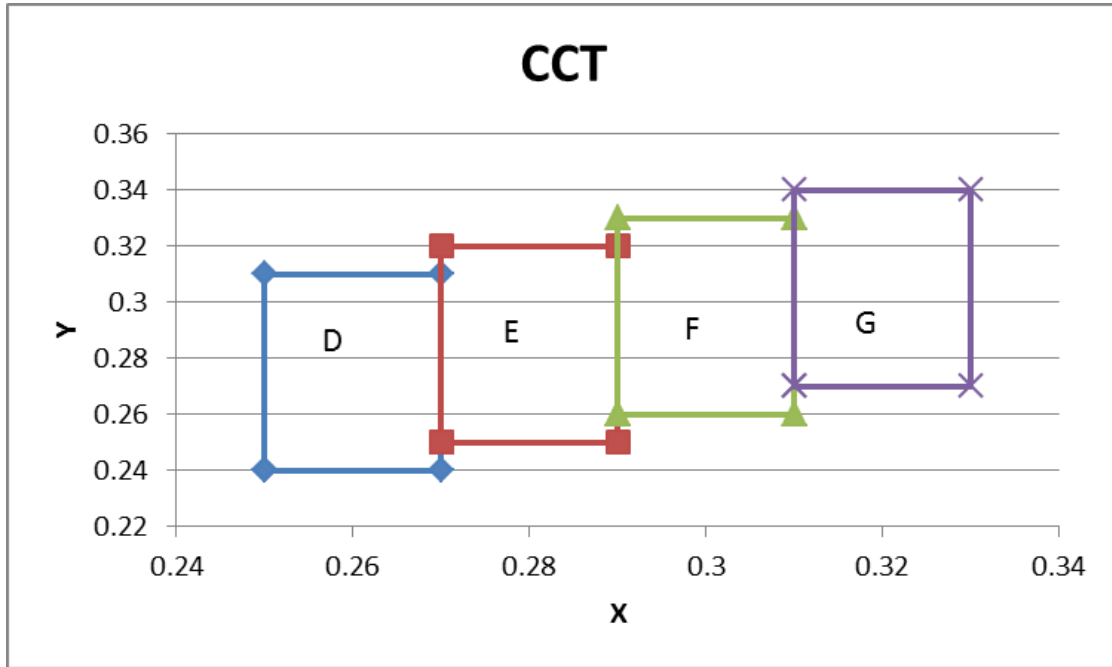
**Dominant Wavelength  $\lambda_D$  for Orange @  $I_F=20mA$** 

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

## Note:

Tolerance of measurement of forward voltage:  $\pm 0.1V$ Tolerance of measurement of luminous intensity:  $\pm 15\%$ Tolerance of measurement of dominant wavelength:  $\pm 2nm$

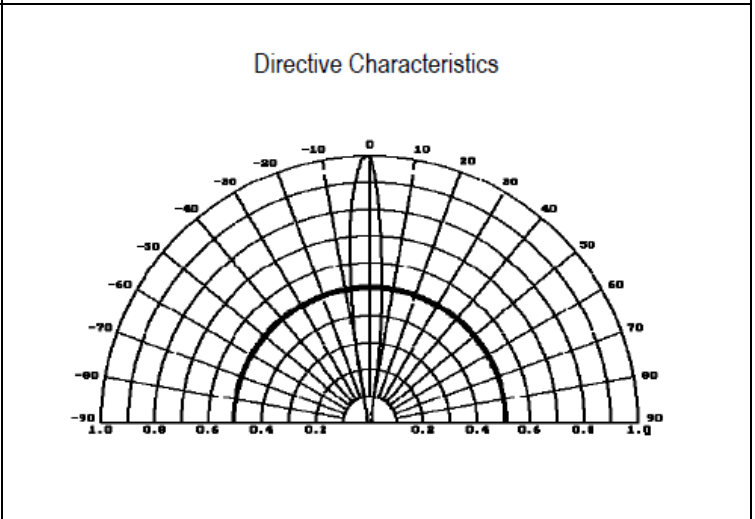
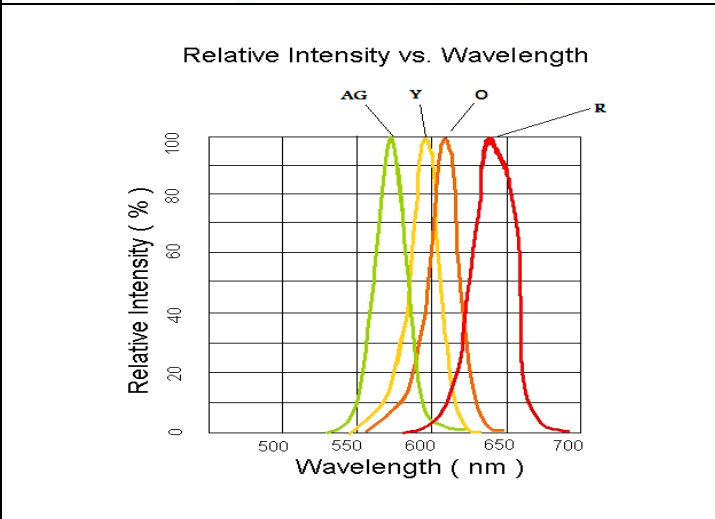
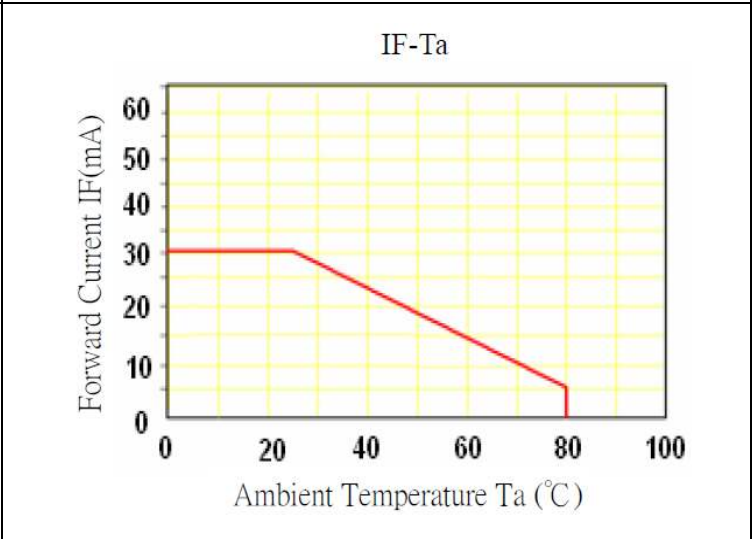
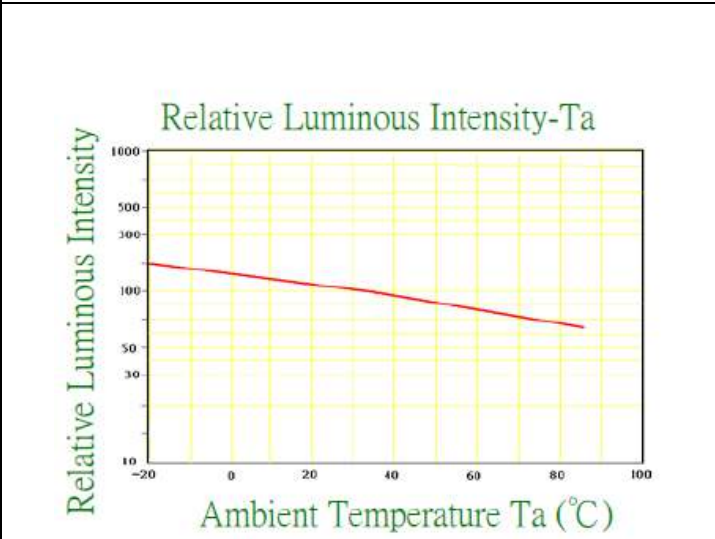
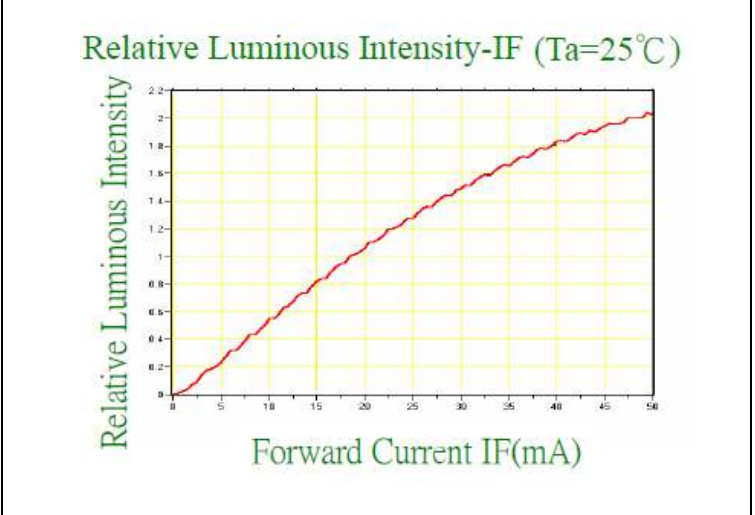
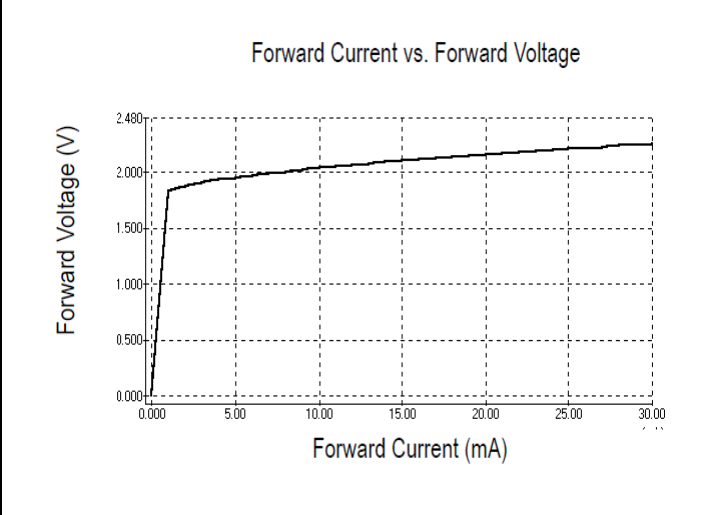
**CIE Chromaticity Table**



D		E		F		G	
X	Y	X	Y	X	Y	X	Y
0.25	0.24	0.27	0.25	0.29	0.26	0.31	0.27
0.25	0.31	0.27	0.32	0.29	0.33	0.31	0.34
0.27	0.31	0.29	0.32	0.31	0.33	0.33	0.34
0.27	0.24	0.29	0.25	0.31	0.26	0.33	0.27
0.25	0.24	0.27	0.25	0.29	0.26	0.31	0.27

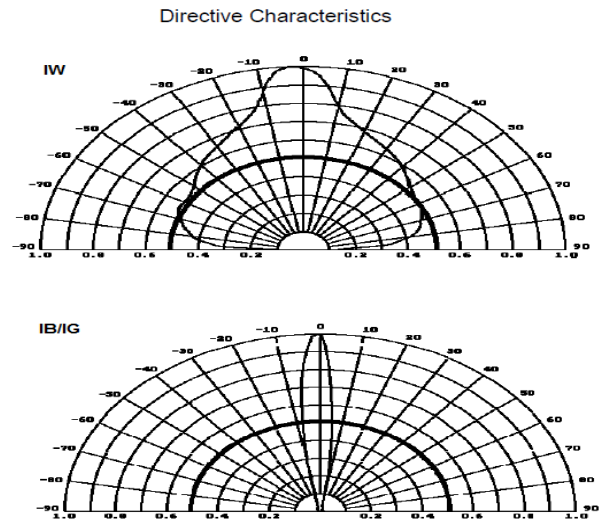
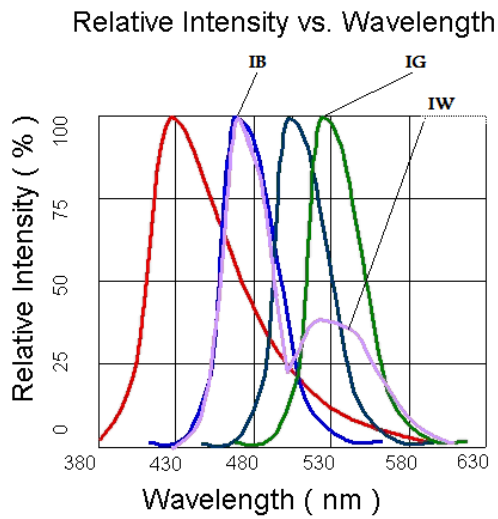
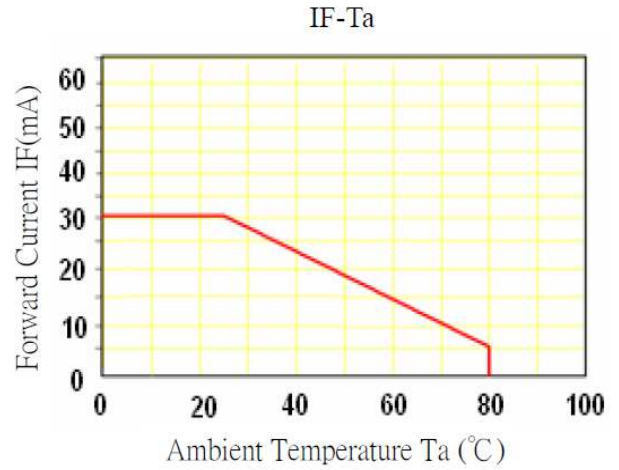
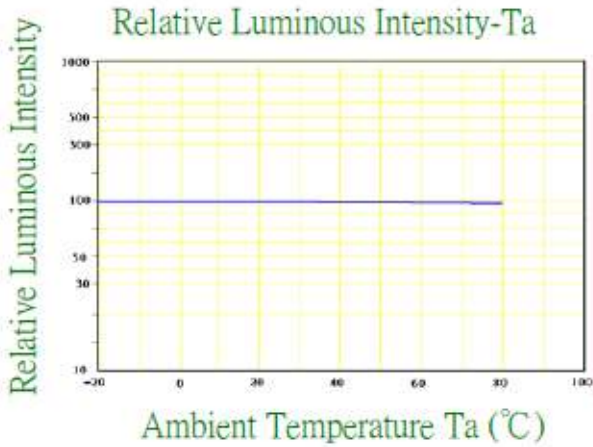
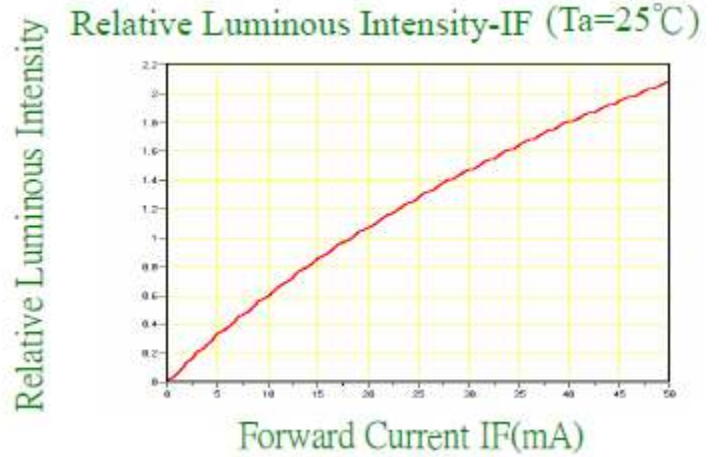
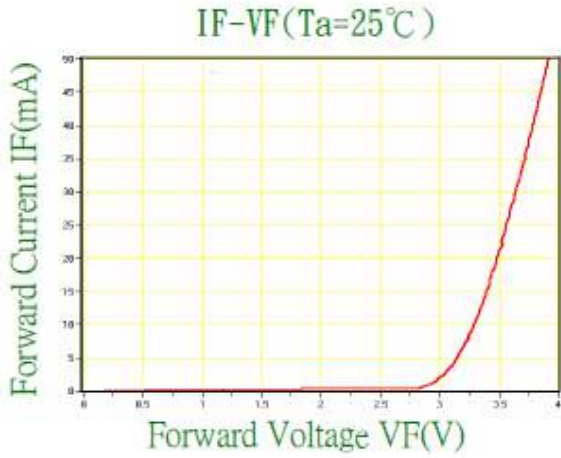
**Characteristic Curves**

AllnGaP (R/Y/O/AG)



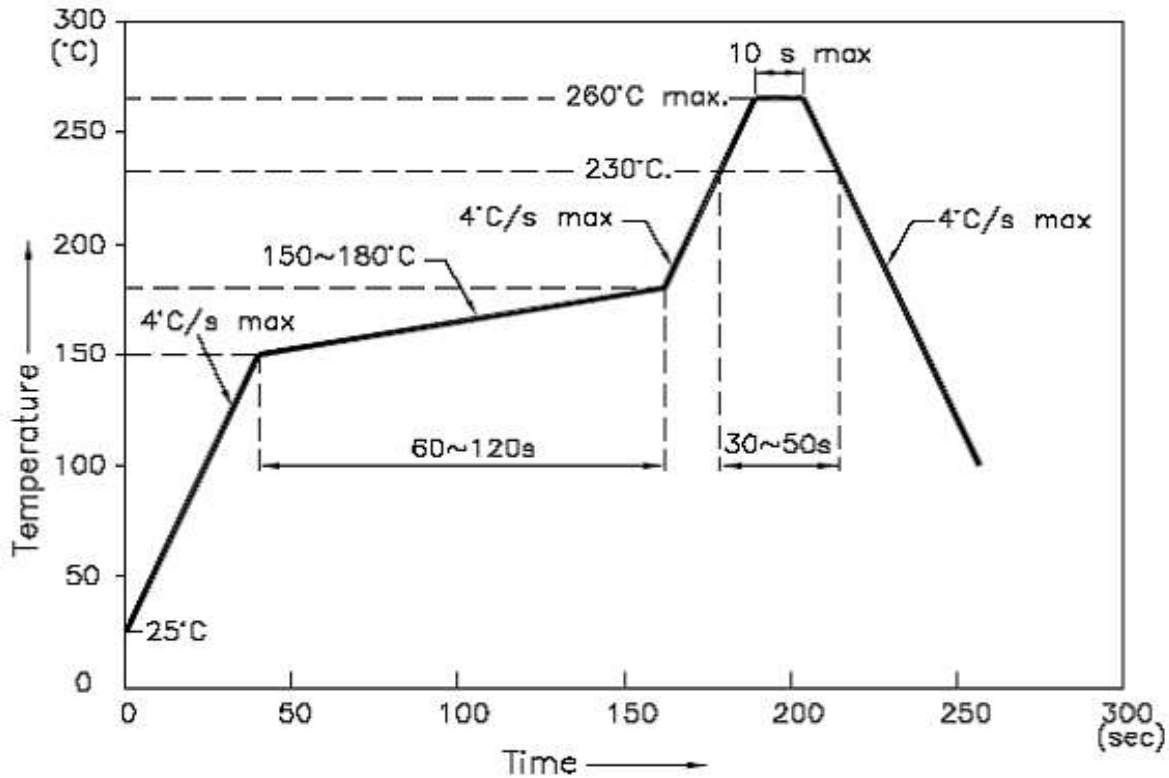


**InGaN (IB/IW)**

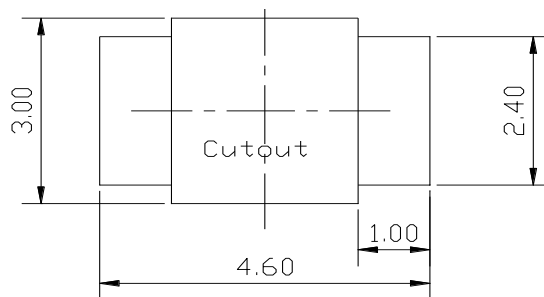


## Solder Profile & Footprint

-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



### Recommended Pad Layout

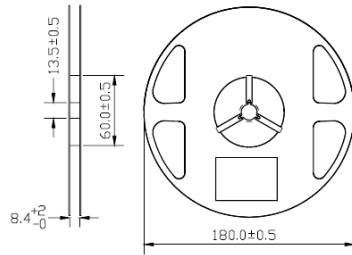


Units: mm

Tolerance: ± 0.15mm

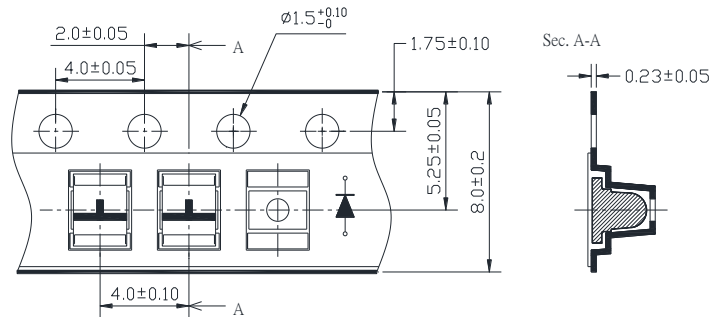
## Packing

### Reel Dimension:



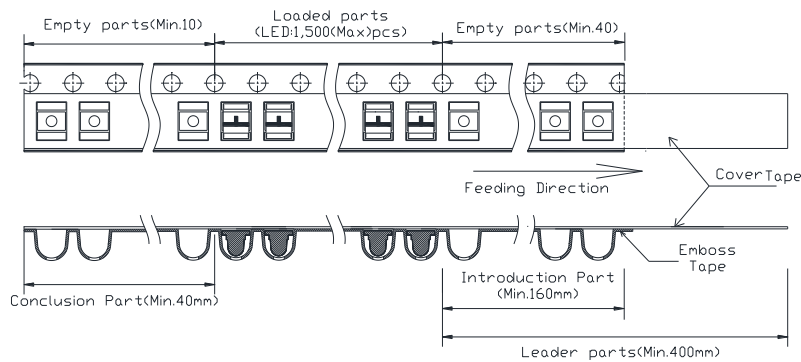
Unit: mm

### Tape Dimension:

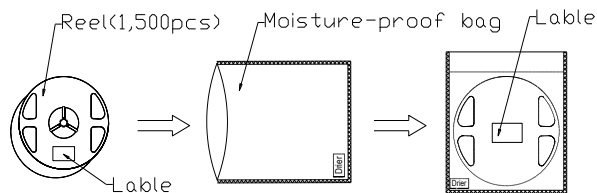


Unit: mm

### Arrangement of Tape:



### Packaging Specification:



**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
QBLP653R-R	QBLP653R-R	Iv=3850mcd typ. @ 20mA / λd=620nm ~ 630nm	1,500 units
QBLP653R-Y	QBLP653R-Y	Iv=3400mcd typ. @ 20mA / λd =585nm ~ 595nm	1,500 units
QBLP653R-O	QBLP653R-O	Iv=3350mcd typ.@ 20mA / λd =600nm ~ 610nm	1,500 units
QBLP653R-AG	QBLP653R-AG	Iv=1000mcd typ. @ 20mA / λd =565nm ~ 576nm	1,500 units
QBLP653R-IG	QBLP653R-IG	Iv=11000mcd typ. @ 20mA / λd=520nm ~ 530nm	1,500 units
QBLP653R-IB	QBLP653R-IB	Iv=750mcd typ. @ 20mA / λd=455nm ~ 465nm	1,500 units
QBLP653R-IW	QBLP653R-IW	Iv=180mcd typ. @ 20mA / CIE Coordinate: (X=0.28, Y=0.29) typ.	1,500 units

## Revision History

Description:	Revision #	Revision Date
New Release of QBLP653R_series	V1.0	12/08/2011
Amend Pad Layout	V1.1	02/16/2012
Update format	V1.2	05/24/2012
Update drawing dimension and spec for AG	V2.0	11/18/2016
Fix packing spec drawing and dimension and tolerance error	V2.1	01/09/2017

## 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.