QT-Brightek PLCC Series

3020 PLCC2 LED

Part No.: QBLP676-XX Series

XX = Color Code

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Introduction

Feature:

- Package in tape and reel
- Ultra bright reflector type 3020 PLCC2 LED
- InGaN technology for IB/IG
- AlInGaP technology for R/AG/Y/O/S
- 120 degree viewing angle

Description:

This ultra-bright 3020 LED has a height profile of 1.30mm. Combination of high brightness output and robust package, this LED is ideal for back lighting, architecture lighting, and industrial equipment lighting applications.

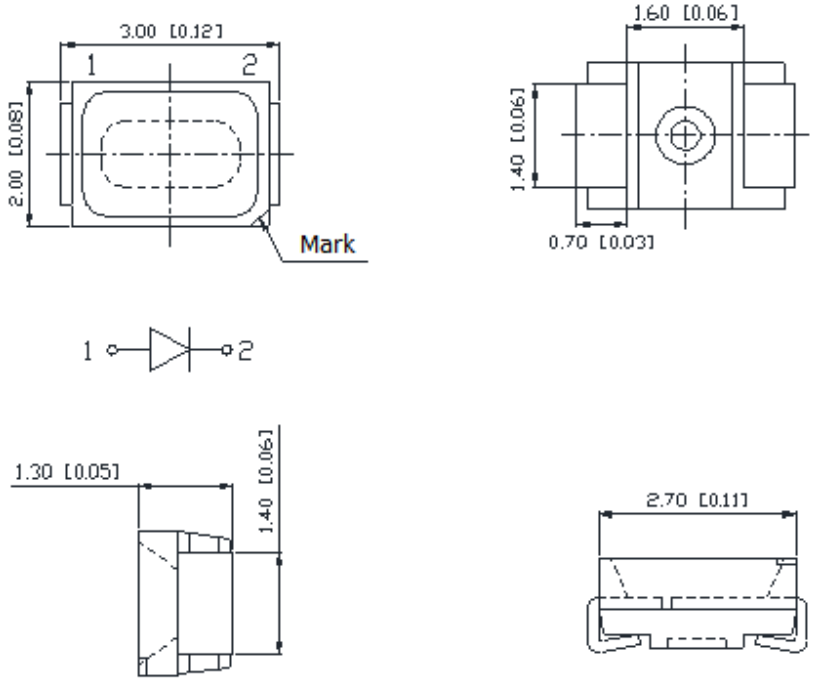
Application:

- Status indication
- Industrial equipment backlighting
- Architecture lighting

Certification & Compliance:

- TS16949
- ISO9001
- RoHS Compliant

Dimension:



Units: mm / tolerance = +/-0.2mm

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.
QBLP676-IB	Blue	20	3.1	3.7	465	470	475	100	210
QBLP676-IG	True Green	20	3.1	3.7	520	525	530	500	900
QBLP676-R	Red	20	2.0	2.5	615	620	630	125	230
QBLP676-AG	Yellow Green	20	2.0	2.5	565	570	576	40	80
QBLP676-Y	Yellow	20	2.0	2.5	585	590	595	125	210
QBLP676-O	Orange	20	2.0	2.5	600	605	610	125	240
QBLP676-S	Deep Red	20	2.0	2.5	630	640	650	50	80

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/S)	75	30	125	5	-40 ~ +85	-40 ~ +100	260
InGaN (IB/IG)	111	30	100	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
e	2.5	2.8	V
f	2.8	3.1	
g	3.1	3.4	
h	3.4	3.7	

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 True 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 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	

Dominant Wavelength λ_D for Deep Red @ I_F=20mA

Bin	Min.	Max.	Unit
v	630	635	nm
w	635	650	

Luminous Intensity I_V @ I_F=20mA

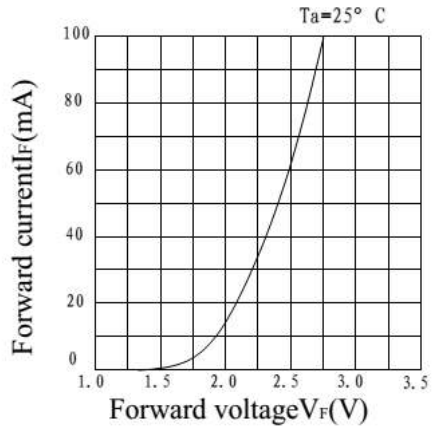
Bin	Min.	Max.	Unit
F	40	50	mcd
G	50	63	
H	63	80	
I	80	100	
J	100	125	
K	125	160	
L	160	200	
M	200	250	
N	250	320	
O	320	400	
P	400	500	
Q	500	630	
R	630	800	
S	800	1000	
T	1000	1250	
U	1250	1600	
V	1600	2000	
W	2000	2500	
X	2500	3200	

Note:
Tolerance of measurement of forward voltage: ±0.1V
Tolerance of measurement of luminous intensity: ±10%
Tolerance of measurement of dominant wavelength: ±1nm

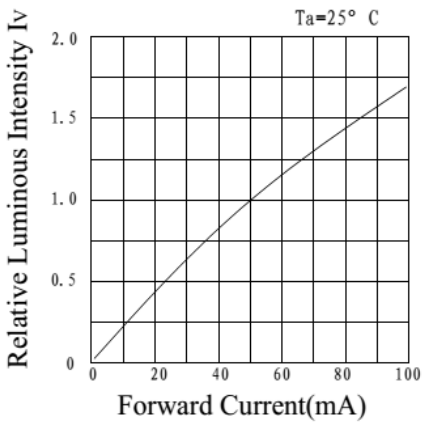
Characteristic Curves

AlInGaP (R/AG/Y/O/S)

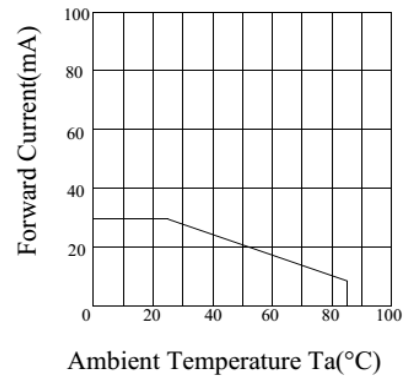
FORWARD CURRENT VS. FORWARD VOLTAGE



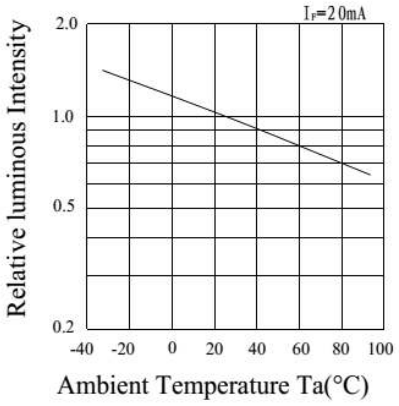
RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



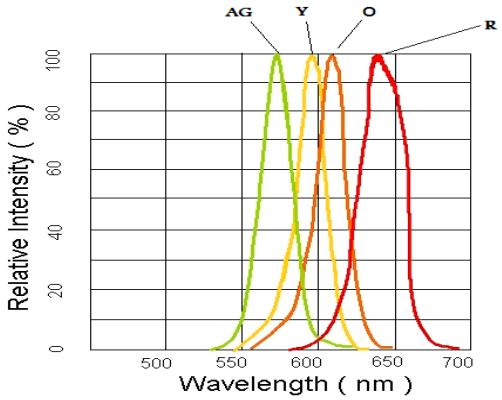
FORWARD CURRENT VS. AMBIENT TEMPERATURE



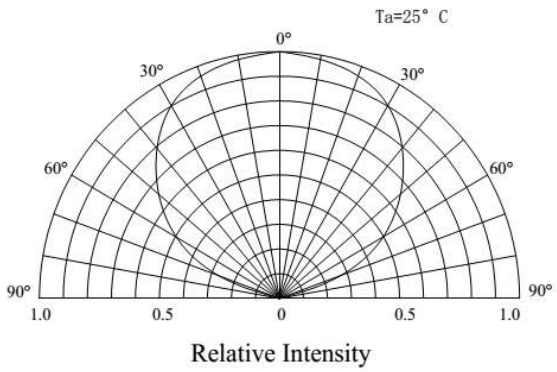
RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



Relative Intensity vs. Wavelength

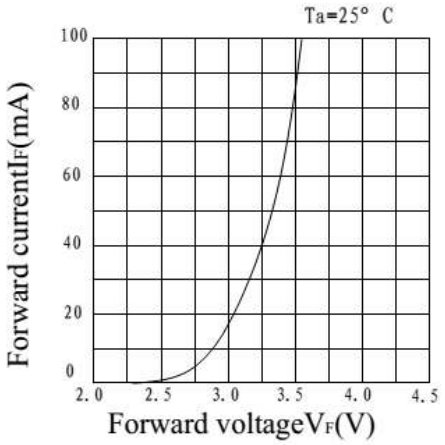


RADIATION PATTERN

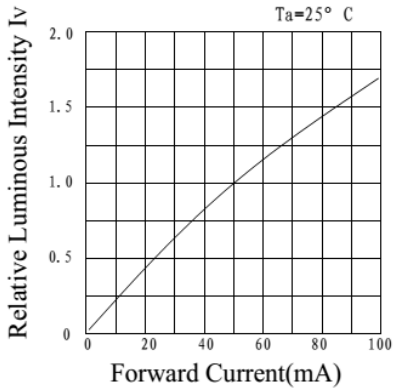


InGaN (IB/IG)

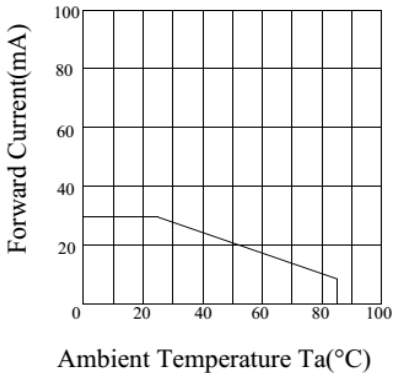
FORWARD CURRENT VS. FORWARD VOLTAGE



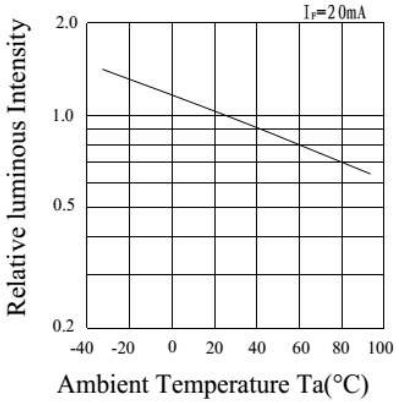
RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



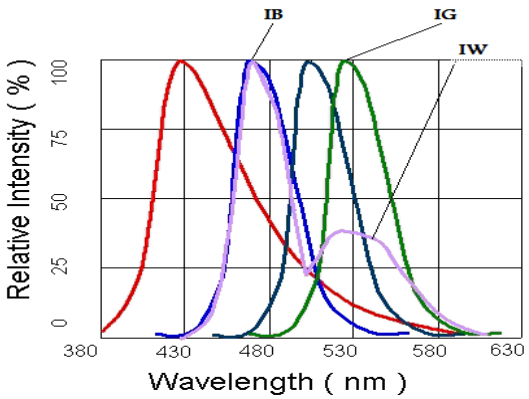
FORWARD CURRENT VS. AMBIENT TEMPERATURE



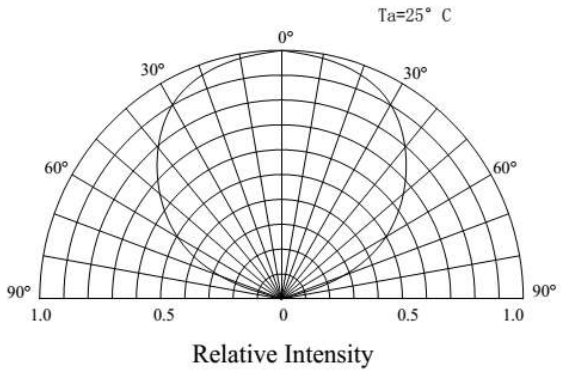
RELATIVE INTENSITY VS. AMBIENT TEMPERATURE



Relative Intensity vs. Wavelength

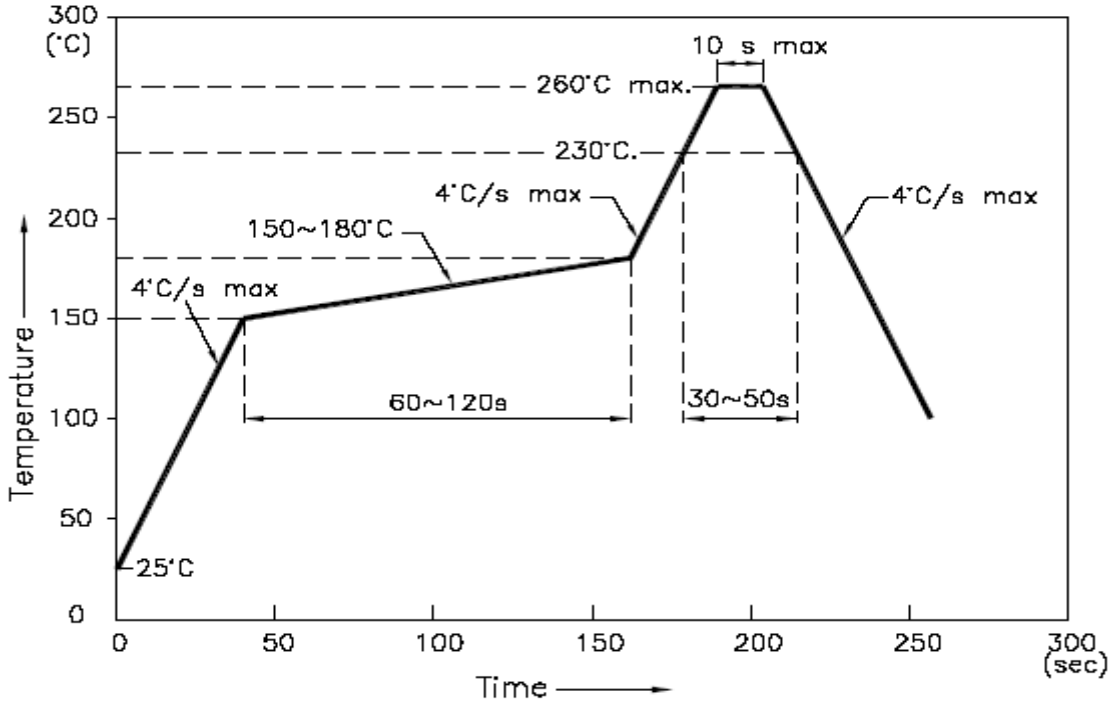


RADIATION PATTERN

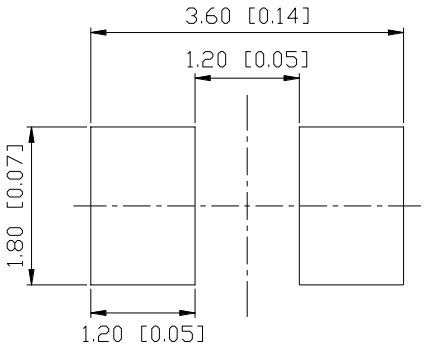


Solder Profile & Footprint

-Recommended tin solder specifications: melting temperature in the range of 178~192 ˚C
-The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



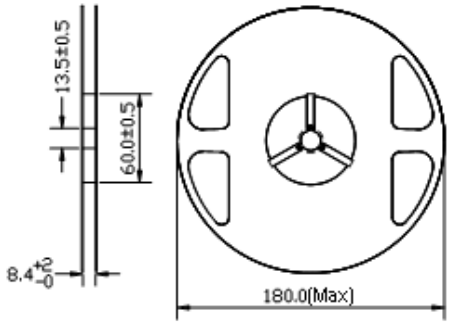
Recommended Pad Layout



Units: mm Tolerance: ± 0.2mm

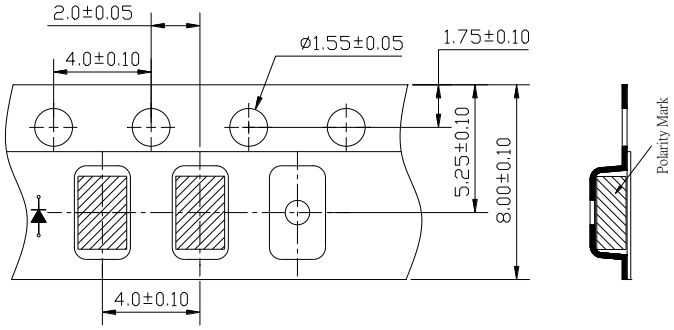
Packing

Reel Dimension:



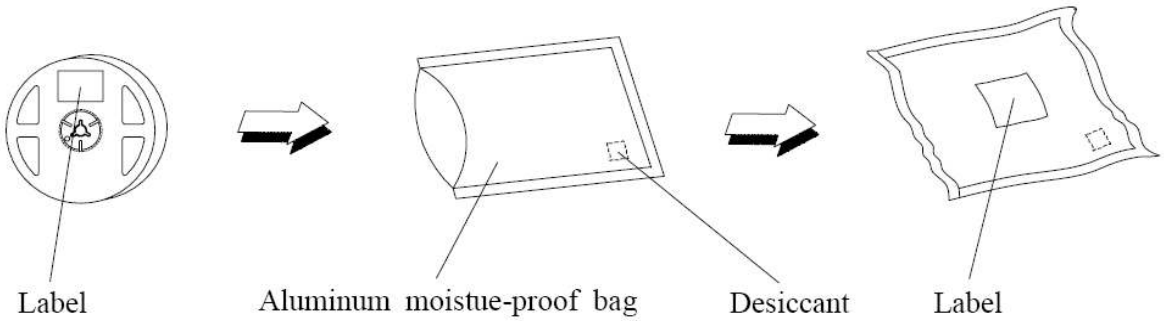
Unit: mm

Tape Dimension:

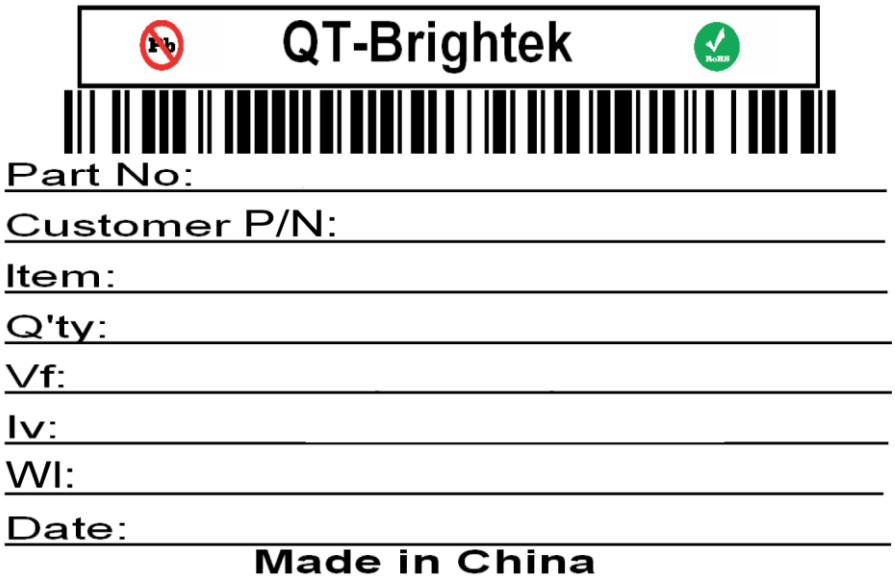


Unit: mm

Packaging Specification:



Labeling



Ordering Information

Part #	Orderable Part #	Spec Range	Quantity per reel
QBLP676-IB	QBLP676-IB	Iv=210mcd typ. @ 20mA / Color=465nm to 475nm	2,000 units
QBLP676-IG	QBLP676-IG	Iv=900mcd typ. @ 20mA / Color=520nm to 530nm	2,000 units
QBLP676-R	QBLP676-R	Iv=230mcd typ. @ 20mA / Color=615nm to 630nm	2,000 units
QBLP676-AG	QBLP676-AG	Iv=80mcd typ. @ 20mA / Color=565nm to 576nm	2,000 units
QBLP676-Y	QBLP676-Y	Iv=210mcd typ. @ 20mA / Color=585nm to 595nm	2,000 units
QBLP676-O	QBLP676-O	Iv=240mcd typ. @ 20mA / Color=600nm to 610nm	2,000 units
QBLP676-S	QBLP676-S	Iv=80mcd typ. @ 20mA / Color=630nm to 650nm	2,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP676_series	V1.0	03/08/2011
Update spec, drawing, and P/Ns	V2.0	12/06/2013
Update luminous intensity bins	V2.1	06/02/2014
Update VF bin for InGaN	V2.2	08/29/2014
Update dimension drawing	V3.0	02/17/2017

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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.