QT-Brightek Chip LED Series

SMD 0603 LED with Lens

Part No.: QBLP601D Series

Table of Contents:

Introduction 3
Electrical / Optical Characteristic (Ta=25 °C) 4
Absolute Maximum Rating 4
Solder Profile & Footprint 7
Packing 8
Labeling 9
Ordering Information 9
Revision History 10
Disclaimer 10

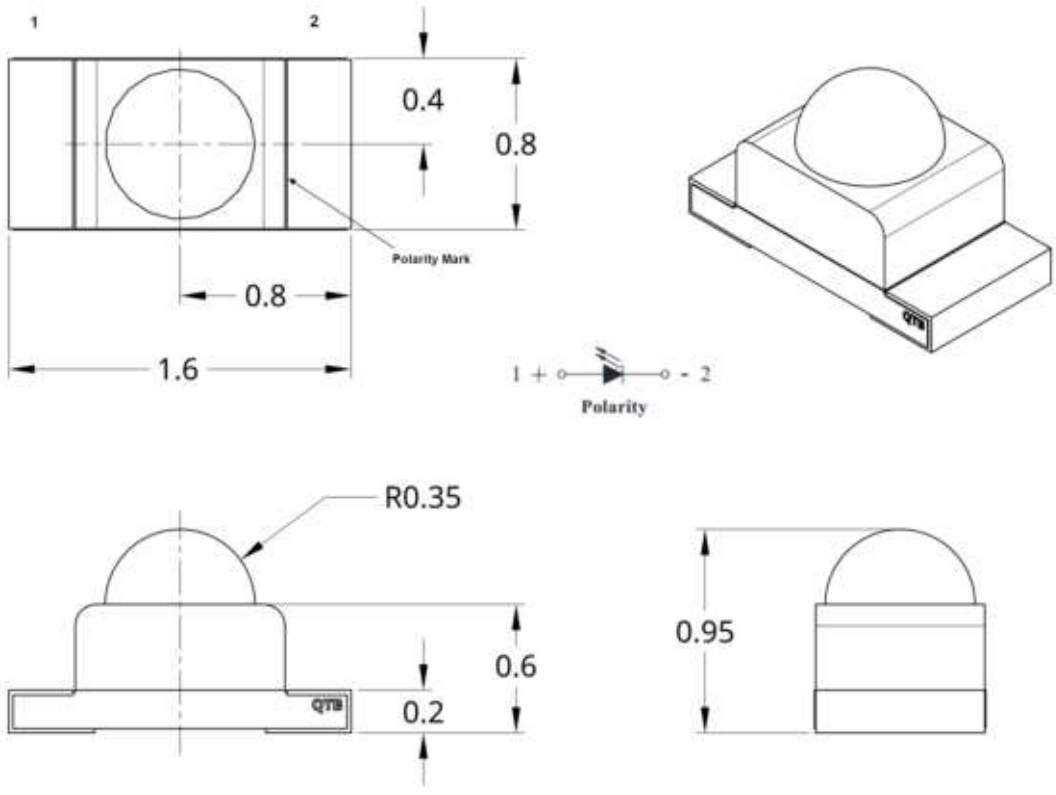
Introduction

Feature:
- Water clear lens
- Package in tape and reel
- 0603 LED package with lens
- Viewing angle: 35deg typ.
- InGaN technology for IB/IG
- AlInGaP technology for R/O/Y/AG
- Height profile: 0.95mm

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)		
			Min.	Typ.	Max.	Min.	Typ.	Max.	Typ.	Min.	Typ.	Max.
QBLP601D-R	Red	20	1.6	2.0	2.4	615	624	630	632	200	420	600
QBLP601D-O	Orange	20	1.6	2.0	2.4	600	605	610	610	200	400	600
QBLP601D-Y	Yellow	20	1.6	2.0	2.4	585	590	595	592	200	400	600
QBLP601D-AG	Yellow Green	20	1.6	2.0	2.4	565	573	575	574	80	130	200
QBLP601D-IG	True Green	20	2.6	3.2	3.4	515	520	530	515	1000	2000	2500
QBLP601D-IB	Blue	20	2.6	3.2	3.4	460	470	475	468	200	400	600

Absolute Maximum Rating

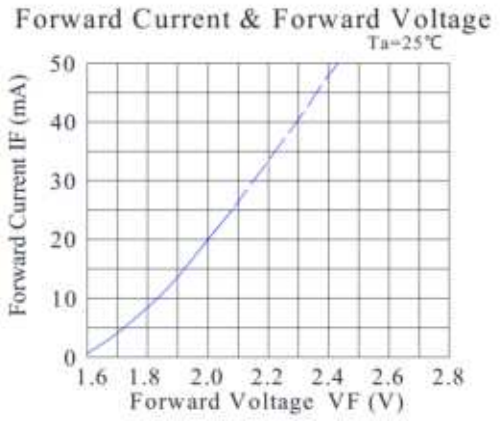
Chip Material	P_d (mW)	I_F (mA)	I_{FP} (mA)*	V_R (V)	T_{OP} (°C)	T_{ST} (°C)	T_{SOL} (°C)**
AlInGaP (R/AG/Y/O)	60	25	100	5	-40 ~ +80	-40 ~ +85	260
InGaN (IB/IG)	90	25	100	5	-40 ~ +80	-40 ~ +85	260

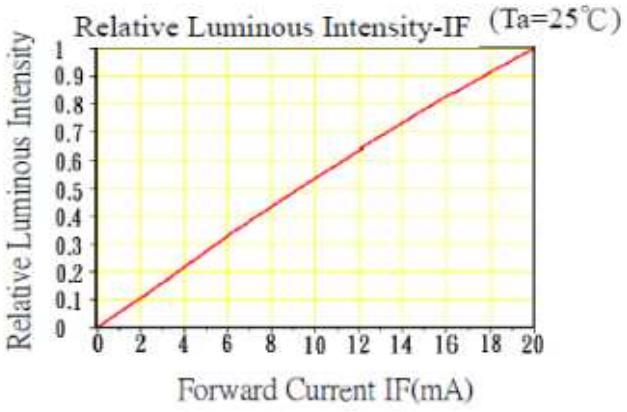
*Duty 1/10 @ 1KHz

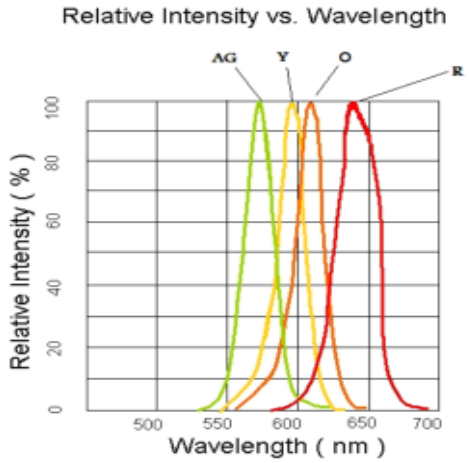
**IR Reflow for no more than 10 sec @ 260 °C

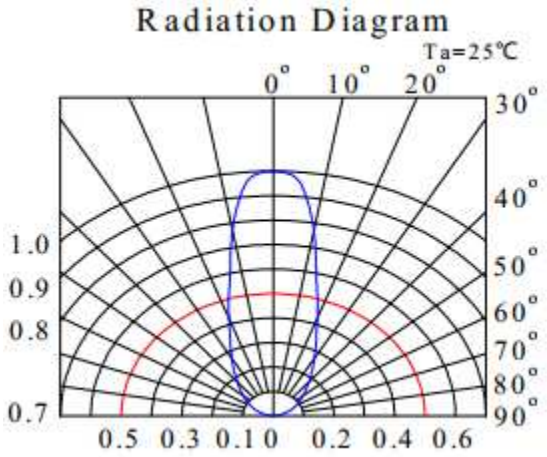
Characteristic Curves

AlInGaP (R/AG/Y/O)

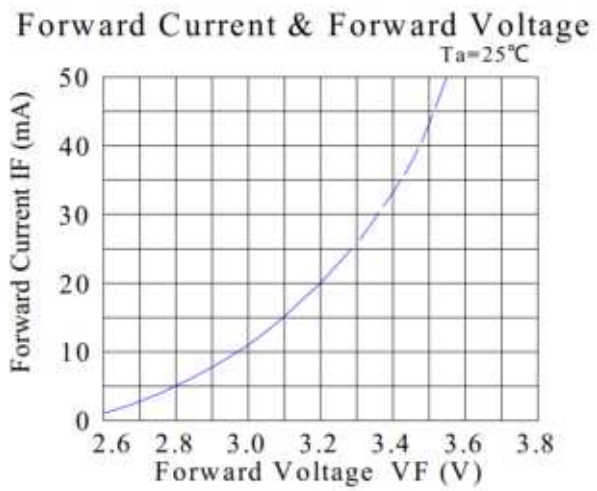


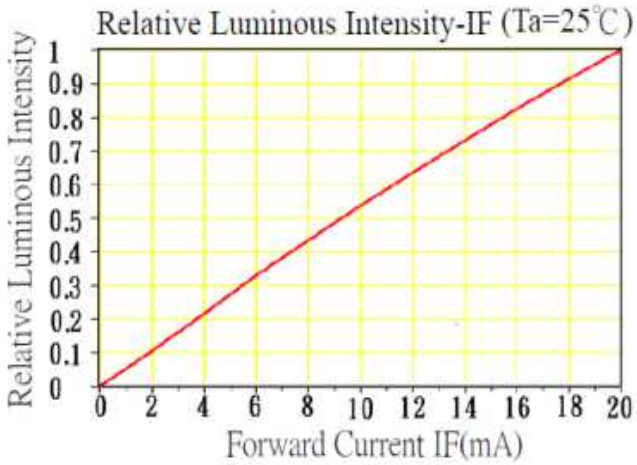


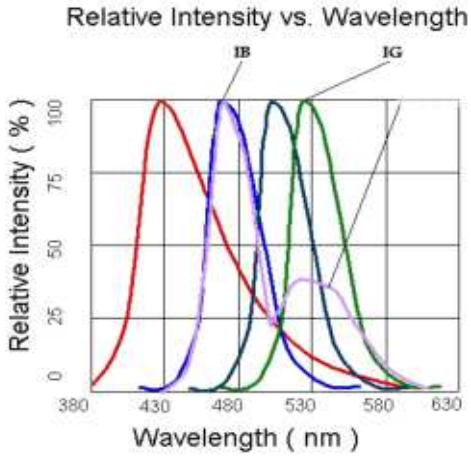


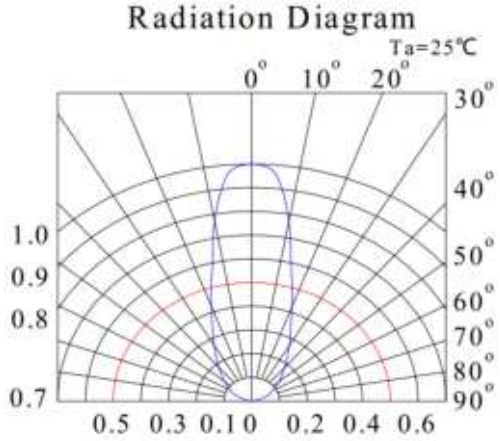


InGaN (IB/IG)


Forward Current & Forward Voltage
Ta=25℃
Forward Current IF (mA)
50
40
30
20
10
0
2.6 2.8 3.0 3.2 3.4 3.6 3.8
Forward Voltage VF (V)


Relative Luminous Intensity-IF (Ta=25℃)
Relative Luminous Intensity
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 2 4 6 8 10 12 14 16 18 20
Forward Current IF(mA)

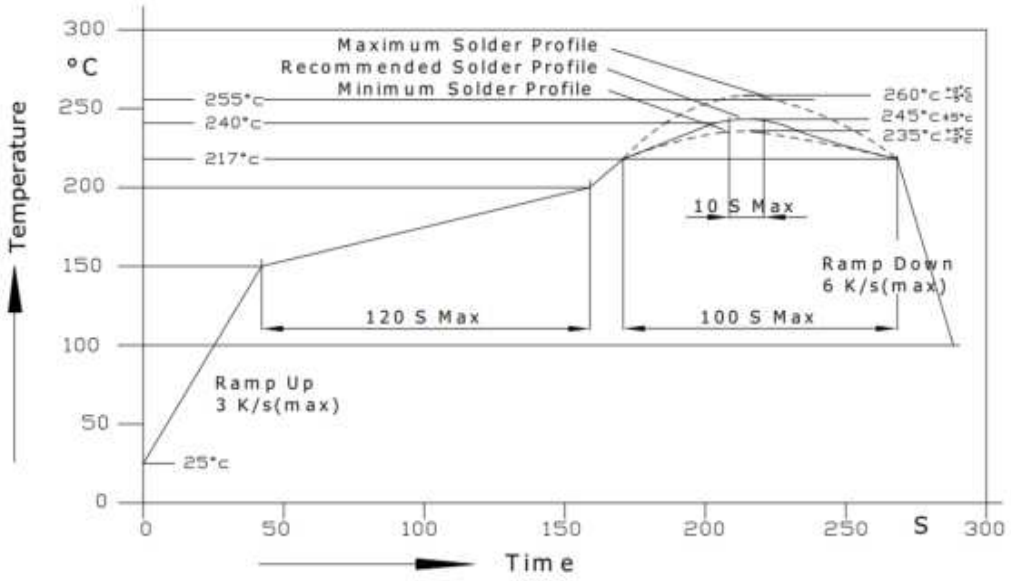

Relative Intensity vs. Wavelength
IB
IG
Relative Intensity (%)
100
75
50
25
0
380 430 480 530 580 630
Wavelength (nm)


Radiation Diagram
Ta=25℃
0° 10° 20°
30°
40°
50°
60°
70°
80°
90°
1.0
0.9
0.8
0.7
0.5 0.3 0.1 0 0.2 0.4 0.6

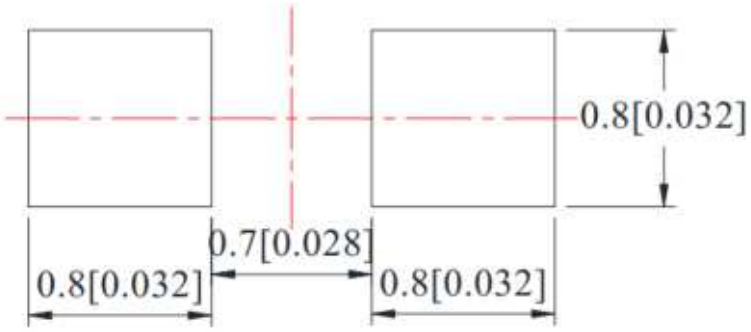
Solder Profile & Footprint

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

Pb-free solder temperature profile.



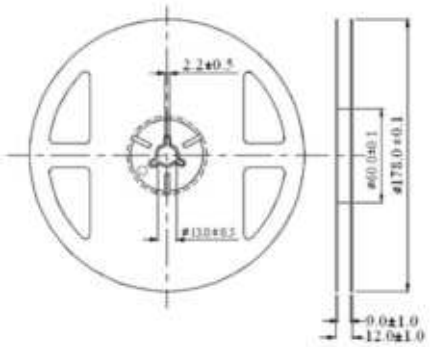
Recommended Pad Layout



Units: mm

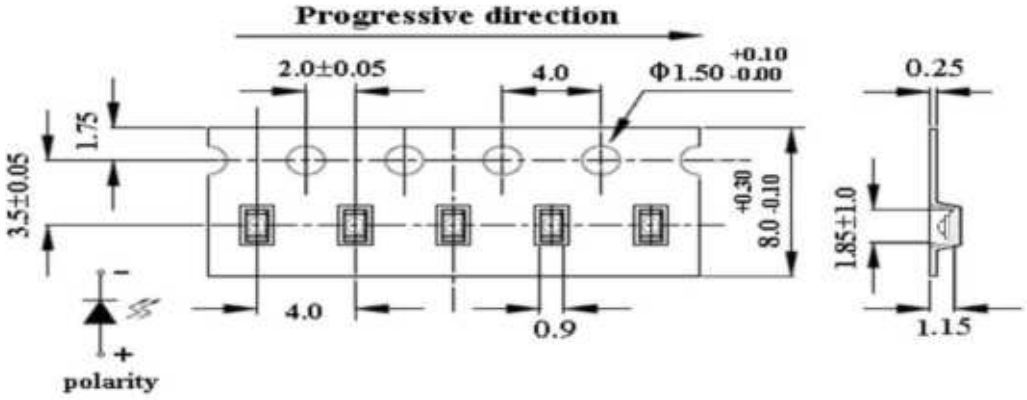
Packing

Reel Dimension:



Unit: mm

Tape Dimension:



Unit: mm

Labeling



Ordering Information

Orderable Part #	Spec Range	Quantity per reel
QBLP601D-R	Iv=420mcd Typ. @ I_F=20mA / Color=615nm-630nm	3,000 units
QBLP601D-O	Iv=400mcd Typ. @ I_F=20mA / Color=600nm-610nm	3,000 units
QBLP601D-Y	Iv=400mcd Typ. @ I_F=20mA / Color=585nm-595nm	3,000 units
QBLP601D-AG	Iv=130mcd Typ. @ I_F=20mA / Color=565nm-575nm	3,000 units
QBLP601D-IG	Iv=2000mcd Typ. @ I_F=20mA / Color=515nm-530nm	3,000 units
QBLP601D-IB	Iv=400mcd Typ. @ I_F=20mA / Color=460nm-475nm	3,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP601D series	V1.0	5/27/2020
Refined drawing layout for better visual clarity; all dimensions and specifications remain as per original. Add peak WL	V1.1	01/16/2025

Disclaimer

QT-BRIGHTEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. QT-BRIGHTEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

Life Support Policy

QT-BRIGHTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTEK. As used herein:

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.