



QLSP14WC-216
(2121 PLCC 4 LED)



Product Outline:

This is the small TOP LED with reflector type with single color led. This special package is ideal for customer's application in traffic signal and sign boards. With special binning technology, Quelighting is able to provide special binning for customer's needs

Features:

- Single color LED
- High brightness output @ 20mA,
- High driving current to 30mA.
- Package Dimension = 2.1mm x 2.1mm x 1.0mm
- MSL level 2
- RoHS compliant
- Custom Bin available upon special request
- View angel >110°

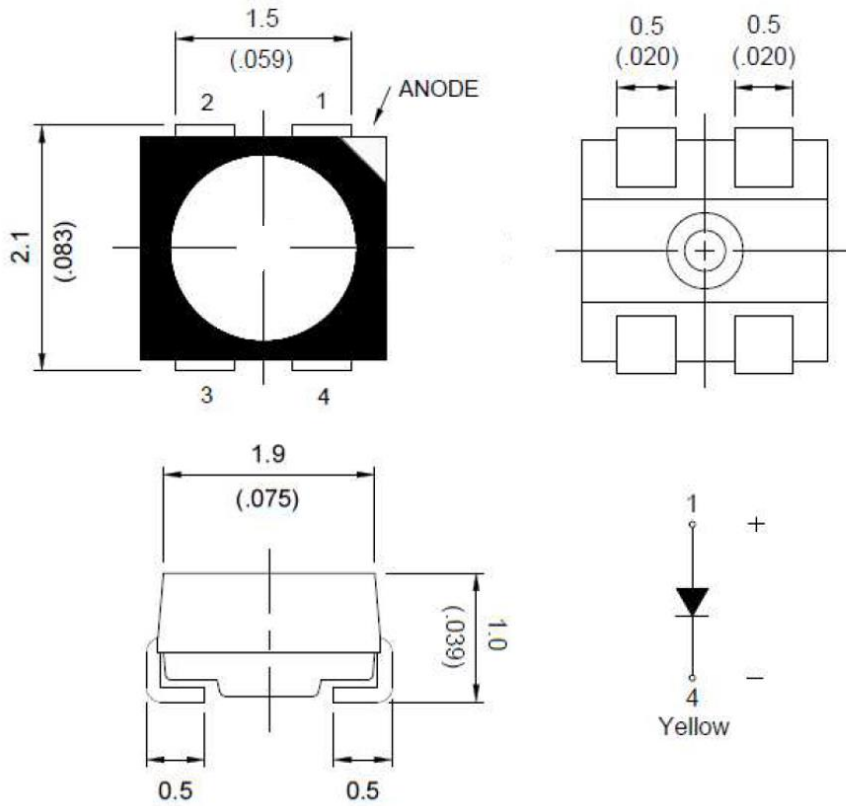
Application:

- Architecture Lighting
- Sign board backlighting
- Emergency vehicle lighting
- Traffic signal lighting
- Automotive lighting

Compliance and Certification:

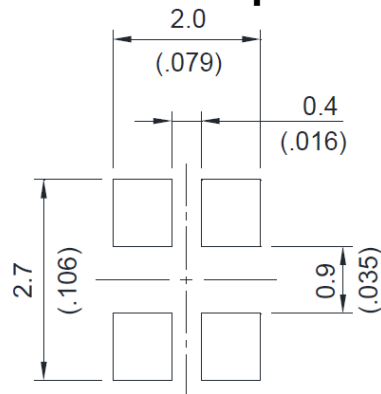


**Mechanical Property:
(Dimension)**



* 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°C)

Parameter	Symbol	Rating	Unit
DC Forward Current	If	30	mA
Power Dissipation	Pd	0.1	W
Pulse Forward Current	Ifp	100	mA
Storage Temperature	Tstg	-40 ~ 100	°C
Operation Temperature	Topr	-40 ~ 85	°C
Soldering Temperature	Tsol	260 < 10 sec	°C

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

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

■ Electrical / Optical Characteristic

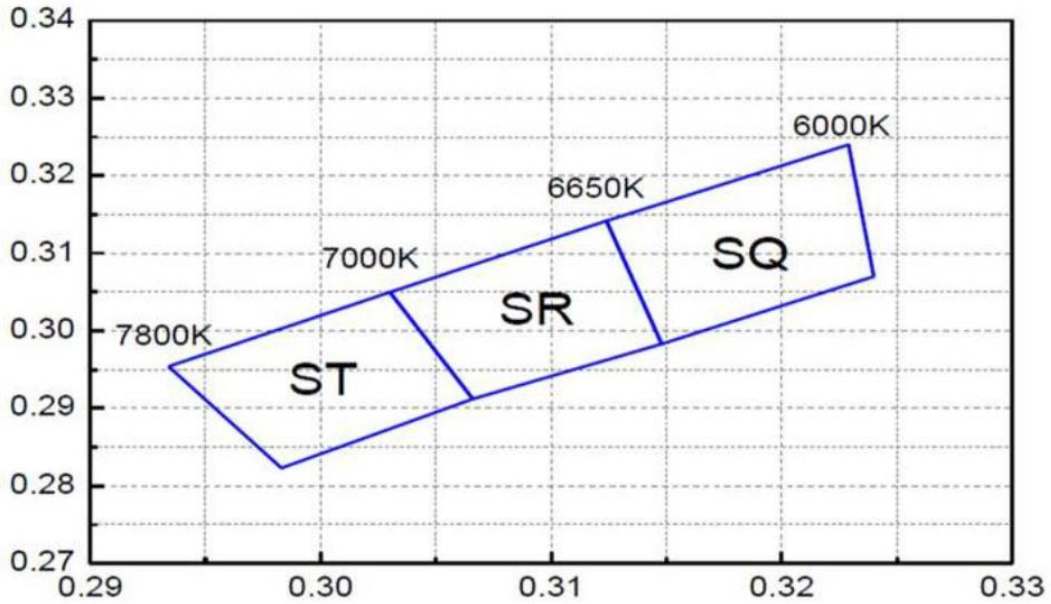
(Ta=25 oC)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	IV	20mA	1800		3600	mcd
Forward Voltage	Vf		2.8		3.4	V
Reverse Voltage	VR				5	V
Reverse Current	IR				10	μA
View Angle	θ				120	deg

(1) Tolerance of measurement: VF=+/- 0.1V



■ White Bin



*Tolerance = +/- 10%

Forward Voltage (V_F) Bin:

VF Rank (V) @ 20mA				Condition
Color	Code name	Low	High	unit
White	Z1	2.8	3.0	V
	23	3.0	3.2	
	45	3.2	3.4	

The forward voltage tolerance is ± 0.1V

Luminous Intensity Bin:

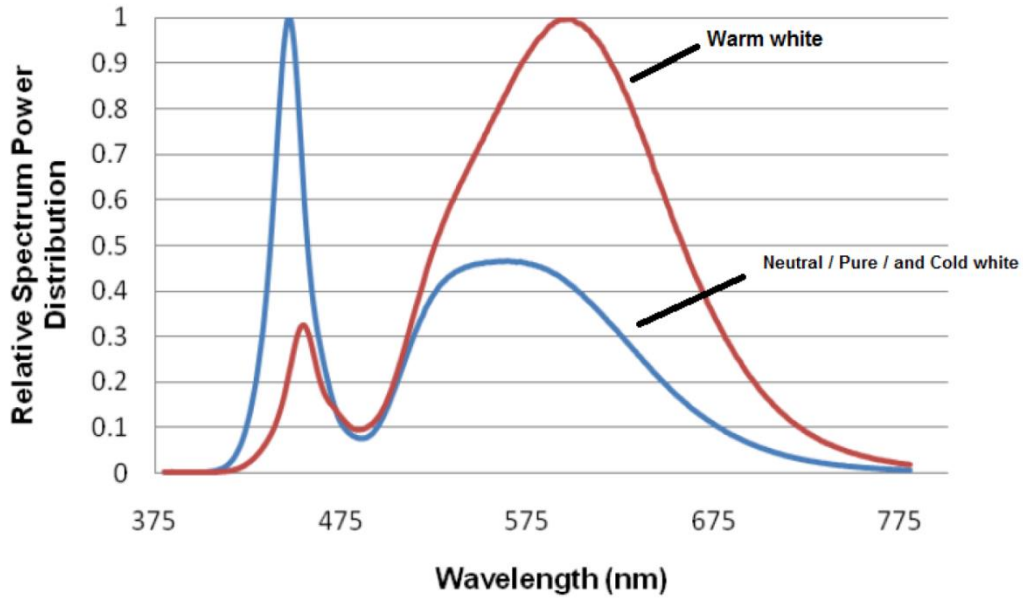
Intensity Rank (mcd) @ 20mA			
Code name	Min.	Max.	Units
X6	1800	2250	mcd
Q1	2250	2770	
Q2	2770	3600	

Luminous intensity tolerance is ± 7%

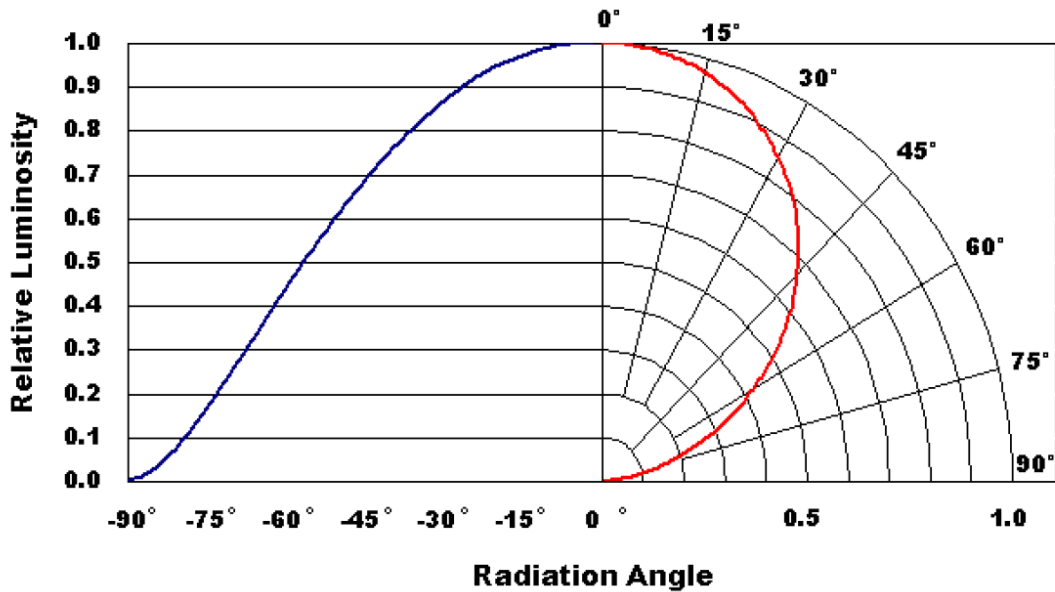


■ Characteristic Curves

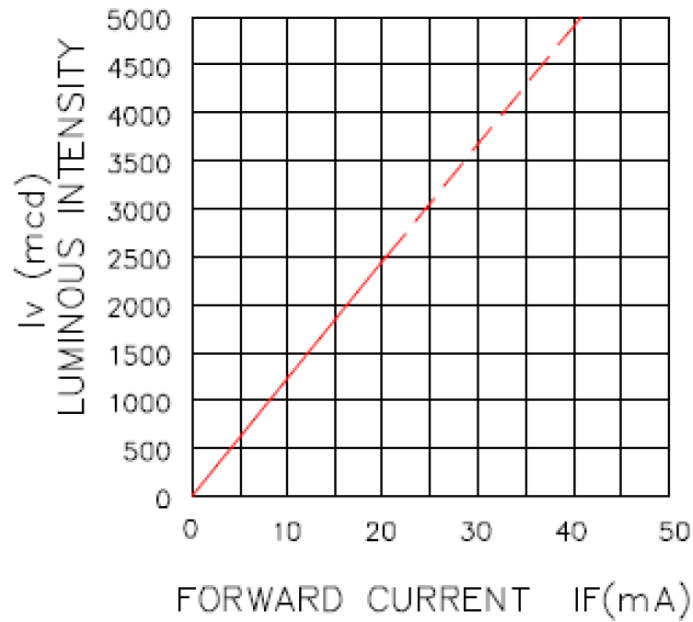
(1) Color Spectrum



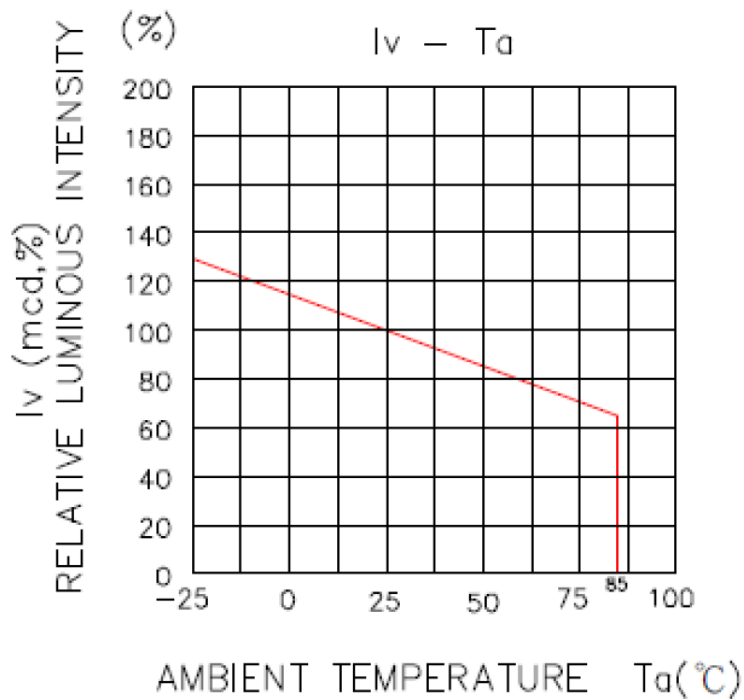
(2). Typical Representative Spatial Radiation Pattern



(3). Forward Current Characteristics



(4). Ambient temperature vs Luminous Intensity



■ 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

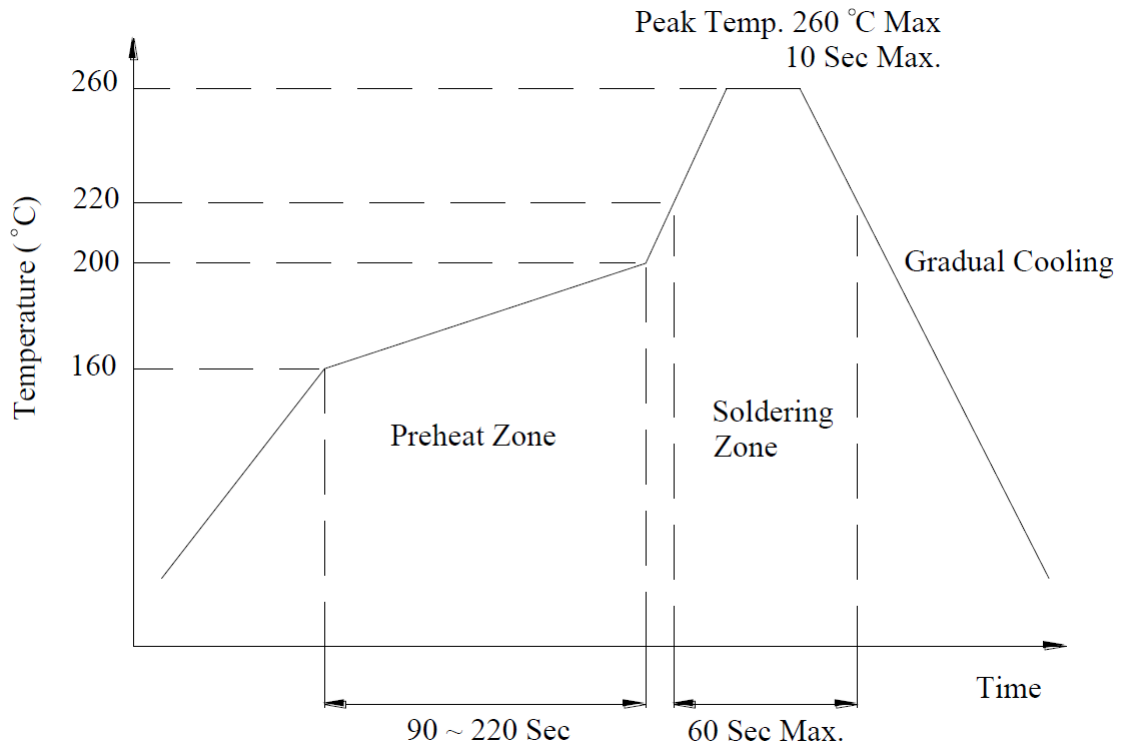
■ Judgment Criteria:

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	20 mA	$\Delta Vf < 10\%$
Luminous Flux	Iv	20 mA	$\Delta Iv < 30\%$

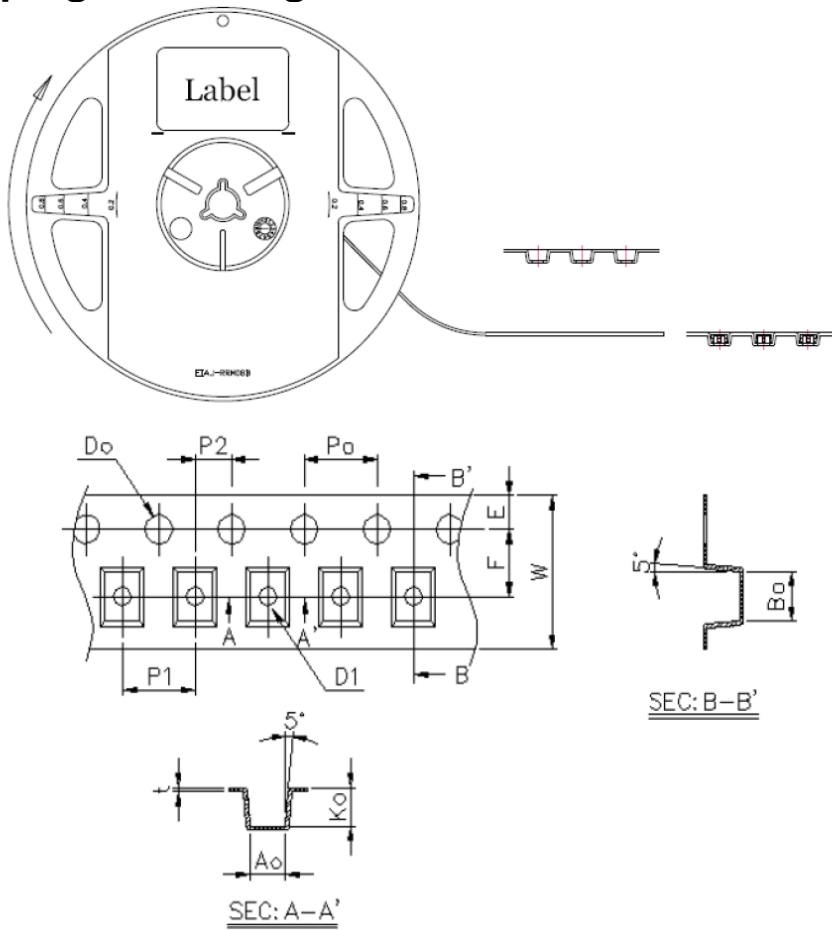


■ **Solder Profile:**

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



■ Taping & Packing:

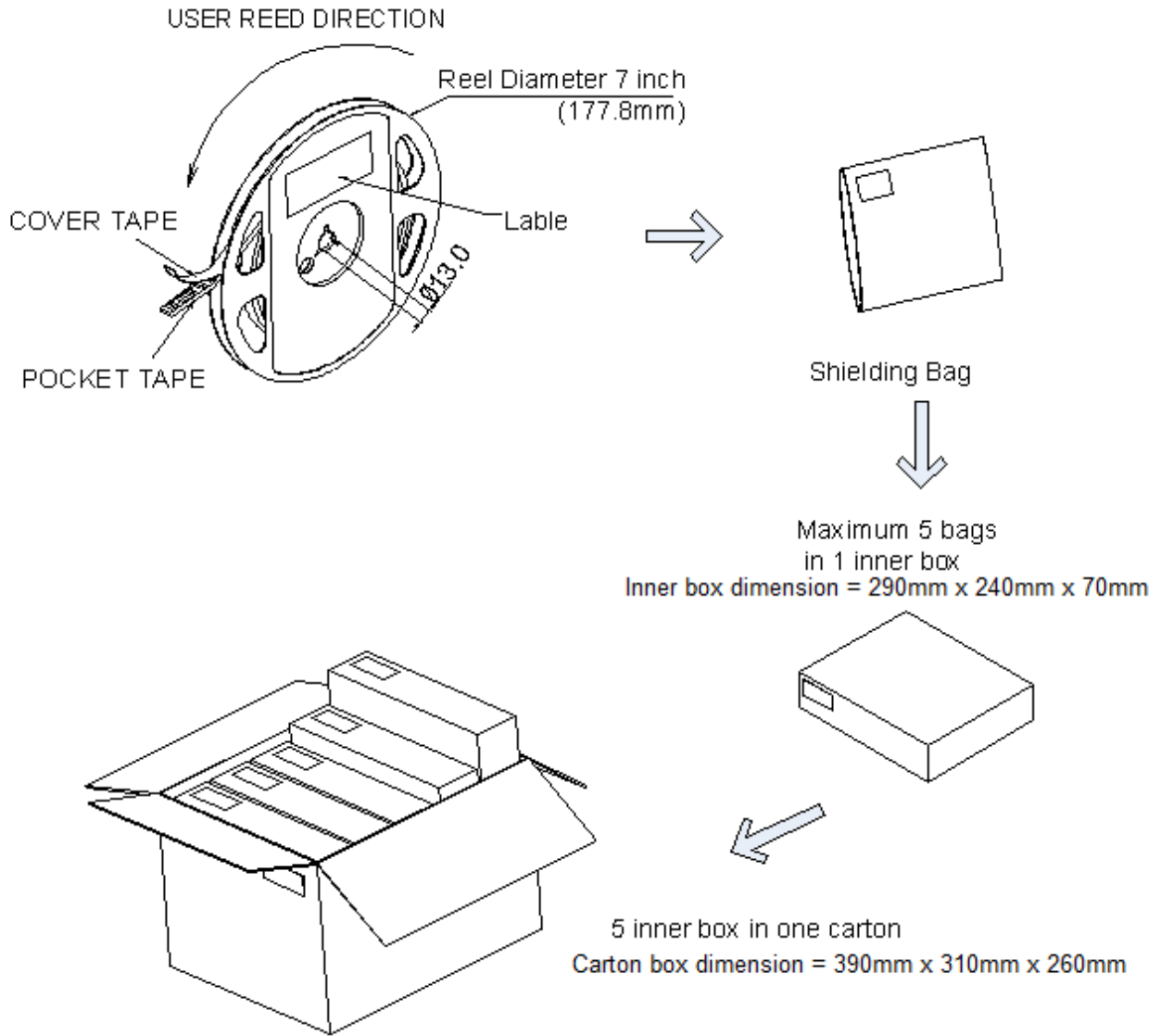


Item	Specification	Tol. (+/-)
W	8.00	± 0.20
E	1.75	± 0.10
F	3.50	± 0.05
D0	1.50	+0.10, -0
D1	1.00	± 0.10
P0	4.00	± 0.05
P1	4.00	± 0.10
P2	2.00	± 0.05
P0 x 10	40.00	± 0.20

t	0.25	± 0.05
A0	3.00	± 0.10
B0	3.73	± 0.10
K0	2.12	± 0.10
A1		
B1		
K1		

Unit : mm





■ Labeling


QueLighting



Quantity: XXXX



Quelighting P/N: XXXXXX



Lot number: XXXXX

Iv Bin: XX
Color Bin: XX
Vf Bin: XX
Date Code: XXXX

■ Ordering Information:

Part #	Multiple Quantities	Quantity per Reel
QLSP14WC-216 PLCC 4		2000 pcs

■ Revision History:

Revision Date:	Changes:	Version #:
02-11-2019	Initial release	1.0
08-01-2019	Add led photo	1.1

