QT-Brightek Chip LED Series

SMD 1205 LED

Part No.: QBLP655 series

Table of Contents:

Introduction

Feature:

- Water clear lens
- Package in tape and reel
- Ultra bright 1205 package
- InGaN technology for IB/IG/IW
- AlInGaP technology for R/AG/ Y/O
- Viewing angle: 140 degrees

Description:

These ultra-bright 655 LEDs have a height profile of 1.10mm. With a combination of high brightness output and small footprint, these LEDs are ideal for keypad backlighting and status indication.

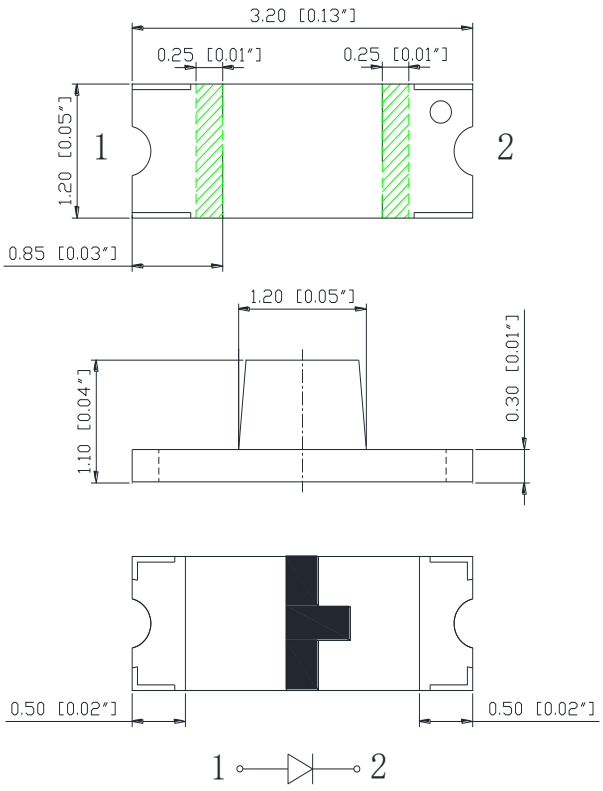
Application:

- 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.
QBLP655-R	Red	20	2.0	2.4	615	625	630	63	100
QBLP655-AG	Yellow Green	20	2.0	2.5	565	570	576	16	25
QBLP655-Y	Yellow	20	2.0	2.5	585	590	595	40	65
QBLP655-O	Orange	20	2.0	2.5	600	605	610	63	100
QBLP655-IG	True Green	20	3.1	3.7	515	520	525	200	525
QBLP655-IB	Blue	20	3.1	3.7	465	470	475	32	60
QBLP655-IW	White	20	3.1	3.7	-	X=0.29 Y=0.28	-	100	180

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)**
AlInGaP (R/AG/Y/O)	75	30	125	5	-40 ~ +85	-40 ~ +100	260
InGaN (IB/IG/IW)	120	30	125	5	-40 ~ +85	-40 ~ +100	260

*Duty 1/8 @ 1KHz

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

Forward Voltage V_F for AlInGaP @ I_F=20mA

Bin	Min.	Max.	Unit
☐	1.7	2.5	V

Forward Voltage V_F for InGaN @ I_F=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
B	16	20	mcd
C	20	25	
D	25	32	
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	
S	800	1000	

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 Green @ I_F=20mA

Bin	Min.	Max.	Unit
S	515	517.5	nm
T	517.5	520	
U	520	522.5	
V	522.5	525	

Dominant Wavelength λ_D for Red @ I_F=20mA

Bin	Min.	Max.	Unit
s	615	620	nm
t	620	625	
u	625	630	

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

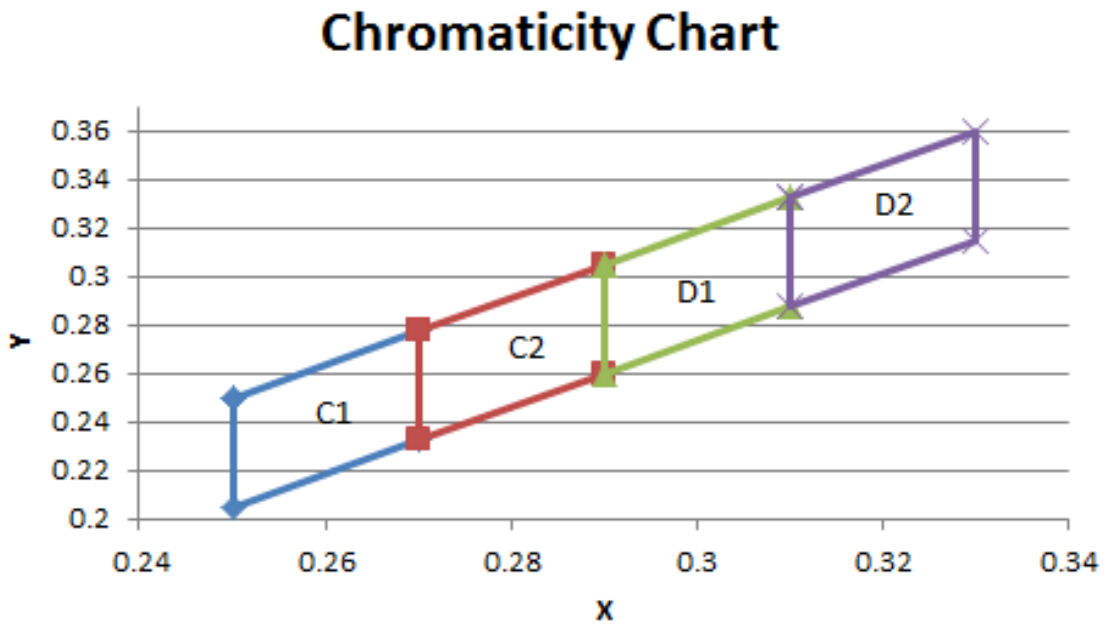
Bin	Min.	Max.	Unit
m	585	590	nm
n	590	595	

Dominant Wavelength λ_D for Orange @ I_F=20mA

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

Note:
Tolerance of measurement of forward voltage: ±0.1V
Tolerance of measurement of luminous intensity: ±15%
Tolerance of measurement of dominant wavelength: ±2nm

Chromaticity Coordinates for White

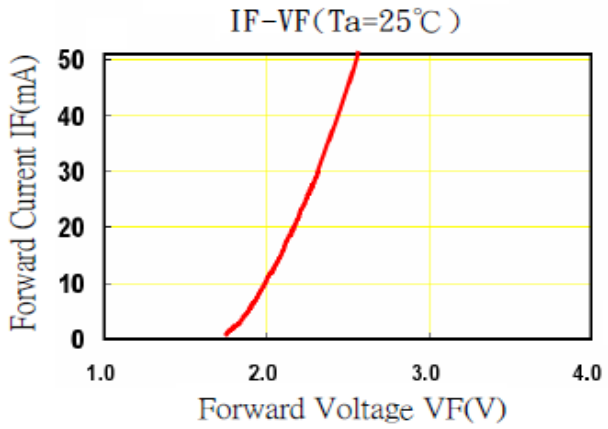


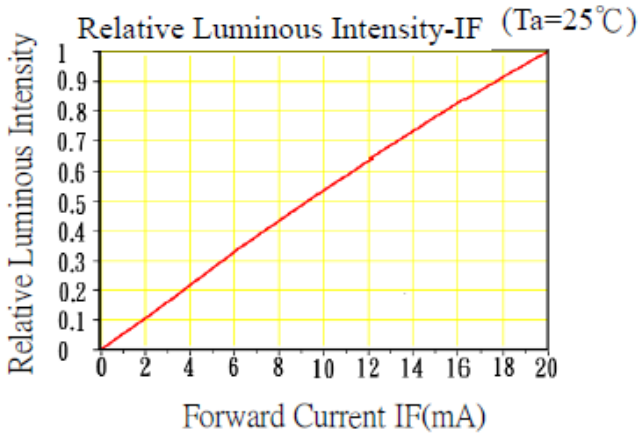
Rank		Chromaticity coordinates			
C1	X	0.2500	0.2700	0.2700	0.2500
	Y	0.2500	0.2775	0.2325	0.2050
C2	X	0.2700	0.2900	0.2900	0.2700
	Y	0.2775	0.3050	0.2600	0.2325
D1	X	0.2900	0.3100	0.3100	0.2900
	Y	0.3050	0.3325	0.2875	0.2600
D2	X	0.3100	0.3300	0.3300	0.3100
	Y	0.3325	0.3600	0.3150	0.2875

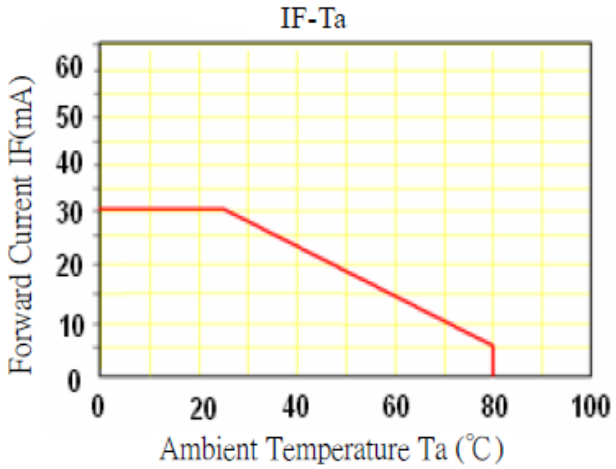
Note:
Tolerance of measurement of color coordinates: ±0.01

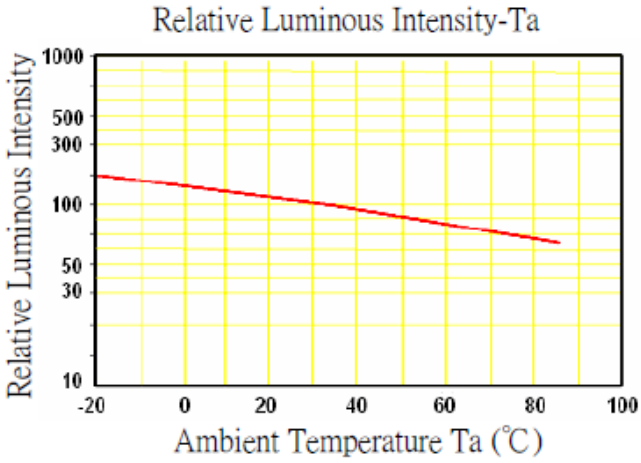
Characteristic Curves

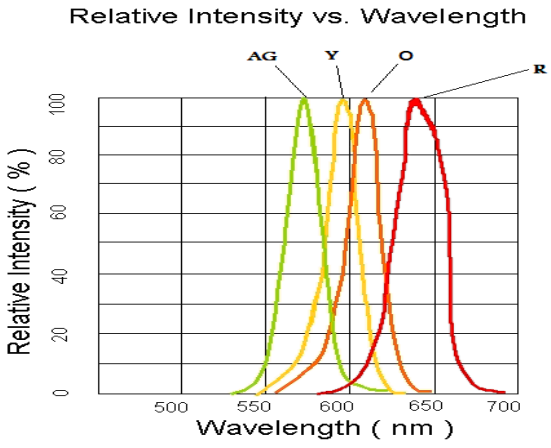
AlInGaP (R/AG/Y/O)

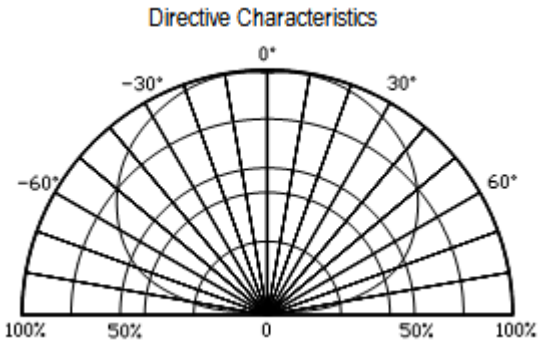




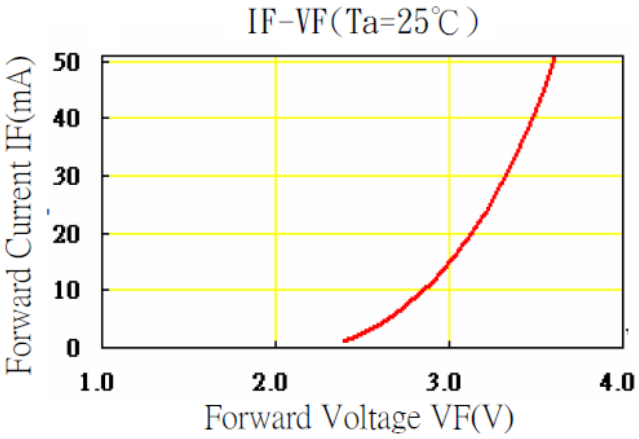


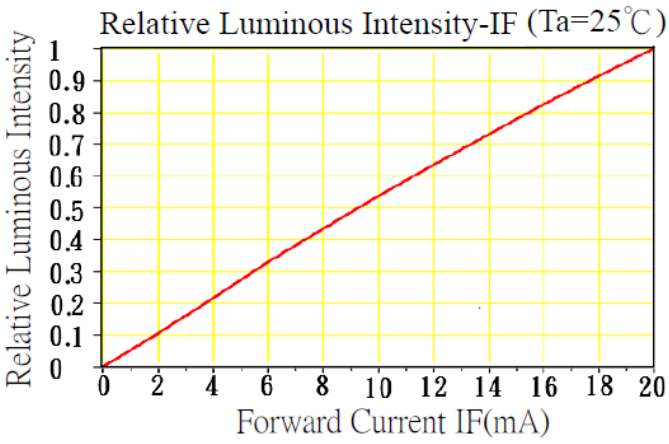


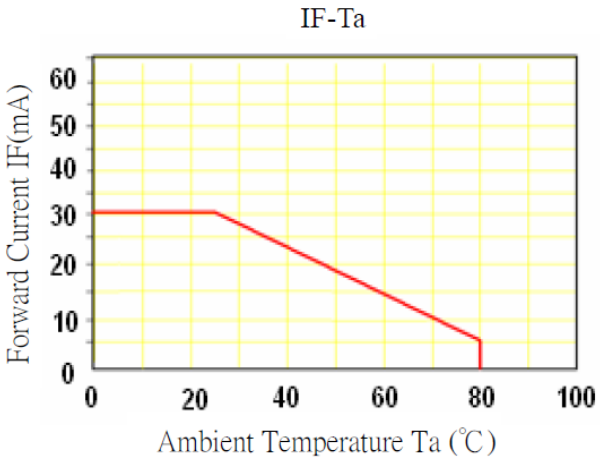


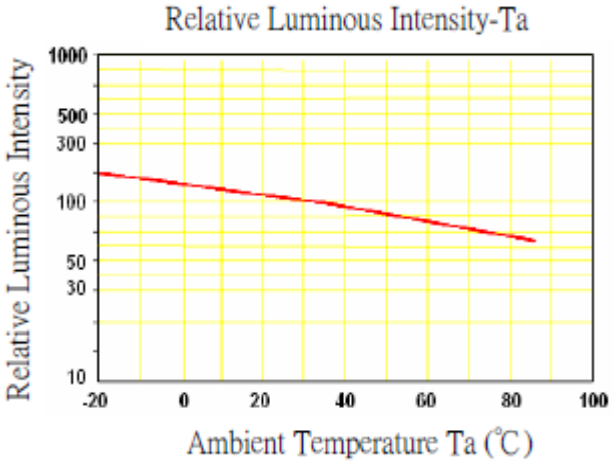


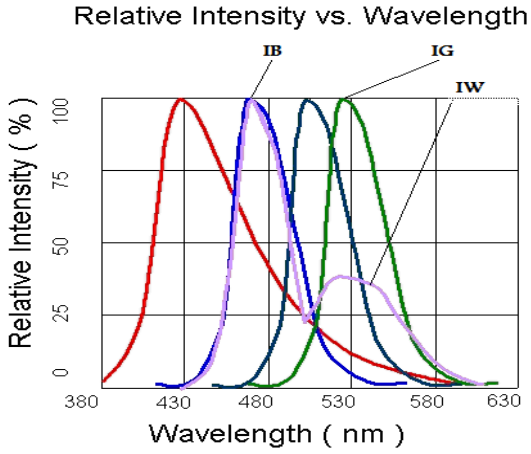
InGaN (IB/IG/IW)

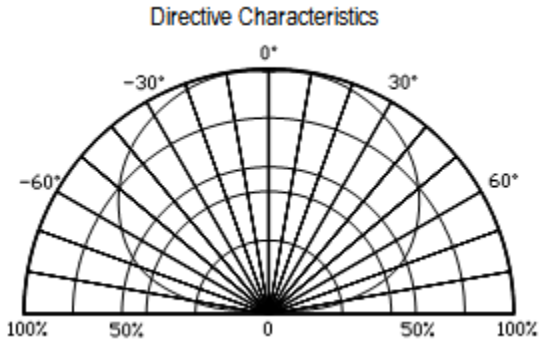






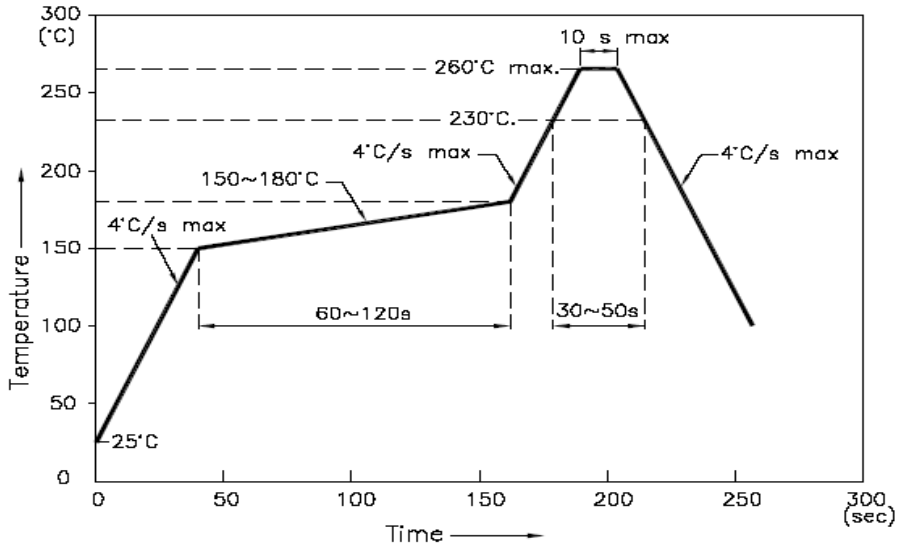




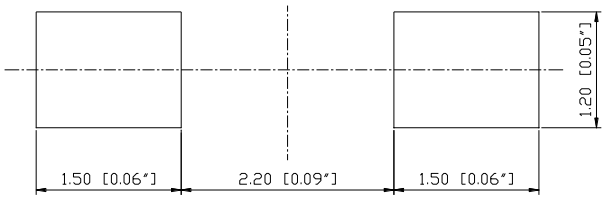


Solder Profile & Footprint

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



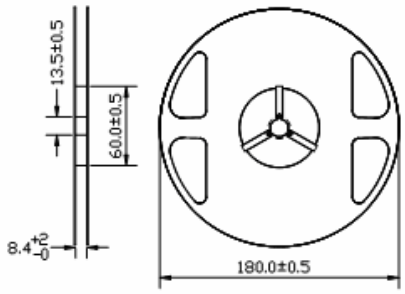
Recommended Pad Layout



Units: mm tolerance: +/- 0.1mm

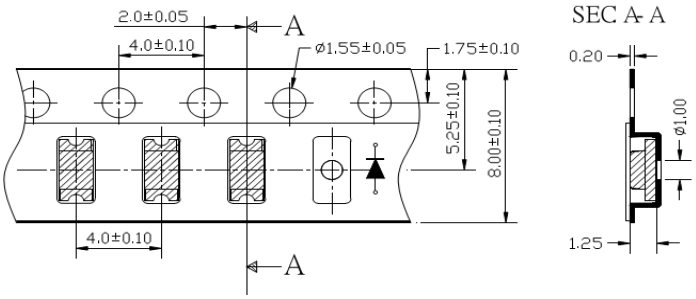
Packing

Reel Dimension:



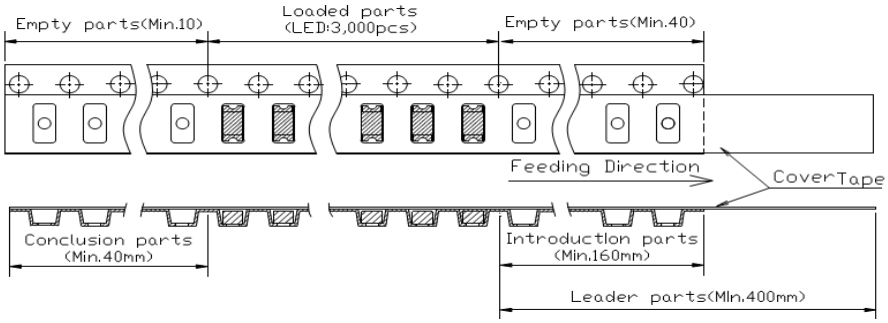
Unit: mm

Tape Dimension:

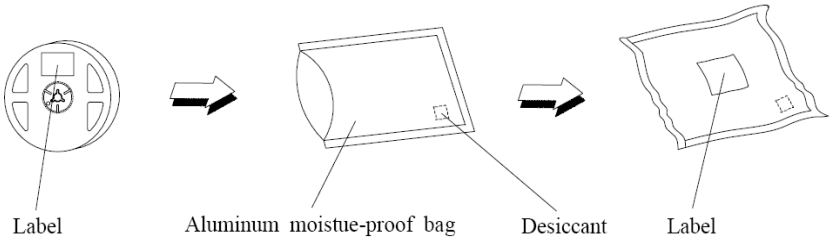


Unit: mm

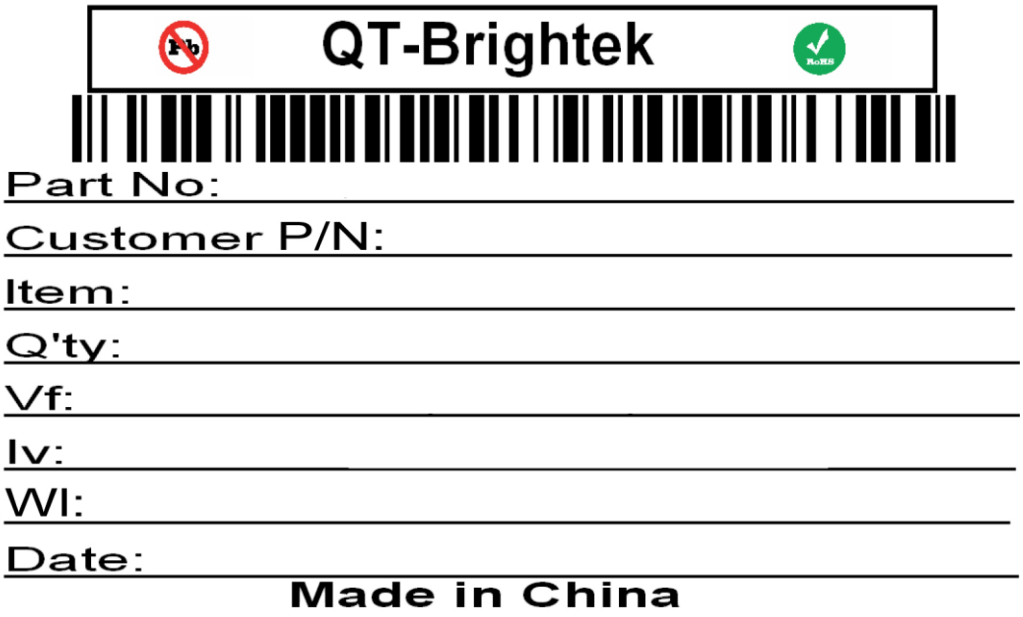
Arrangement of Tape:



Packaging Specifications:



Labeling



Ordering Information

Part #	Orderable Part #	Spec Range	Quantity per reel
QBLP655-R	QBLP655-R	Iv=100mcd typ. @ 20mA / Color = 610-630nm	3,000 units
QBLP655-AG	QBLP655-AG	Iv=25mcd typ. @ 20mA / Color=565-576nm	3,000 units
QBLP655-Y	QBLP655-Y	Iv=65mcd typ. @ 20mA / Color=585-595nm	3,000 units
QBLP655-O	QBLP655-O	Iv=120mcd typ. @ 20mA / Color=600-610nm	3,000 units
QBLP655-IG	QBLP655-IG	Iv=525mcd typ. @ 20mA / Color=515-525nm	3,000 units
QBLP655-IB	QBLP655-IB	Iv=60mcd typ. @ 20mA / Color= 465-475nm	3,000 units
QBLP655-IW	QBLP655-IW	Iv=180mcd typ. @ 20mA / CCT Coordinate: (X=0.29, Y=0.28) typ.	3,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP655 series	V1.0	08/15/2011
Add bin code/ amend pad layout	V1.1	01/13/2012
Update to new format	V2.0	06/04/2012
Update spec	V2.1	03/27/2014
Update dimension drawing to reflect the new PCB	V2.2	08/30/2016

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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.