







#### **Product Outline:**

This is the high efficiency LED with reflector type. EMC 3030 Single color is a surface-mount LED which with heat sink to enhance operating performance. With special binning technology, these LEDs are ideal for architecture lighting and special lighting needs.

#### **Features:**

- Green color
- High brightness output @ 150mA,
- High driving current to 200mA.
- Package Dimension = 3.2mmX3.0mmX0.6mm
- RoHS compliant
- Custom Bin available upon special request

#### **Application:**

- Warning lamp
- Decoration lamp
- Architecture Lighting
- Garden Lighting
- Horticulture Lighting

## **Compliance and Certification:**

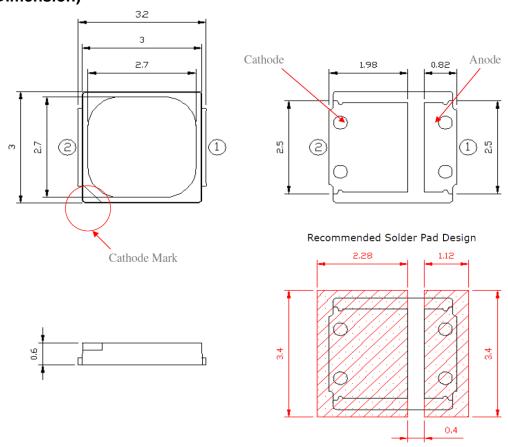






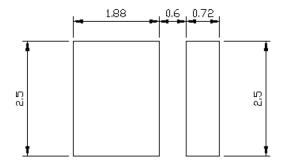


# **Mechanical Property:** (Dimension)



- \* All dimensions are in millimeters,
- \* Tolerances are ± 0.10mm.

# **Recommended Solder footprint:**



- \* All dimensions are in millimeters.
- \* The LEDs is designed to be reflow soldered on to a PCB. IF dip soldered that QL cannot guarantee its reliability.
- \* Reflow soldering must not be performed more than twice.





# **Characteristics**

■ Absolute Maximum Ratings

(Ta=25°℃)

Parameter	Symbol	Rating	Unit
DC Forward Current	If	200	mA
Leakage Current	lr	1.0	μΑ
Power Dissipation	Pd	0.6	W
Pulse Forward Current	lfp	240	mA
LED Junction Temperature	TJ	125	°C
Storage Temperature	Tstg	-40 ~ 100	°C
Operation Temperature	Topr	-40 ~ 85	°C
Soldering Temperature	Tsol	260 < 10 sec	°C
ESD Sensitivity(HBM)		8	KV
Thermal Resistance	Rth	10	°CW

<sup>(1)</sup> Proper current rating must be observed to maintain junction temperature below maximum at all time

# ■ Electrical / Optical Characteristic

(Ta=25 oC)

Product	Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		Wavelength		htness n/mW)
			Тур.	max	nm	min	typ.
QLSP04GKH	Green	150	3.0	3.5	515~530	30 lm	40 lm



<sup>(2)</sup> IFP Condition: Duty 1/10, Pulse within 10msec



■ Groups

Dominant Wavelength

Wd (nm) @ 150mA				
Color Code name Min. Max.				
	DM	515	520	
Green	DN	520	525	
	DP	525	530	

Measurement tolerance is +/- 1nm

Forward Voltage (V<sub>F</sub>) Bin:

VF Rank @ 150mA (Vf)				
Color	Code name	Low	High	
	01	2.8	3.0	
Croon	23	3.0	3.2	
Green	45	3.2	3.4	
	67	3.4	3.6	

The forward voltage tolerance is  $\pm 0.1V$ 

### Luminous Flux Bin:

Rank @ 150mA (lm)				
Color	Code name	Low	High	
	QK	22.5	25	
Green	QL	25	28	
	QM	28	31.5	

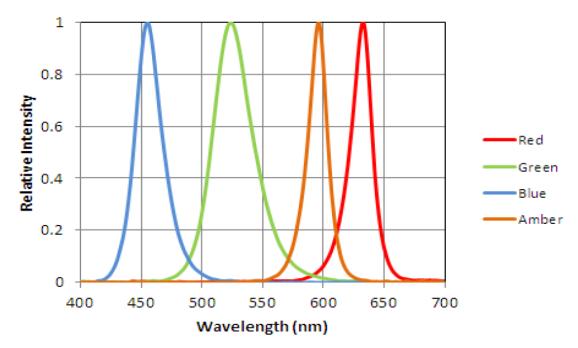
luminous flux tolerance is ± 7%



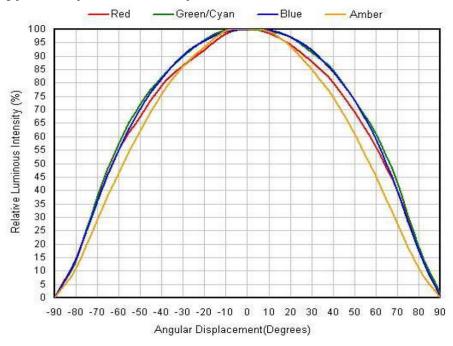


#### **Characteristic Curves**

#### (1) Color Spectrum



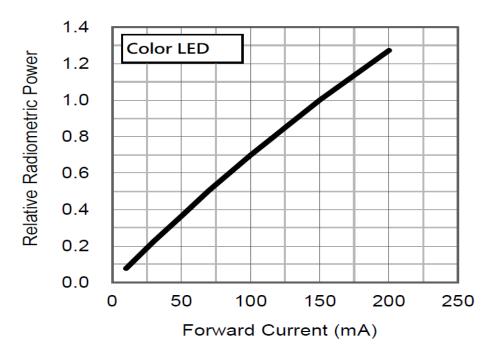
#### (2). Typical Representative Spatial Radiation Pattern



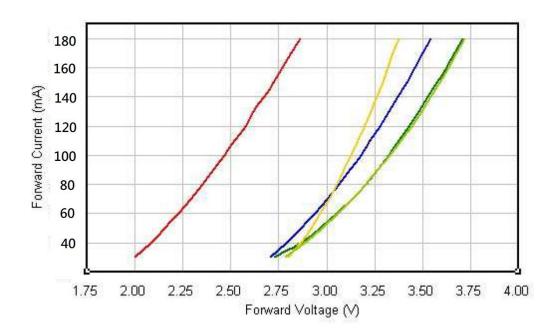




#### (3). Forward Current Characteristics



#### (4). Forward Current vs Forward Voltage







■ Reliability test:

_	Reliability test.				
No	Item	Condition	Time/Cycle	Sample size	
1	Steady State Operating Life of Room Temperature	25 <sup>°</sup> C Operating	1000 Hrs	20 pcs	
2	Steady State Operating Life of Low Temperature -40°C	-40°C Operating	1000 Hrs	20 pcs	
3	Steady State Operating Life of Low Temperature $60^{\circ}\!\mathbb{C}$	60°C Operating	1000 Hrs	20 pcs	
4	Steady State Operating Life of Low Temperature $85^{\circ}\!\mathbb{C}$	85℃ Operating	1000 Hrs	20 pcs	
5	Low temperature storage -40°C	-40°C Storage	1000 Hrs	20 pcs	
6	High temperature storage 100°C	100°C Storage	1000 Hrs	20 pcs	
7	Steady State Operating Life of High Humidity Heat 60° € 90%	60°C/90% Operating	1000 Hrs	20 pcs	
8	Steady State Pulse Operating Life Condition	25°C 10Hz duty=1/10 Operating	200 Cycle	20 pcs	
9	Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60°ℂ, 60%RH for 52hrs Tsld max.=260 10sec	3 Times	20 pcs	
10	Heat Cycle Test (JEDEC MRC)	25℃~65℃~-10℃, 90%RH, 24hr/1cycle	10 Cycle	20 pcs	
11	Thermal shock	-40°C / 20minr~ 5minr~100°C /20min	300 Cycle	20 pcs	

■ Judgment Criteria:

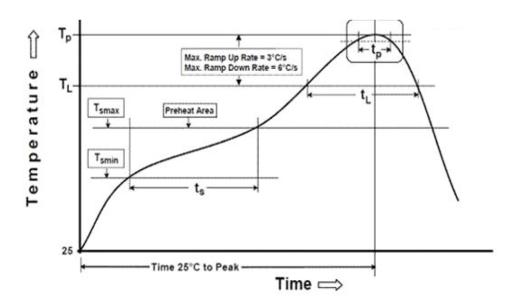
Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	150 mA	△Vf< 10%
Luminous Flux	lv	150 mA	△Iv< 30%





#### **Solder Profile:**

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



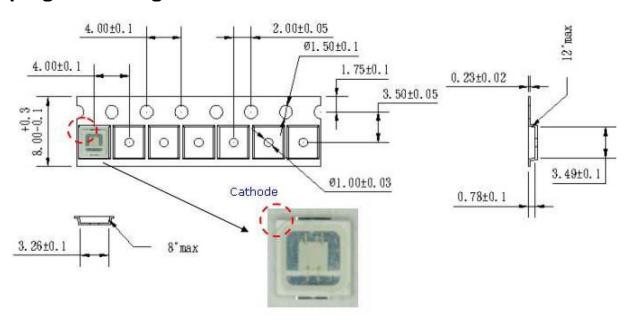
Sn-Pb Eutectic Assembly	Pb-Free Assembly
100℃	150℃
150℃	200℃
60-120 seconds	60-120 seconds
3℃/second max.	3℃/second max.
183℃	217℃
60-150 seconds	60-150 seconds
235℃	260℃
20	20da*
20seconds*	30 seconds*
6℃/second max.	6℃/second max.
6 minutes max.	8 minutes max.
	100°C  150°C  60-120 seconds  3°C/second max.  183°C  60-150 seconds  235°C  20seconds*  6°C/second max.

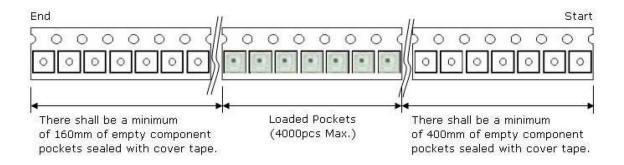
 $<sup>^{</sup>st}$  Tolerance for peak profile temperature (T $_{ extsf{P}}$ ) is defined as a supplier minimum and a user maximum.





# Taping & Packing:

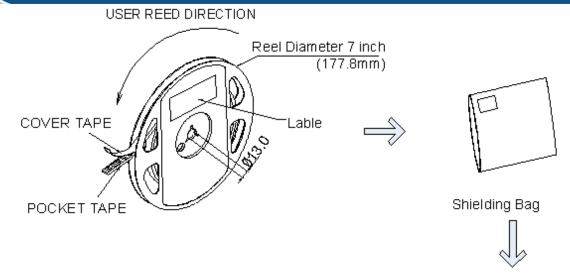


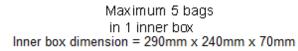


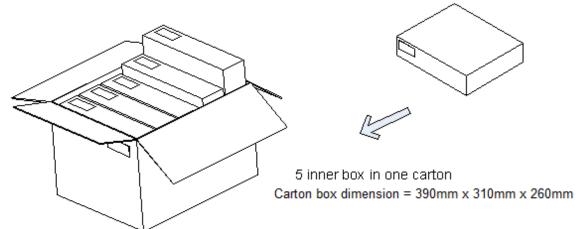
Unit: mm













# Labeling

Quantity: XXXX

Iv Bin: XX

Color Bin: XX

Vf Bin: XX

Date Code: XXXX

QueLighting

**Ordering Information:** 

Part #	Multiple Quantities	Quantity per Reel
QLSP04GKH		1000, 2000 pcs

**Revision History:** 

Revision Date:	Changes:	Version #:
09-21-2020	Initial release	1.0

