QT-Brightek Chip LED Series

0402 SMD Chip LED

Part No.: QBLP595 Series

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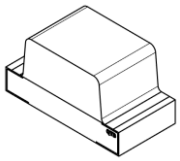
Introduction

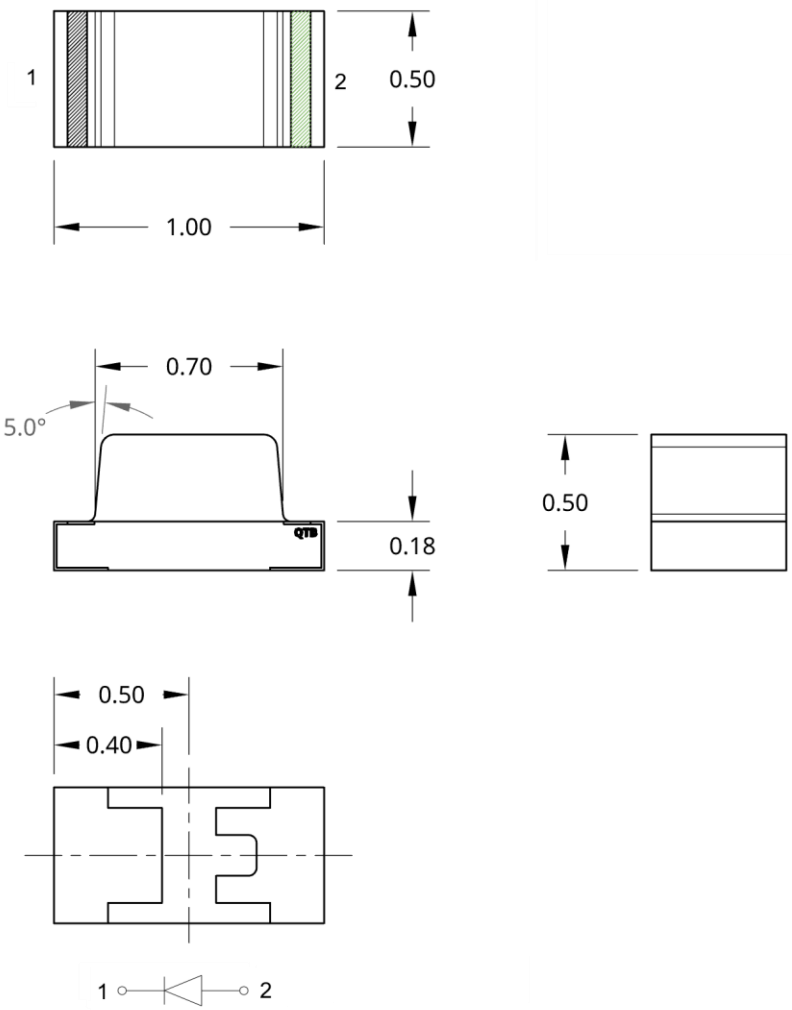
Feature:
- Water clear lens
- Package in tape and reel
- Compact 0402 package
- Viewing Angle: 140° typ.
- Height profile: 0.5mm



Application:
- Status indication
- Back lighting application

Certification & Compliance:
- 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)			λ_P (nm)	I_V (mcd)		
			Typ.	Max.	Min.	Typ.	Max.	Typ.	Min.	Typ.	Max.
QBLP595-R	Red	20	2.0	2.5	615	620	630	628	63	120	200
QBLP595-O	Orange	20	2.0	2.5	600	605	610	610	80	165	250
QBLP595-Y	Yellow	20	2.0	2.5	585	590	595	593	50	95	160
QBLP595-AG	Yellow Green	20	2.0	2.5	565	571	576	574	16	35	50
QBLP595-IG	Green	20	3.1	3.7	515	520	525	515	320	600	1000
QBLP595-IB	Blue	20	3.1	3.7	460	465	470	460	50	85	160

Absolute Maximum Rating

Chip Material	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	T_{OP} (°C)	T_{ST} (°C)	T_{SOL} (°C)**
AlInGaP	75	30	100	5	-40 ~ +80	-40 ~ +85	260
InGaN	111	30	100	5	-40 ~ +80	-40 ~ +85	260

*Duty 1/10 @ 1KHz

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

Forward Voltage V_F for R, O, Y, AG @ I_F=20mA

Bin	Min.	Max.	Unit
☐	1.7	2.5	V

Forward Voltage V_F for IG, IB @ 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	26	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 Red @ I_F=20mA

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

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	

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 Blue @ I_F=20mA

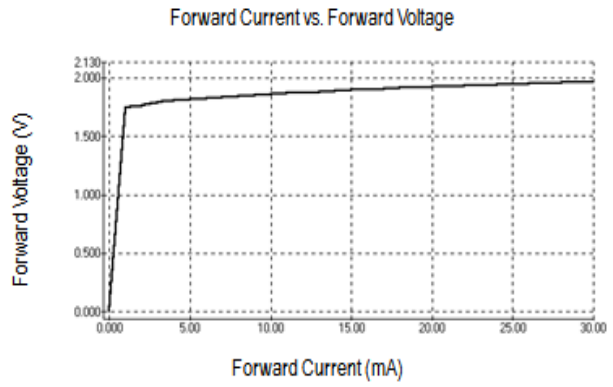
Bin	Min.	Max.	Unit
E	460	462.5	nm
F	462.5	465	
G	465	467.5	
H	467.5	470	

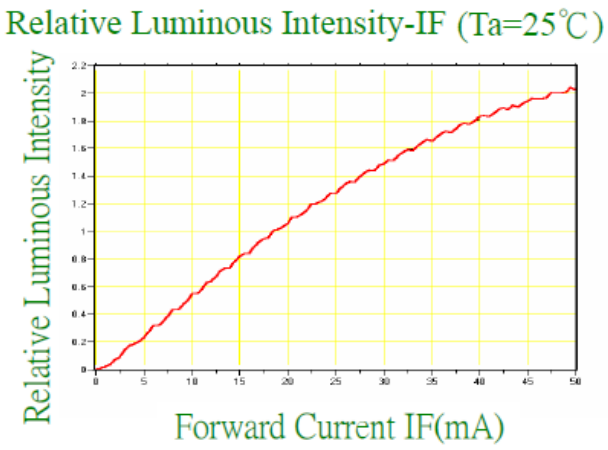
Dominant Wavelength λ_D for True Green @ I_F=20mA

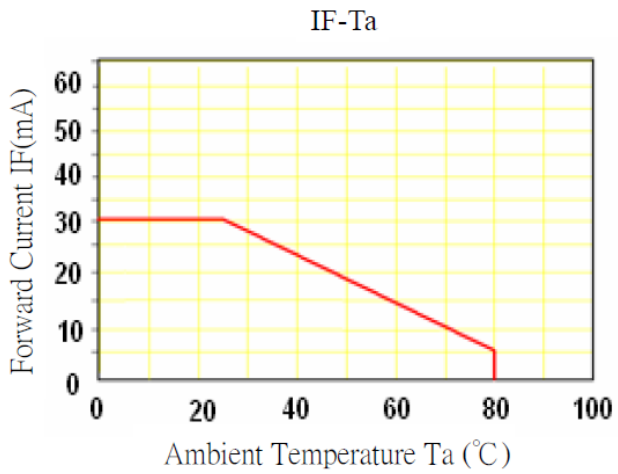
Bin	Min.	Max.	Unit
S	515	517.5	nm
T	517.5	520	
U	520	522.5	
V	522.5	525	

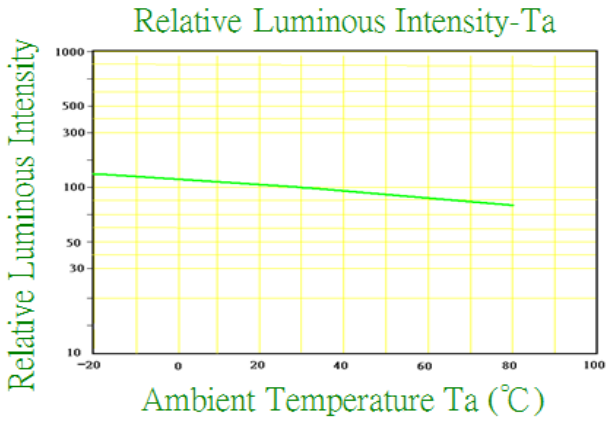
Characteristic Curves

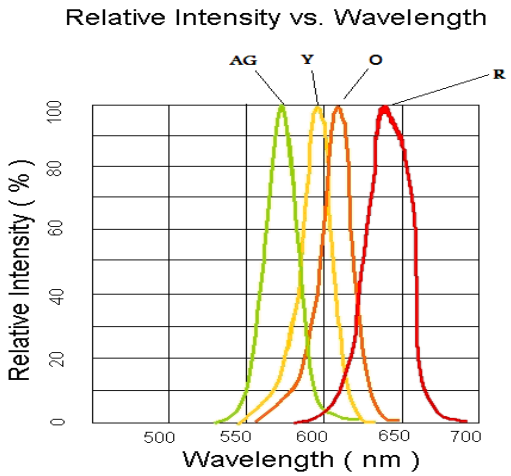
AlInGaP (R/Y/O/AG)

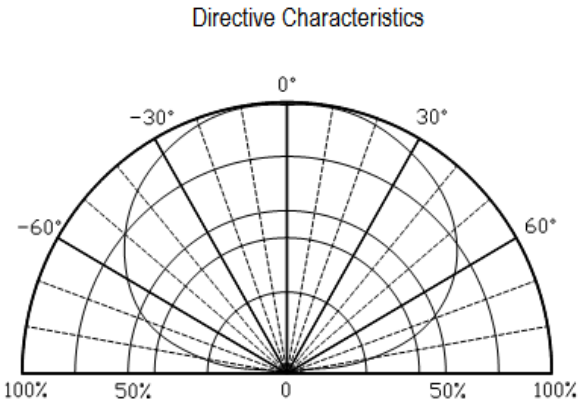




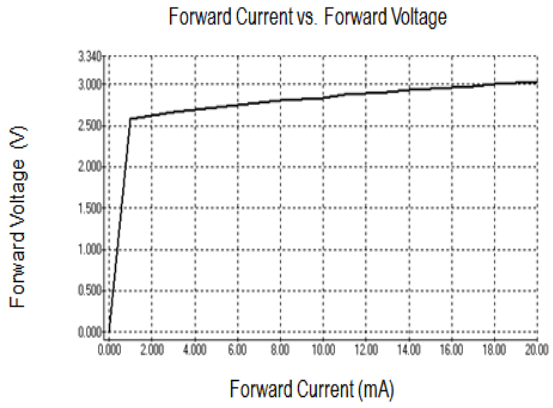


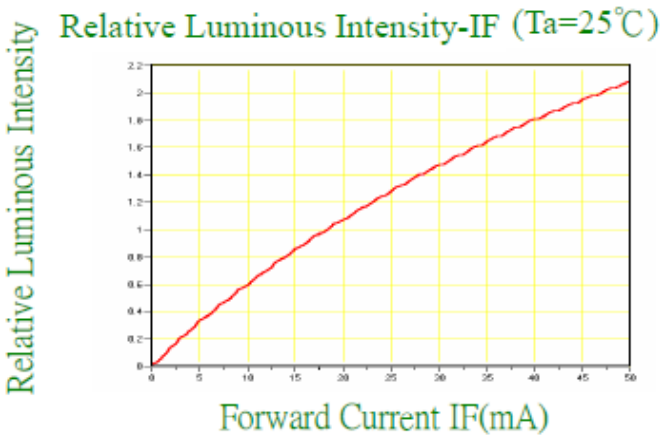


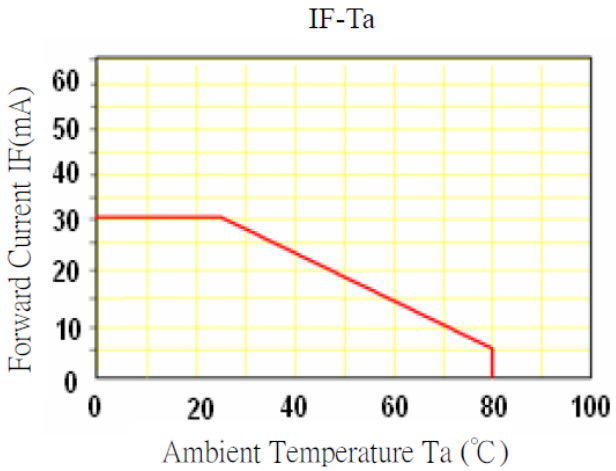


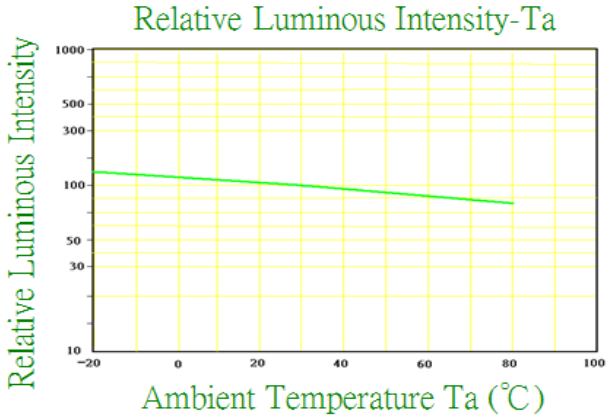


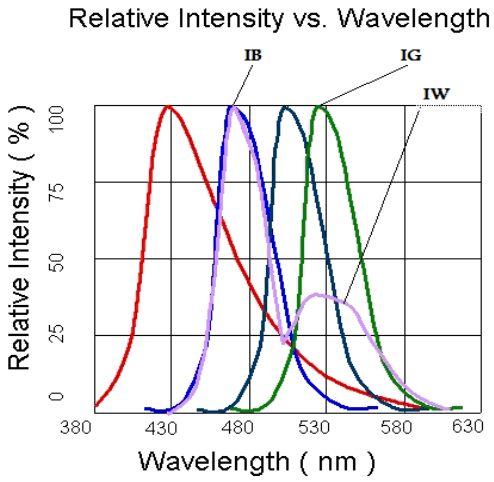
InGaN (IG/IB)

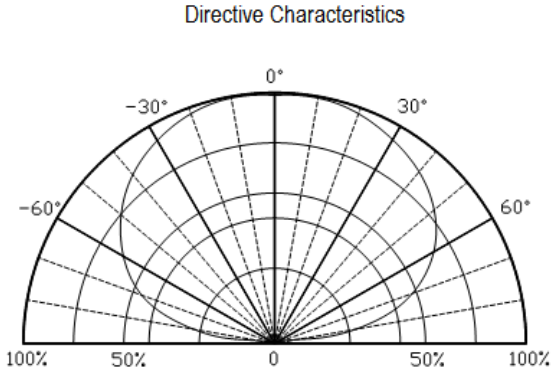

Forward Current vs. Forward Voltage
Forward Voltage (V)
Forward Current (mA)


Relative Luminous Intensity-IF (Ta=25℃)
Relative Luminous Intensity
Forward Current IF(mA)


IF-Ta
Forward Current IF(mA)
Ambient Temperature Ta (℃)

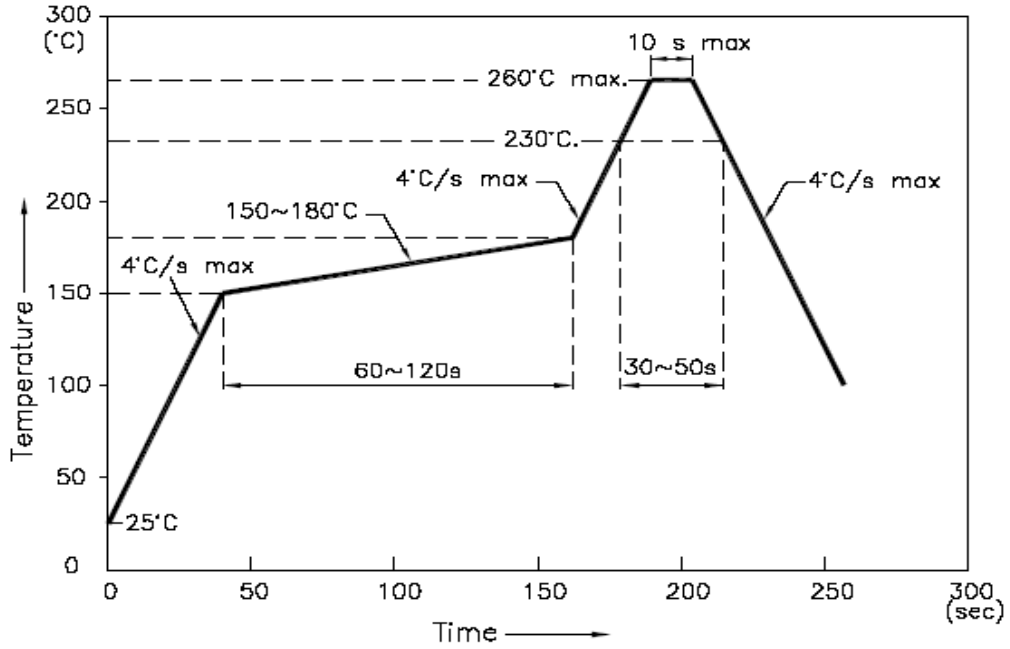

Relative Luminous Intensity-Ta
Relative Luminous Intensity
Ambient Temperature Ta (℃)


Relative Intensity vs. Wavelength
IB
IG
IW
Relative Intensity (%)
Wavelength (nm)

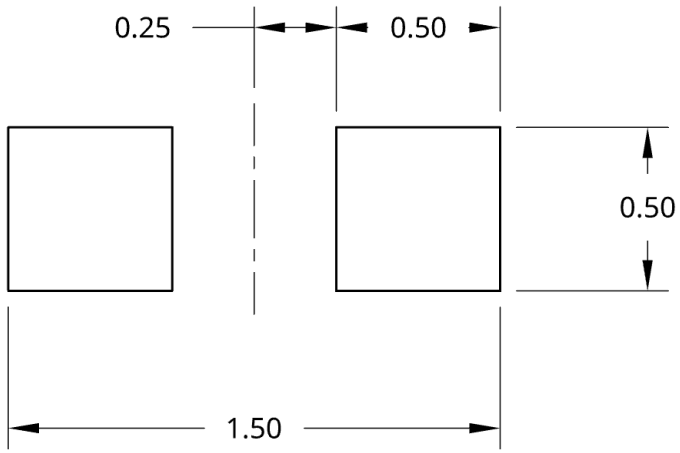

Directive Characteristics
0°
-30°
30°
-60°
60°
100%
50%
0
50%
100%

Solder Profile & Footprint

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



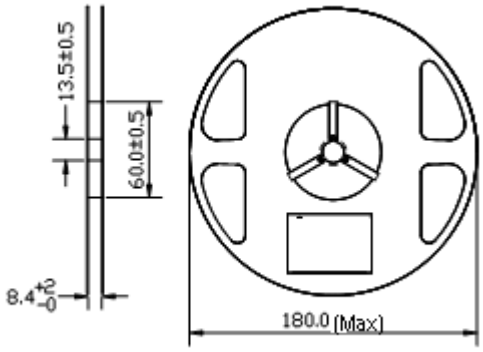
Recommended Pad Layout



Units: mm

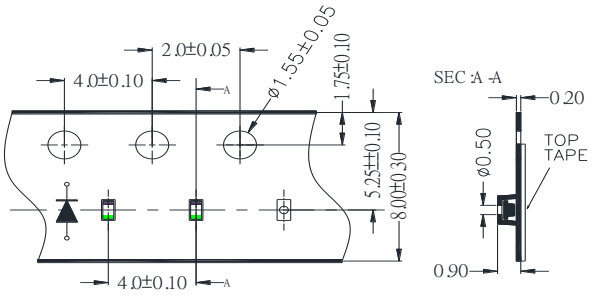
Packing

Reel Dimension:



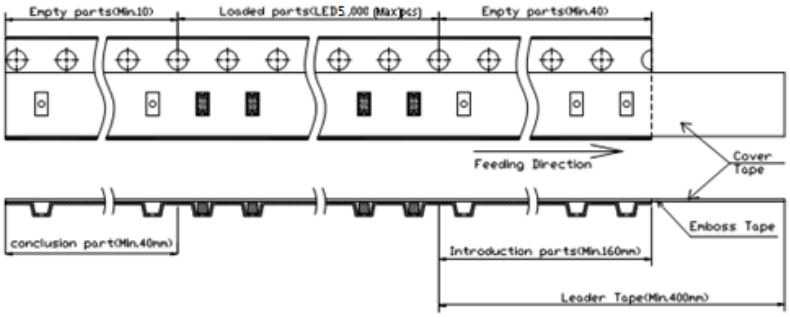
(Unit: mm)

Tape Dimension:

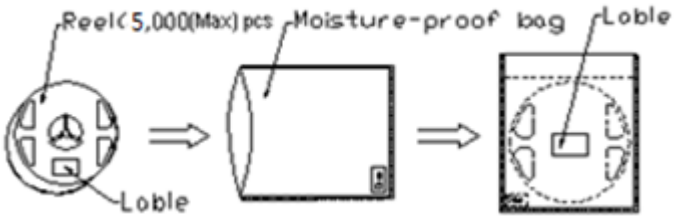


(Unit: mm)

Arrangement of Tape:



Packaging Specifications:



Labeling

Ordering Information

Orderable Part #	Spec Range	Quantity per reel
QBLP595-R	Iv=120mcd typ. λ_D=615nm to 630nm	5,000 units
QBLP595-O	Iv=165mcd typ. λ_D=600nm to 610nm	5,000 units
QBLP595-Y	Iv=95mcd typ. λ_D=585nm to 595nm	5,000 units
QBLP595-AG	Iv=35mcd typ. λ_D=565nm to 576nm	5,000 units
QBLP595-IG	Iv=600mcd typ. λ_D=515nm to 525nm	5,000 units
QBLP595-IB	Iv=85mcd typ. λ_D=460nm to 470nm	5,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP595 Series	V1.0	06/03/2016
Update the brightness for IG	V1.1	06/10/2016
Add the color Orange/ amend the brightness on Yellow and Yellow-green	V1.2	09/08/2016
Update the wavelength bin for IG / Fix the Recommended Pad Layout error	V1.3	09/15/2016
Add peak wavelength for all the colors	V1.4	02/21/2025
Drawing redrafted for clarity and documentation consistency; no changes to form, fit, or function.	V1.5	01/12/2026

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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.