QT-Brightek PLCC-6 Series

PLCC6 LED

Part No.: QBLP679-XXK

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Introduction

Feature:

- Package in tape and reel
- Ultra bright PLCC6
- InGaN technology for IB/IG
- AlInGaP technology for R/Y/O/S
- 120 degree viewing angle

Description:

This PLCC6 LEDs have a height profile of 1.60mm. Combination of high brightness output and robust package, this LED is ideal for architecture lighting, status indication, and general application.

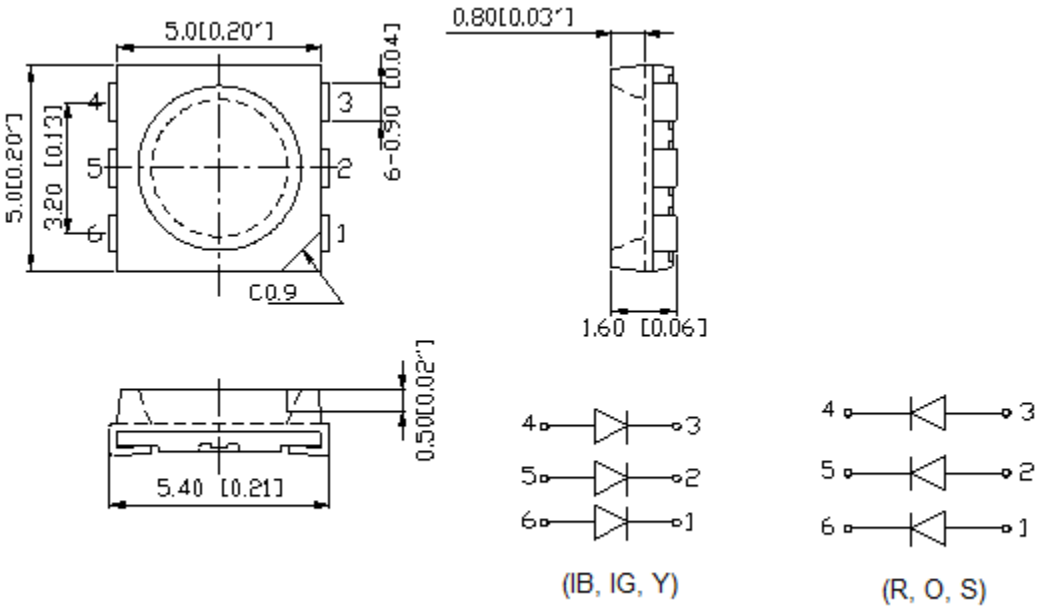
Application:

- 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.
QBLP679-IBK	Blue	60	3.3	3.7	462.5	467	472.5	780	1100
QBLP679-IGK	True Green	60	3.3	3.7	520	525	535	3600	4700
QBLP679-RK	Red	60	2.0	2.5	620	625	630	350	630
QBLP679-YK	Yellow	60	2.0	2.5	585	590	595	1250	1600
QBLP679-OK	Orange	60	2.0	2.5	600	605	610	350	780
QBLP679-SK	Deep Red	60	2.0	2.5	630	640	650	125	220

*Total forward current for three dies

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)**	ESD (V)
InGaN (IB/IG)	333	90	125	5	-40 ~ +80	-40 ~ +85	260	HBM 2000
AlInGaP (R/Y/O/S)	225	90	125	5	-40 ~ +80	-40 ~ +85	260	HBM 8000

*Duty 1/8 @ 1KHz
**IR Reflow for no more than 10 sec @ 260 °C

Forward Voltage V_F for AlInGaP @ I_F=60mA

Bin	Min.	Max.	Unit
□	1.7	2.5	V

Forward Voltage V_F for InGaN @ I_F=60mA

Bin	Min.	Max.	Unit
f	2.8	3.1	V
g	3.1	3.4	
h	3.4	3.7	

Luminous Intensity I_V for Blue @ I_F=60mA

Bin	Min.	Max.
14	780	1000
15	1000	1300

Luminous Intensity I_V for True Green @ I_F=60mA

Bin	Min.	Max.
20	3600	4600
21	4600	6000

Luminous Intensity I_V for Red @ I_F=60mA

Bin	Min.	Max.
11	350	460
12	460	600
13	600	780
14	780	1000
15	1000	1300

Luminous Intensity I_V for Yellow @ I_F=60mA

Bin	Min.	Max.
U	1250	1600
V	1600	2000
W	2000	2500

Luminous Intensity I_V for Orange @ I_F=60mA

Bin	Min.	Max.
11	350	460
12	460	600
13	600	780
14	780	1000
15	1000	1300

Luminous Intensity I_V for Deep Red @ I_F=60mA

Bin	Min.	Max.
K	125	160
L	160	200
M	200	250
N	250	320
O	320	400

Dominant Wavelength λ_D for Blue @ I_F=60mA

Bin	Min.	Max.	Unit
D	462.5	467.5	nm
E	467.5	472.5	

Dominant Wavelength λ_D for True Green @ I_F=60mA

Bin	Min.	Max.	Unit
G	520	525	nm
H	525	530	
I	530	535	

Dominant Wavelength λ_D for Red @ I_F=60mA

Bin	Min.	Max.	Unit
C	620	625	nm
D	625	630	

Dominant Wavelength λ_D for Yellow @ I_F=60mA

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

Dominant Wavelength λ_D for Orange @ I_F=60mA

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

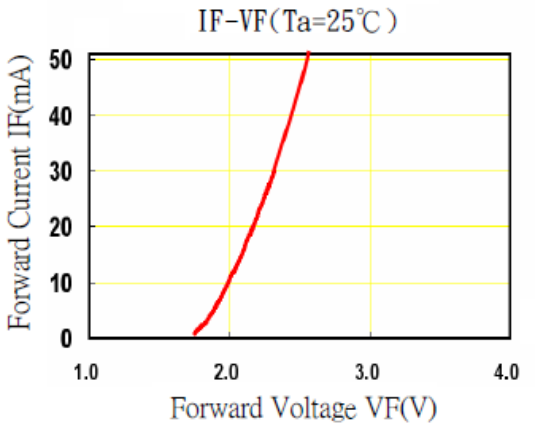
Dominant Wavelength λ_D for Deep Red @ I_F=60mA

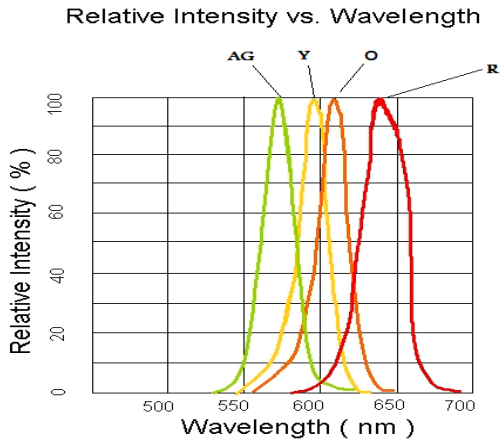
Bin	Min.	Max.	Unit
v	630	635	nm
w	635	650	

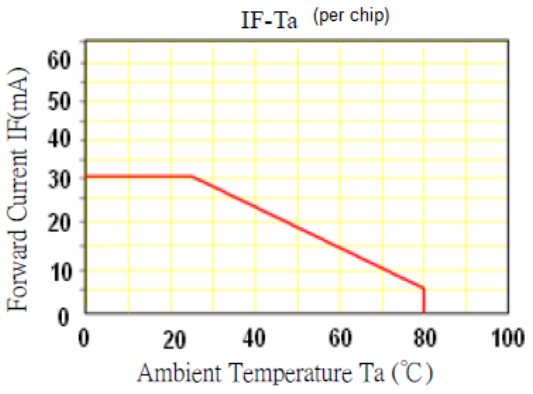
Note:
Tolerance of measurement of forward voltage: ±0.05V
Tolerance of measurement of luminous intensity: ±15%
Tolerance of measurement of dominant wavelength: ±1nm

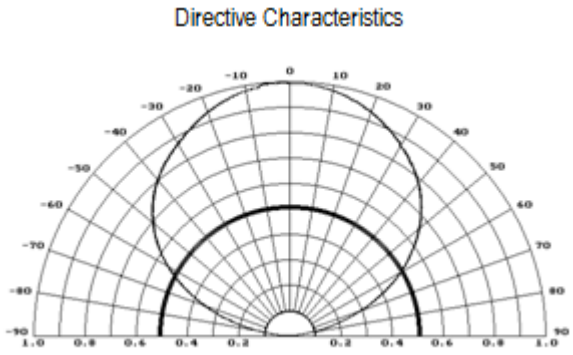
Characteristic Curves

AlInGaP(R/Y/O/S)

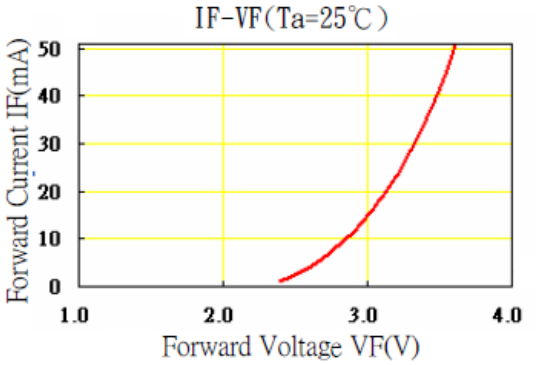


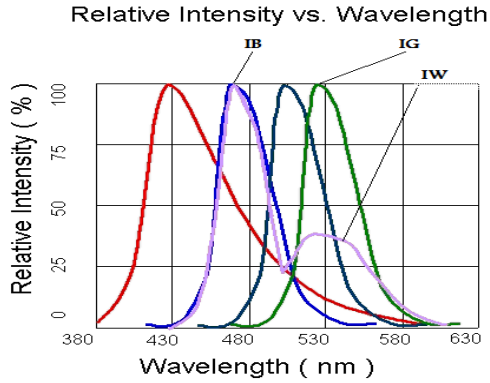


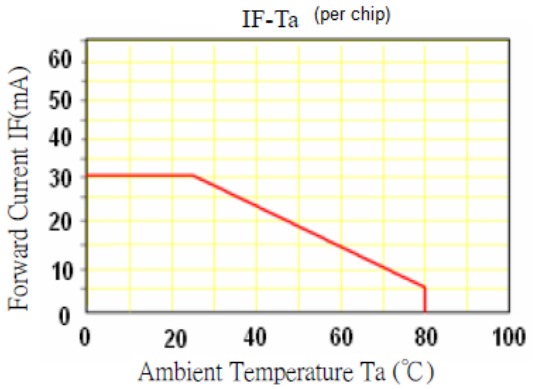


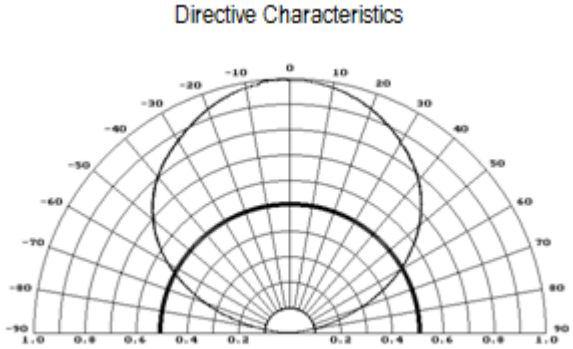


InGaN (IB/IG)


IF-VF(Ta=25℃)
Forward Current IF(mA)
50
40
30
20
10
0
1.0
2.0
3.0
4.0
Forward Voltage VF(V)

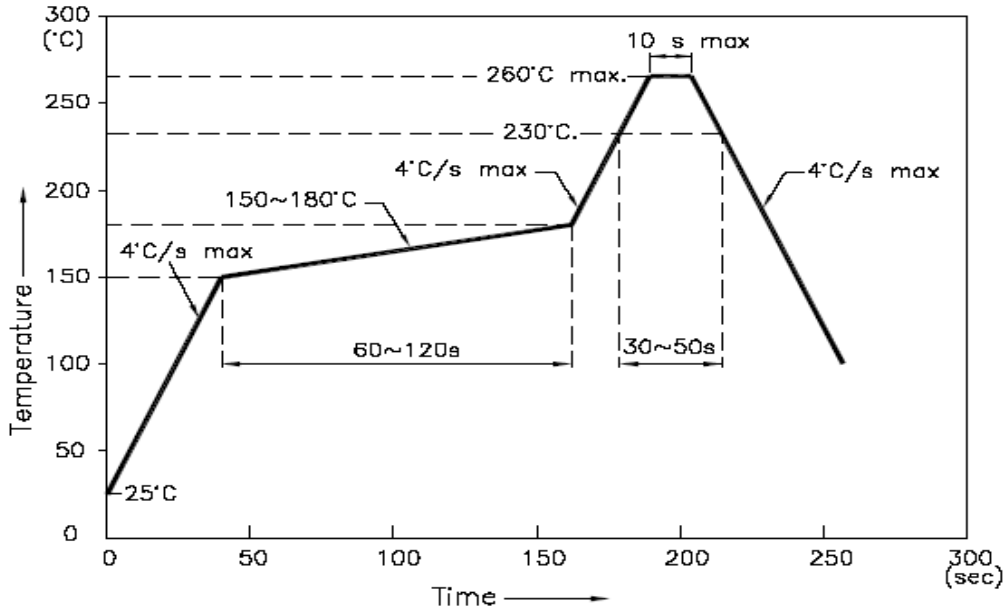

Relative Intensity vs. Wavelength
IB
IG
IW
Relative Intensity (%)
0
25
50
75
100
380
430
480
530
580
630
Wavelength (nm)


IF-Ta (per chip)
Forward Current IF(mA)
60
50
40
30
20
10
0
0
20
40
60
80
100
Ambient Temperature Ta (℃)

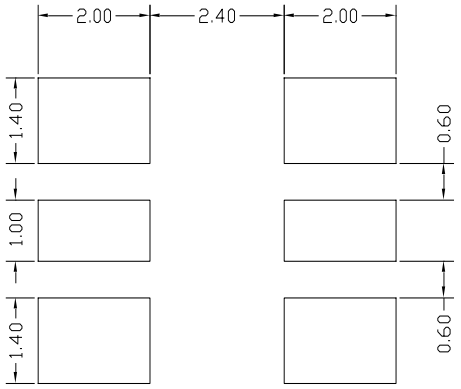

Directive Characteristics

Solder Profile & Footprint

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



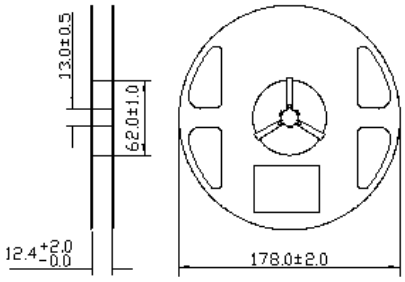
RECOMMEND PAD LAYOUT



Units: mm tolerance: +/- 0.2mm

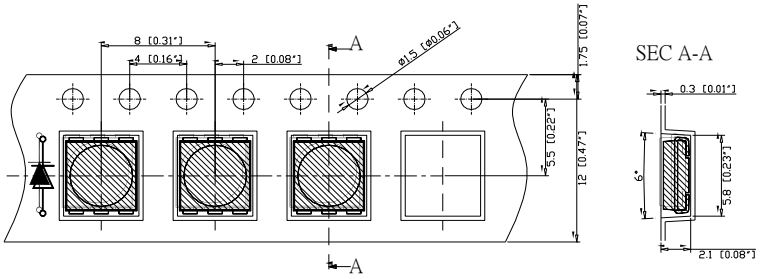
Packing

Reel Dimension:



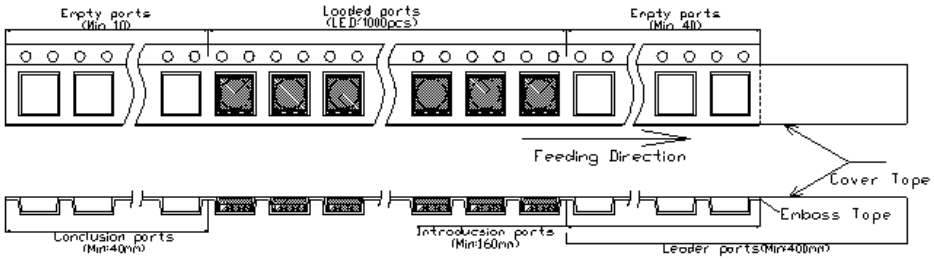
Unit: mm

Tape Dimension:

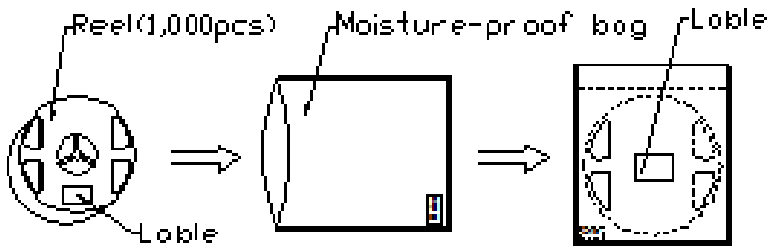


Unit: mm

Arrangement of Tape:



Packaging Specifications:



Labeling



Ordering Information

Part #	Orderable Part #	Spec Range	Quantity per reel
QBLP679-IBK	QBLP679-IBK	Iv=1100mcd typ. @ 60mA / Color=462.5-472.5nm	1,000 units
QBLP679-IGK	QBLP679-IGK	Iv=4700mcd typ. @ 60mA / Color=520-535nm	1,000 units
QBLP679-RK	QBLP679-RK	Iv=630mcd typ. @ 60mA / Color=620-630nm	1,000 units
QBLP679-YK	QBLP679-YK	Iv=1600mcd typ. @ 60mA / Color=585-595nm	1,000 units
QBLP679-OK	QBLP679-OK	Iv=780mcd typ. @ 60mA/ Color=600-615nm	1,000 units
QBLP679-SK	QBLP679-SK	Iv =220mcd typ. @ 60mA/ Color=630-650nm	1,000 units

Revision History

Description:	Revision #	Revision Date
New Release of QBLP679-XXK_series	V1.0	02/13/2012
New format/ Add the “Deep Red” spec / Amend the brightness for InGaN blue and InGaN Green	V1.1	06/25/2013
Add ESD HBM information	V1.2	08/12/2013
Update package dimension and spec	V2.0	03/27/2014

Disclaimer

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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.