

# **QT-Brightek Chip LED Series**

**SMD 0603 BI-Color LED**

**Part No.: QBLP601-IR1SW**

**IR1: 940nm  
SW: White (CCT 2700K)**

---

**Table of Contents:**

Introduction .....	3
Electrical / Optical Characteristic (Ta=25 °C) .....	4
Absolute Maximum Rating .....	4
CIE Chromaticity Diagram.....	6
Characteristic Curves.....	7
Solder Profile & Footprint.....	9
Packing .....	10
Labeling .....	11
Ordering Information .....	11
Revision History .....	12
Disclaimer .....	12

## Introduction

### Feature:

- Yellow Diffused Lens
- Package in tape and reel
- Bi Color: IR 940nm + soft white
- AlGaAs technology for IR
- InGaN technology for soft white
- Viewing angle: 140° typ.

### Description:

These ultra bright 0603 LEDs have a height profile of 0.55mm. Combination of high brightness output and small footprint, these LEDs are ideal for dual color tight space application.

### Application:

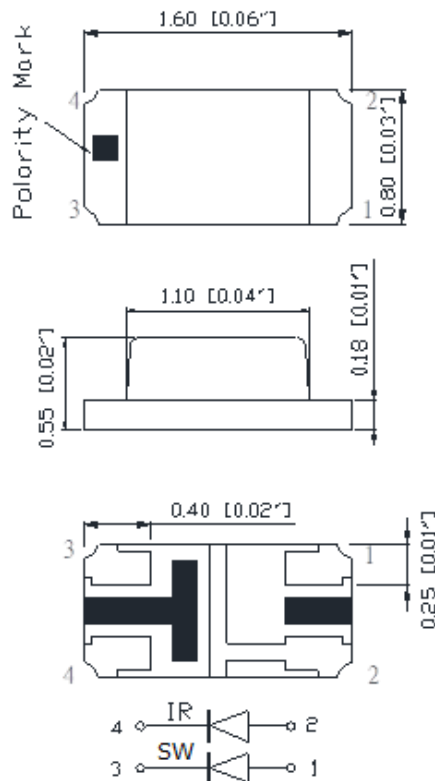
- Status indication
- Back lighting application
- Sensor

### Certification & Compliance:

- ISO9001
- RoHS Compliant



## Dimension:



Units: mm / tolerance = +/-0.1mm

### 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>E</sub> (mW/sr)		
			Typ.	Max	Min.	Typ.	Max.	Min.	Typ.	Max.
QBLP601-IR1SW	IR	20	1.2	1.6	930	940	950	0.2	0.6	1.1
					<b>CIE Coordinate</b>					
	White	20	3.0	3.7	-	X=0.46 Y=0.42 CCT: 2700K	-	200	340	630

### 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>SOL</sub> (°C)***
AlGaAs	80	50	800*	5	-40 ~ +80	-40 ~ +85	260
InGaN	111	30	125**	5	-40 ~ +80	-40 ~ +85	260

\*Pulse width 100μs, duty cycle=1%

\*\*1/8 duty, f=1kHz

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

### Forward Voltage V<sub>F</sub> for AlGaAs @ I<sub>F</sub>=20mA

Bin	Min.	Max.	Unit
□	0.8	1.6	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	

**Radiant Intensity  $I_E$  for IR @  $I_F=20mA$** 

Bin	Min.	Max.	Unit
A	0.2	0.6	mW/sr
B	0.6	1.1	

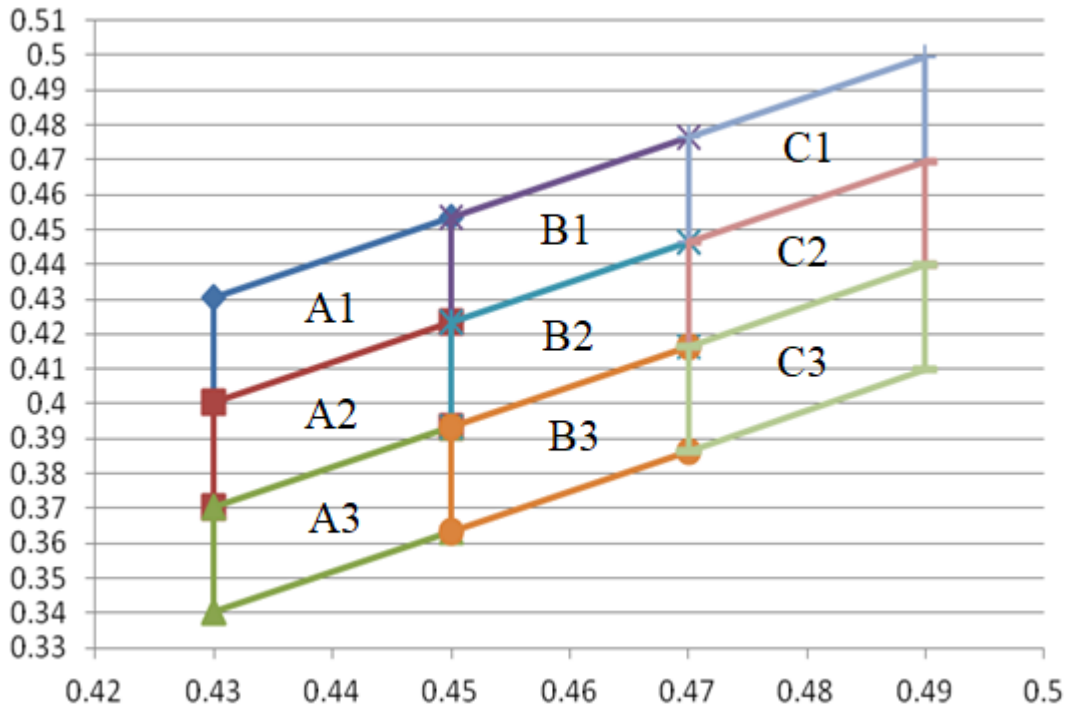
**Luminous Intensity  $I_V$  for Soft White @  $I_F=20mA$** 

Bin	Min.	Max.	Unit
M	200	250	mcd
N	250	320	
O	320	400	
P	400	500	
Q	500	630	

**Peak Wavelength  $\lambda_P$  for IR @  $I_F=20mA$** 

Bin	Min.	Max.	Unit
□	930	950	nm

**CIE Chromaticity Diagram**

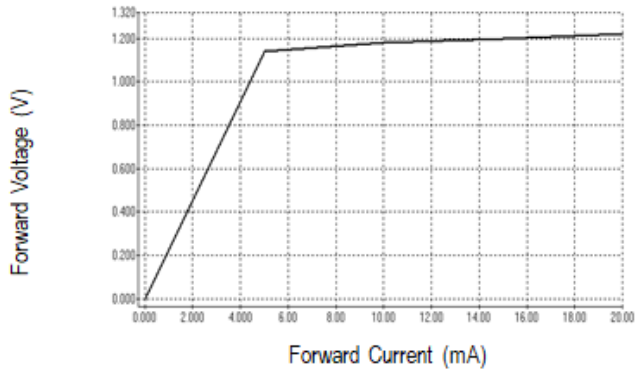


Rank	Chromaticity coordinates				
		X	Y	X	Y
A1	X	0.430	0.430	0.450	0.450
	Y	0.400	0.430	0.453	0.423
A2	X	0.430	0.430	0.450	0.450
	Y	0.370	0.400	0.423	0.393
A3	X	0.430	0.430	0.450	0.450
	Y	0.340	0.370	0.393	0.363
B1	X	0.450	0.450	0.470	0.470
	Y	0.423	0.453	0.477	0.447
B2	X	0.450	0.450	0.470	0.470
	Y	0.393	0.423	0.447	0.417
B3	X	0.450	0.450	0.470	0.470
	Y	0.363	0.393	0.417	0.387
C1	X	0.470	0.470	0.490	0.490
	Y	0.447	0.477	0.500	0.470
C2	X	0.470	0.470	0.490	0.490
	Y	0.417	0.447	0.470	0.440
C3	X	0.470	0.470	0.490	0.490
	Y	0.387	0.417	0.440	0.410

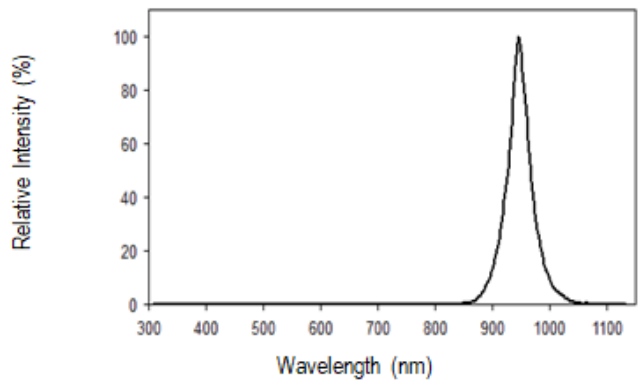
## Characteristic Curves

AlGaAs (IR)

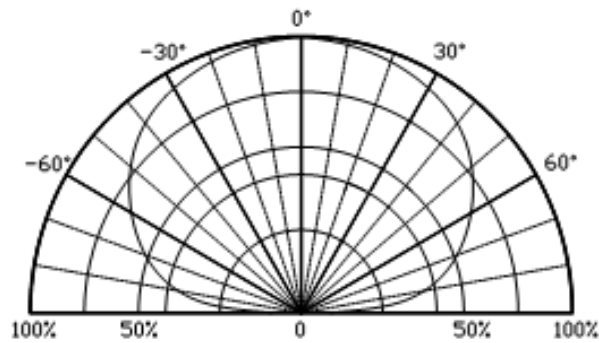
Forward Current vs. Forward Voltage



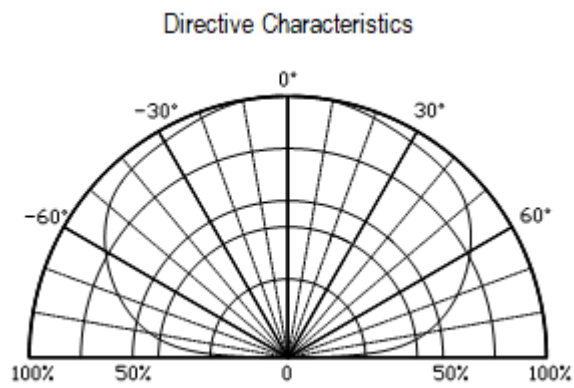
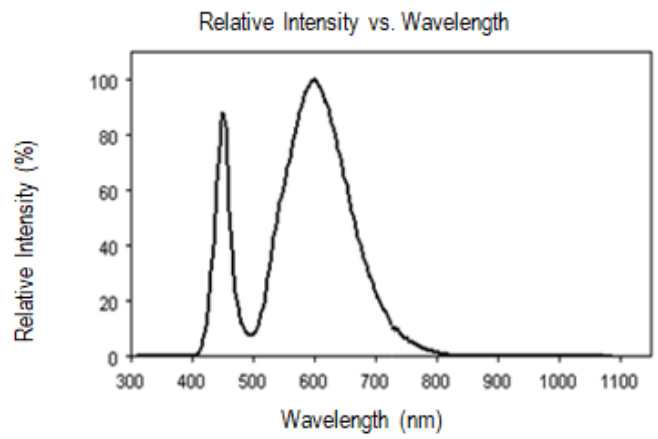
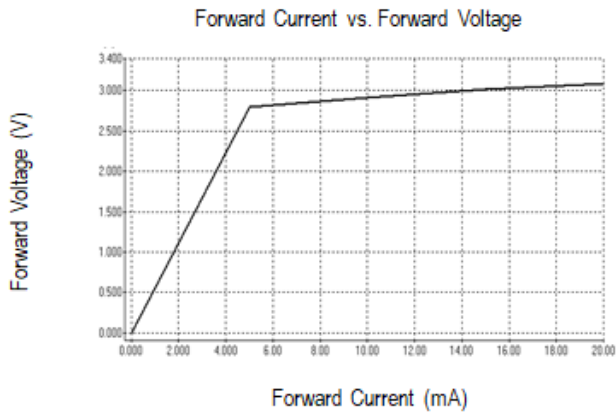
Relative Intensity vs. Wavelength



Directive Characteristics



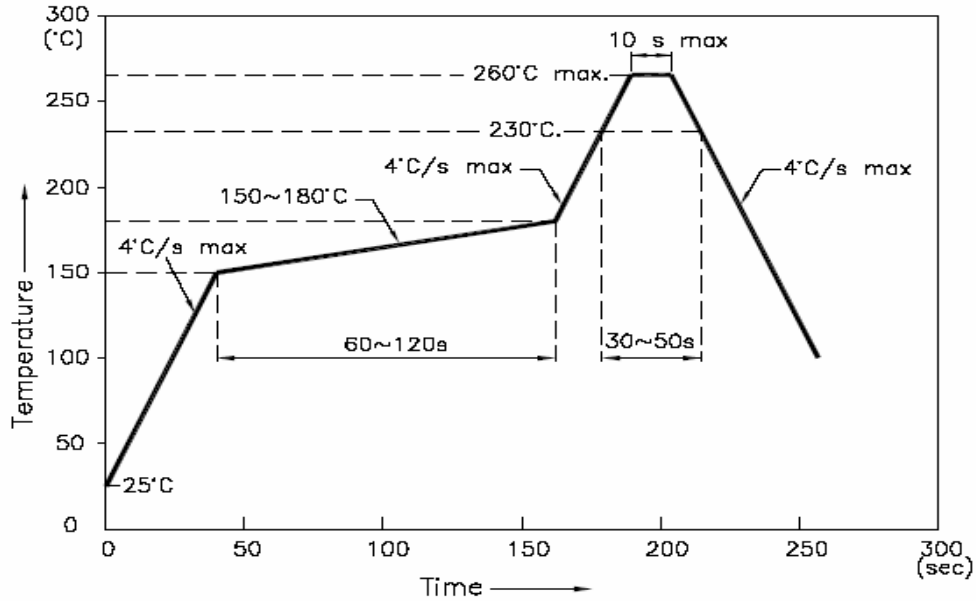
## InGaN (White)



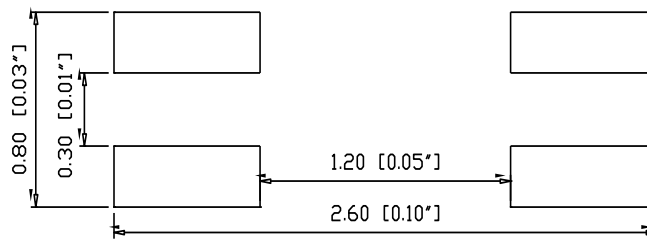


## Solder Profile & Footprint

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



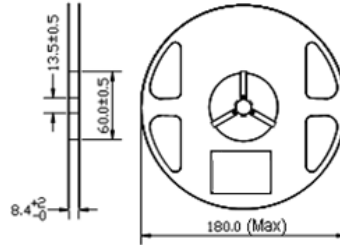
### RECOMMEND PAD LAYOUT



Units: mm

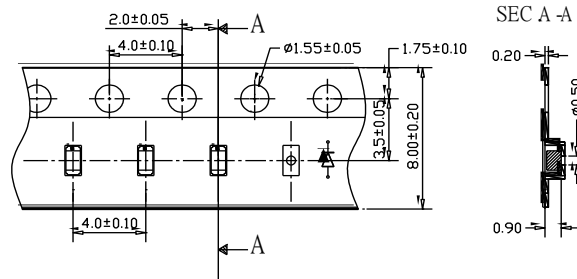
## Packing

Reel Dimension:



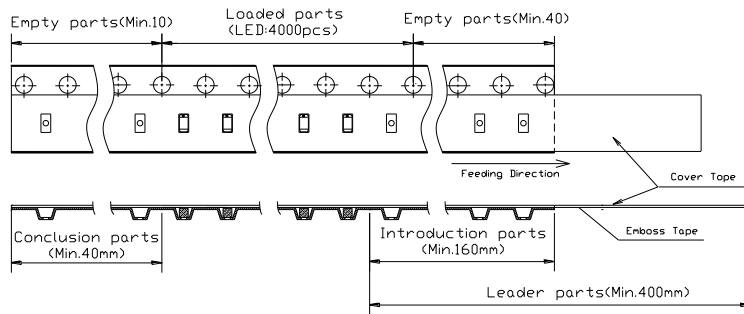
Unit: mm

Tape Dimension:

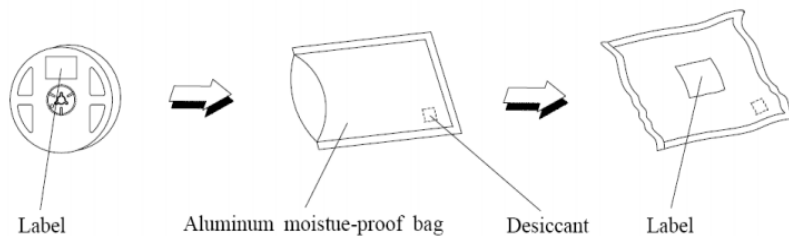


Unit: mm

Arrangement of Tape:



Packaging Specifications:



Product: QBLP601-IR1SW	Date: November 16, 2021	Page 10 of 12
	Version# 1.0	

## 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-IR1SW	QBLP601-IR1SW	IR: $I_E=0.6\text{mW/sr}$ typ. @ 20mA / $\lambda_D$ : 930nm to 950nm	4000pcs
		Soft White: $I_V=340\text{mcd}$ typ. @ 20mA / CIE Coordinate: (X=0.46, Y=0.42) typ., CCT: 2700K typ.	

---

## Revision History

Description:	Revision #	Revision Date
New Release of QBLP601-IR1SW	V1.0	11/16/2021



## Disclaimer

QT-BRIGHTTEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. QT-BRIGHTTEK 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-BRIGHTTEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of QT-BRIGHTTEK. 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.