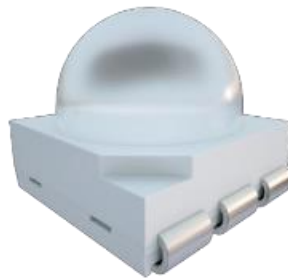




Q **QUELIGHTING**
Sustainable Lighting Solution



QLSP29XDX-XXX
(5050 30D LEDs)



Product Outline:

QLSP29XDX-XXX series are color LEDs bring high performance and quality of light to wide range of lighting application. The lighting application such as cation light, decoration light, signal, specific industrial and commercial lighting.

Features:

- High brightness output @ 50mA / 150mA
- Package Dimension = 5.0mmX5.4mmX5.2mm
- View angle 30-40 degree
- ESD protection up to 3KV
- RoHS compliant
- Custom Bin available upon special request

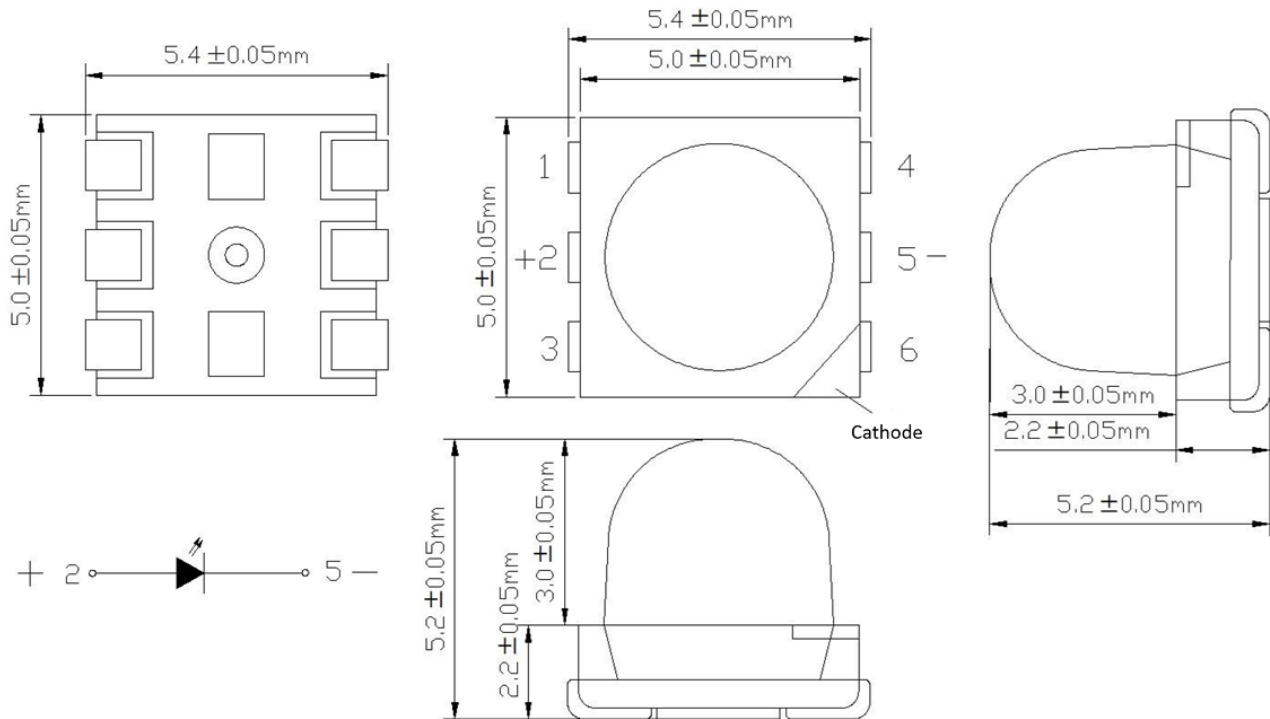
Application:

- Architecture Lighting
- Garden Lighting
- Warming lamp
- Indoor Lighting
- Outdoor Lighting

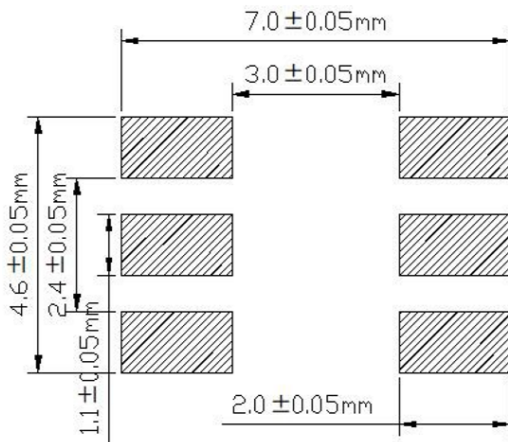
Compliance and Certification:



Mechanical Property: (Dimension)



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.



Electrical / Optical Characteristic

(T=25 °C)

Product	Color	I _F (mA)	V _F (V)		CCT/ Wavelength	Luminous Flux (lm/mcd)	
			Typ.	max		Min	typ.
QLSP29WXDH	White	150	3.2	3.5	2700~6500K	50 lm	60 lm
QLSP29RDD	Red	50	2.2	2.6	615~630	6000	10000
QLSP29YDD	Amber	50	2.2	2.6	588~594	6000	10000

*Tolerance = +/- 10%

Absolute Maximum Rating

(T=25 °C)

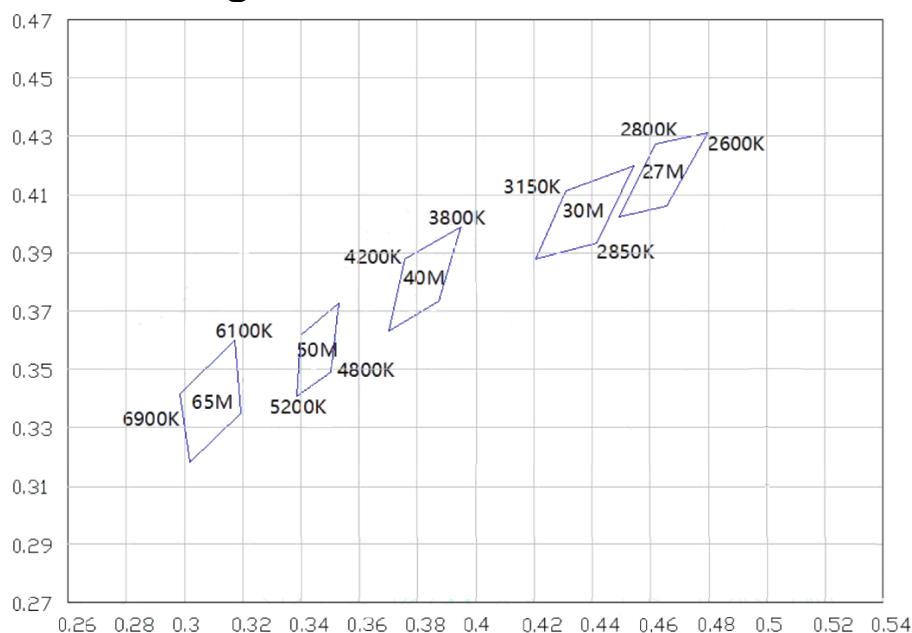
Part #	P _d (mW)	I _F (mA)	I _{FP} (mA)*	V _R (V)	T _j (°C)	TOP (°C)	T _{ST} (°C)	T _{SO L} (°C)**	R _{th(J-S)} (C/W)***
QLSP29WXDH	450	150	200	5	120	-40 – 80	-40 – 85	260	20
QLSP29RDD	168	70	90	5	120	-40 – 80	-40 – 85	260	20
QLSP29YDD	168	70	90	5	120	-40 – 80	-40 – 85	260	20

*Duty 1/10 @ 10Khz

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

*** Junction to substrate

White Binning



Dominate Wavelength (nm) Bin:

Wd (nm)			
Color	Code name	Min.	Max.
Amber	DS2	588	590
	DT1	590	592
	DT2	592	594
Red	A7	615	620
	A8	620	625
	A9	625	630

Measurement tolerance is +/- 1nm

Forward Voltage (VF) Bin:

VF Rank (V)			
Color	Code name	Low	High
White	01	2.8	3.0
	23	3.0	3.2
	45	3.2	3.4
	67	3.4	3.6
Amber/ Red/	PQ	1.8	2.0
	RS	2.0	2.2
	TU	2.2	2.4
	VW	2.4	2.6

The forward voltage tolerance is $\pm 0.1V$

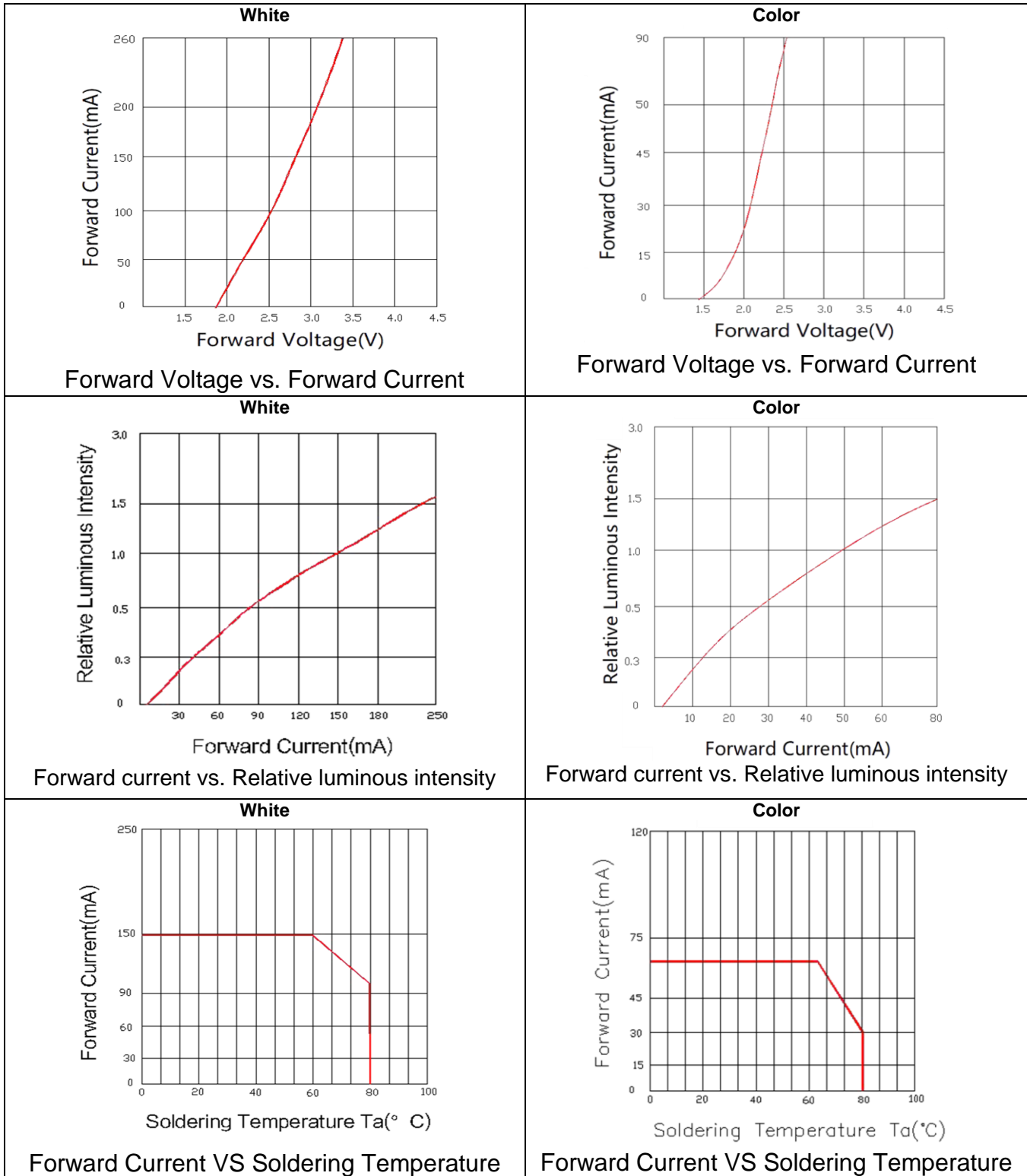
Luminous Flux Bin:

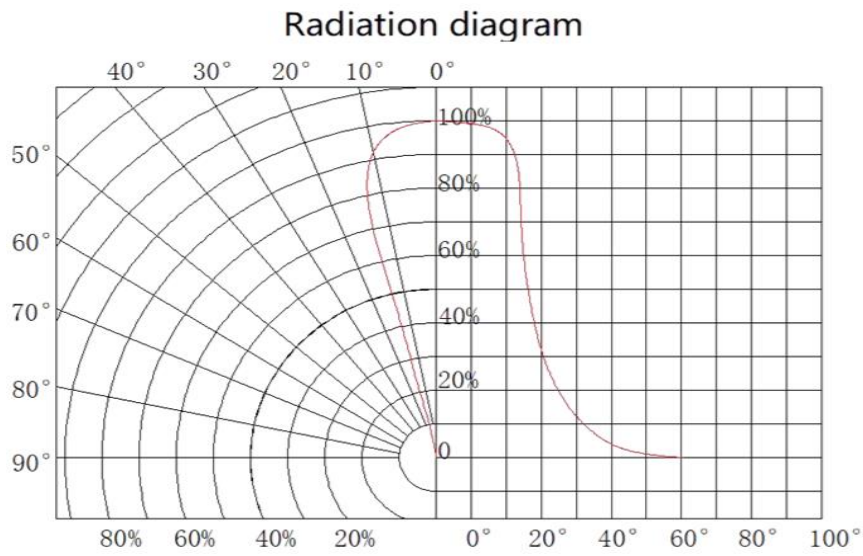
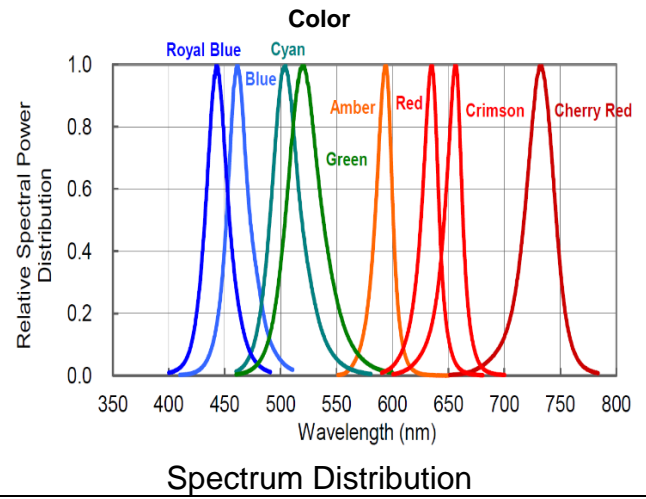
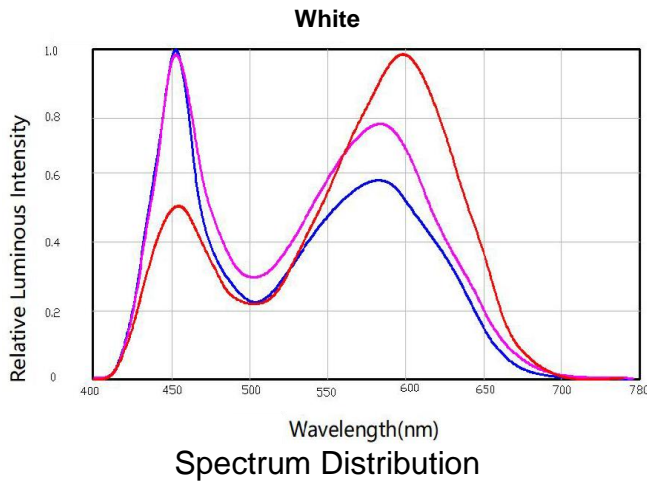
Rank @0mA (lm) / (mcd)			
Color	Code name	Low	High
White	QRT	50 lm	70 lm
Amber	X65	6000 mcd	12000 mcd
Red	X65	6000 mcd	12000 mcd

luminous flux tolerance is $\pm 7\%$



Characteristic Curves





■ Reliability test:

No	Item	Condition	Time/Cycle	Sample size
1	Steady State Operating Life of Room Temperature	25°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°C	60°C Operating	1000 Hrs	20 pcs
4	Steady State Operating Life of Low Temperature 85°C	85°C 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°C 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 Tslid max.=260 10sec	3 Times	20 pcs
10	Heat Cycle Test (JEDEC MRC)	25°C ~65°C ~-10°C, 90%RH, 24hr/1cycle	10 Cycle	20 pcs
11	Thermal shock	-40°C/ 20minr~ 5minr~100°C/20min	300 Cycle	20 pcs

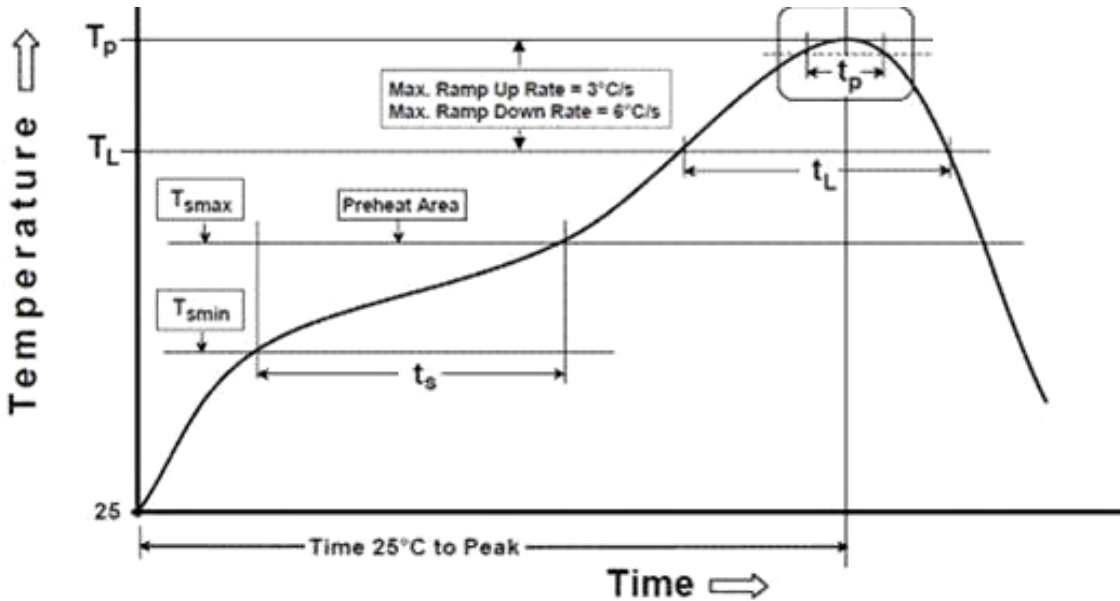
■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	50 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv	50 mA	$\Delta Iv < 30\%$



Solder Profile:

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



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Temperature Min(T_{smin})	100°C	150°C
Temperature Max(T_{smax})	150°C	200°C
Time(t_a) from (T_{smin} to T_{smax})	60-120 seconds	60-120 seconds
Ramp-up rate(T_L to T_p)	3°C/second max.	3°C/second max.
Liquidous Temperature(T_L)	183°C	217°C
Time(t_L) maintained above T_L	60-150 seconds	60-150 seconds
Peak package body temperature(T_p)	235°C	260°C
Time within 5°C of Actual Peak temperature (t_p)	20seconds*	30 seconds*
Ramp-down rate(T_p to T_L)	6°C/second max.	6°C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.		

Note: Number of reflow process shall be less than **1 times**



■ Notes:

ESD COUNTERMEASURE

Static electricity and high volt can damage led , The production whose Die material is InGaN must strictly required to prevent ESD , Must put on static glove and static fillet , Soldering tool and the cover of device must connect the ground , soldering condition follows the related stating of production specification manual ◦

PROTECTING COUNTERMEASURE WHEN OVER CURRENT

Need add the protecting resistor in circuit in order to avoid damaging led due to big current and voltage fluctuation ◦

LED INSTALLATION

(A). Pay attention to the led polarity and avoid installation wrong ◦ Led can't be close to euthermic component, work condition should tally with it's specification ◦

(B). Don't install the LED under the condition of the led pin deformation ◦

(C). The led bracket don't load any pressure when installing the led into PCB or fitting hole ◦

(D). Must avoid any strike and force on led before the soldering temperature return to room temperature.

STORAGE TIME

(A). Led can be stored for a year under the condition: the temperature of 5°C ~ 35°C and humidity of RH60%. These production must be re-inspected and tested before use if their storage time exceed a year.

(B). If led is exposed in air for a week under the condition: the temperature of 5°C ~ 35°C · humidity of RH60%. must place the led in the ambience of 65°C±5°C for 24 hours and use it in 15 days for best.

CLEANING

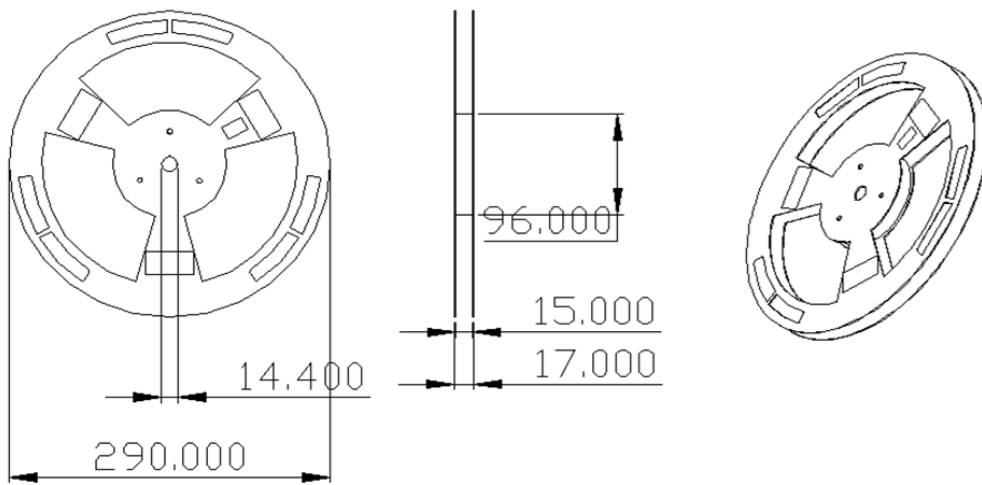
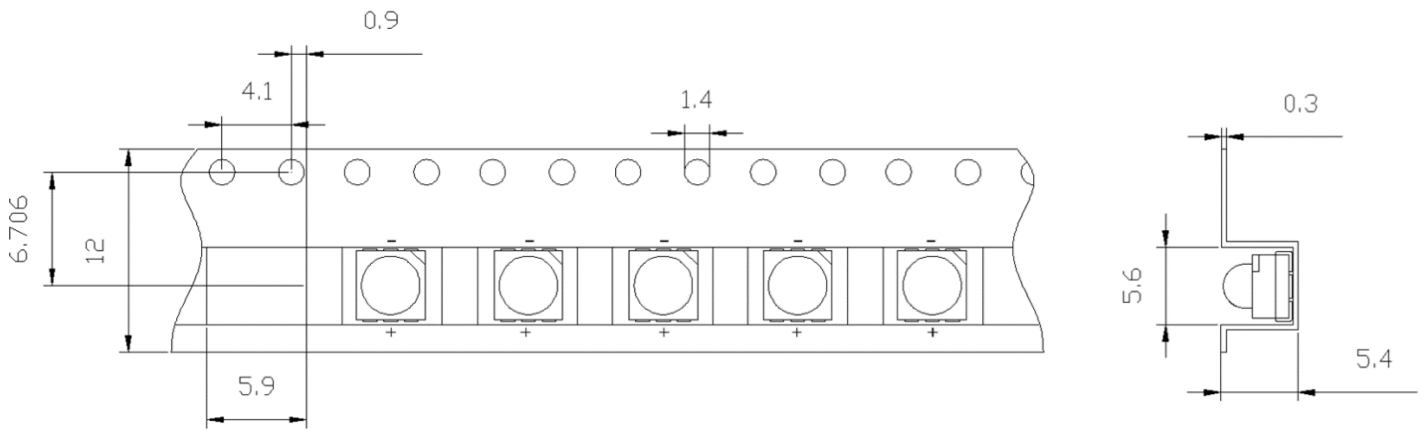
Be careful of some chemical results in the led colloid fades and damage when using chemical clean the led such as chloroethylene, acetone etc ◦ can use ethanol to wash or soak led but the time don't exceed 3 minutes.

KINKED

The kinked tooling scrape easliy the pin of led, where the led bracket is rusting easliy, especisal expose it in Moist air. To decrease the led bracket rust, advise using platse tin led bracket

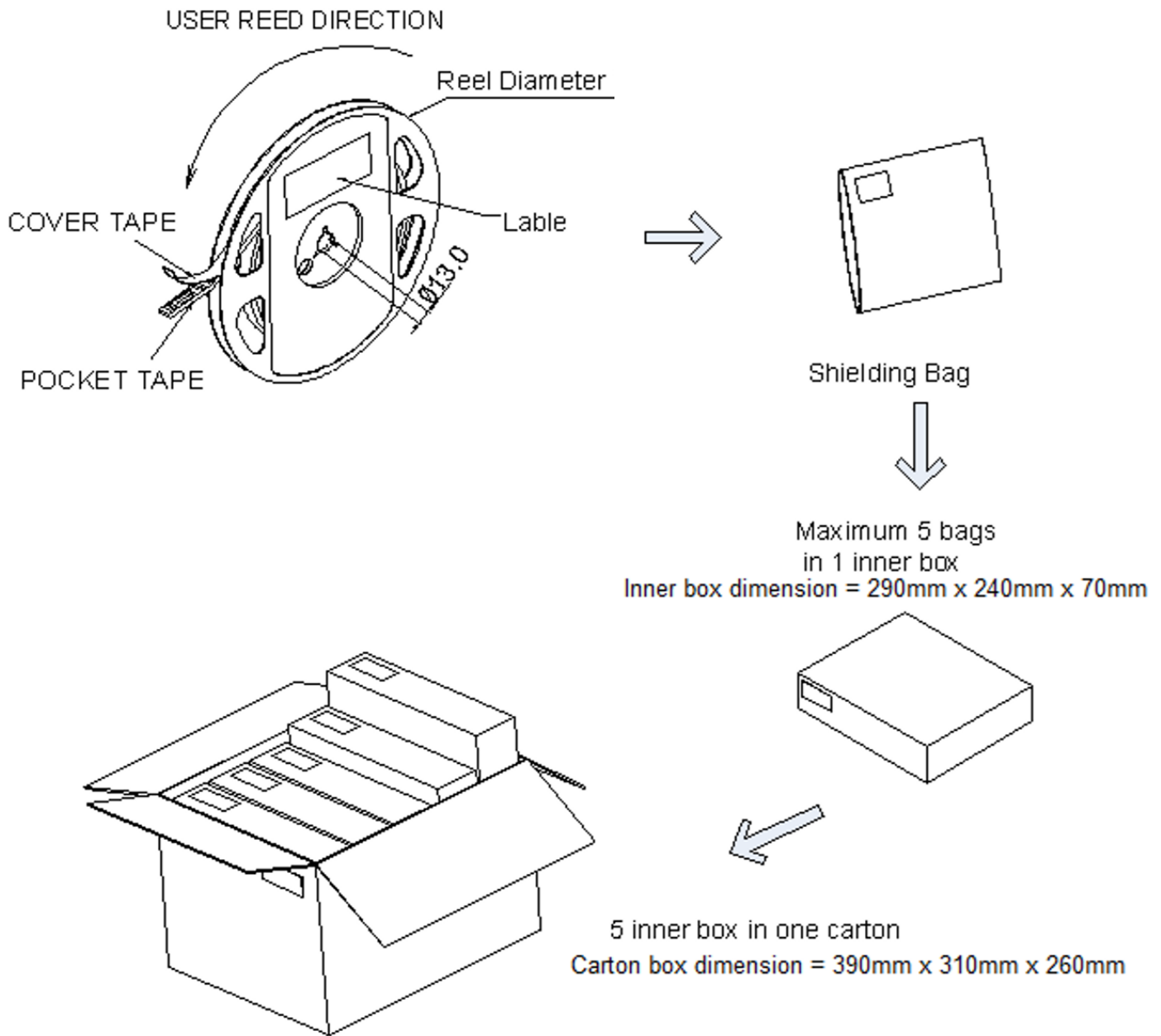


Taping & Packing:



Unit : mm





Labeling



Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP29XDX-XXX		1000 pcs



Revision History:

Revision Date:	Changes:	Version #:
08-01-2023	Initial release	1.0

