



QLLP01XWCX-XXX
(5mm White Lamp Series)



Product Outline:

QLLP01XWCX-XXX is an Ø 5mm White lamp LED series, This LED type is made with advanced optical grade epoxy to deliver high brightness output.

Features:

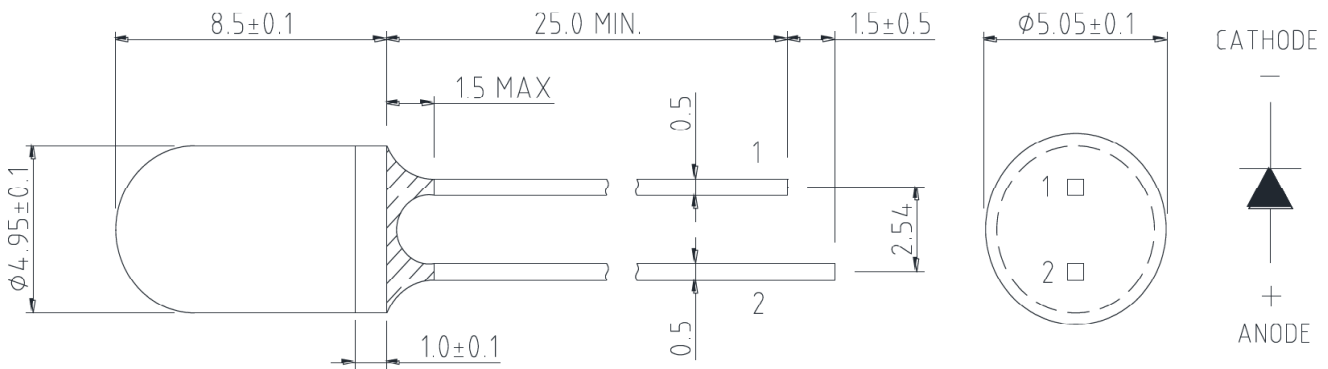
- High luminous emission
- Low power consumption
- 5mm round lamp
- 25° Viewing angle
- Resign color: water clear
- Color: Warm / Pure/ Cold White
- RoHS compliant
- Custom Bin available upon special request

Application:

- Electronic signs and electronics board
- General purpose indicator application
- Lighting application

Compliance and Certification:

■ Mechanical Property: (Dimension)



Tolerance is ± 0.25 mm unless otherwise specified , Unit:mm

■ Optical Characteristics

Ta=25°C

Model No.	Color	Viewing Angle°	CCT	Forward Voltage(V)	Luminous Intensity (min. mcd@20mA)
QLLP01WWC-XXX	Warm White	25	2700-4000	2.8~3.6	10000
QLLP01PWC-XXX	Pure White	25	4000-5600	2.8~3.6	12000
QLLP01CWC-XXX	Cold White	25	5600-9000	2.8~3.6	16000

*Radiant Intensity Measurement allowance is $\pm 15\%$

** Forward voltage Measurement allowance is ± 0.1 V

*** Peak emission wavelength Measurement allowance is ± 1 nm

■ ABSOLUTE MAXIMUM RATINGS

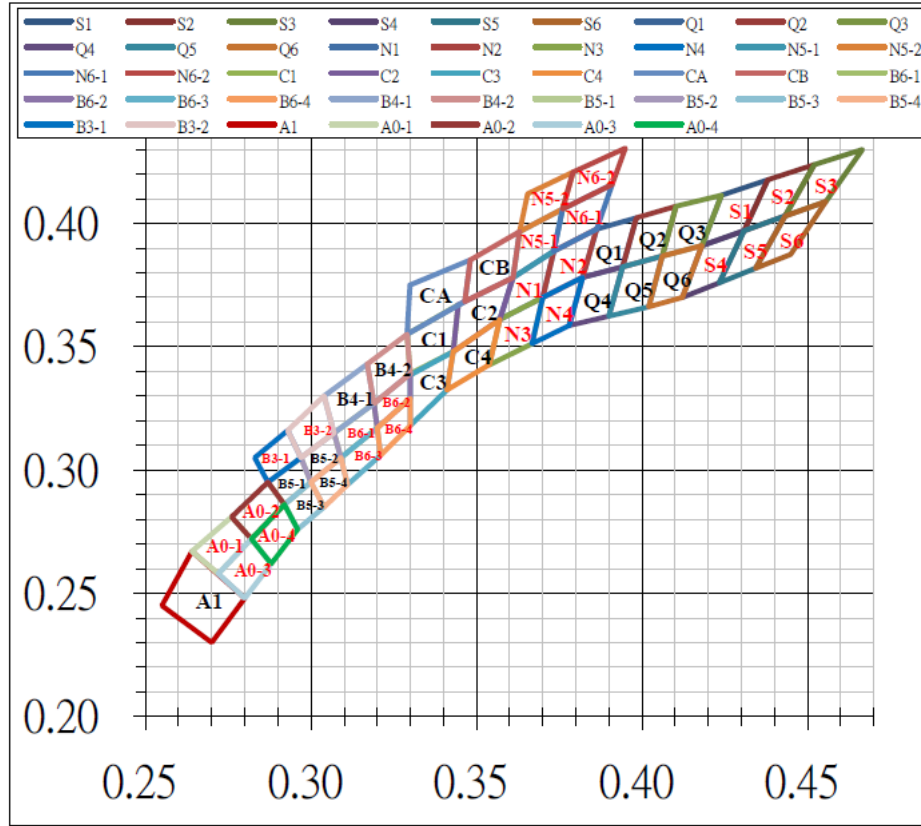
Ta=25°C

Characteristic	Symbol	Rating	Unit
Forward direct current	IFM	30	mA
Reverse voltage	VRM	5	V
Operating temperature	Topr	-40 to +85	°C
Storage temperature	Tstg	-40 to +100	°C
Power dissipation	Pd	108	mW



■ Binning

Color:



2700-4000K(warm white):

S1		S2		S3		S4		S5		S6	
x	y	x	y	x	y	x	y	x	y	x	y
0.4240	0.4114	0.4380	0.4177	0.4520	0.4238	0.4181	0.3910	0.4308	0.3970	0.4432	0.4029
0.4181	0.3910	0.4308	0.3970	0.4432	0.4030	0.4122	0.3700	0.4233	0.3759	0.4343	0.3818
0.4308	0.3970	0.4432	0.4030	0.4555	0.4088	0.4233	0.3759	0.4343	0.3818	0.4449	0.3874
0.4380	0.4177	0.4520	0.4238	0.4666	0.4300	0.4308	0.3970	0.4432	0.4030	0.4555	0.4088
Q1		Q2		Q3		Q4		Q5		Q6	
x	y	x	y	x	y	x	y	x	y	x	y
0.3863	0.3977	0.3983	0.4023	0.4103	0.4069	0.3821	0.3781	0.3941	0.3824	0.4061	0.3867
0.3821	0.3781	0.3941	0.3824	0.4061	0.3867	0.3780	0.3586	0.3900	0.3624	0.4020	0.3662
0.3941	0.3824	0.4061	0.3867	0.4181	0.3910	0.3900	0.3624	0.4020	0.3662	0.4122	0.3700
0.3983	0.4023	0.4103	0.4069	0.4240	0.4114	0.3941	0.3824	0.4061	0.3867	0.4181	0.3910



4000K-5600K(pure white)

N1		N2		N3		N4	
x	y	x	y	x	y	x	y
0.3610	0.3780	0.3733	0.3888	0.3570	0.3611	0.3700	0.3700
0.3570	0.3611	0.3700	0.3700	0.3539	0.3427	0.3668	0.3512
0.3700	0.3700	0.3821	0.3781	0.3668	0.3512	0.3780	0.3586
0.3733	0.3888	0.3863	0.3977	0.3700	0.3700	0.3821	0.3781
N5-1		N5-2		N6-1		N6-2	
x	y	x	y	x	y	x	y
0.361	0.378	0.363	0.3967	0.3733	0.3888	0.376	0.4058
0.3733	0.3888	0.376	0.4058	0.3863	0.3977	0.391	0.4158
0.376	0.4058	0.3792	0.4208	0.391	0.4158	0.395	0.4305
0.363	0.3967	0.3654	0.412	0.376	0.4058	0.3792	0.4208

C1		C2		C3		C4		CA		CB	
x	y	x	y	x	y	x	y	x	y	x	y
0.329	0.355	0.3445	0.367	0.33	0.3385	0.3430	0.3480	0.3299	0.3750	0.3481	0.3852
0.33	0.339	0.343	0.348	0.33	0.318	0.3411	0.3325	0.3290	0.3550	0.3465	0.3683
0.343	0.348	0.357	0.3611	0.3411	0.3325	0.3539	0.3427	0.3465	0.3683	0.3610	0.3780
0.3445	0.367	0.361	0.378	0.343	0.348	0.3570	0.3611	0.3481	0.3852	0.363	0.3967

5600-9000K (cold white):

B6-1		B6-2		B6-3		B6-4		B4-1		B4-2	
x	y	x	y	x	y	x	y	x	y	x	y
0.309	0.305	0.320	0.317	0.311	0.294	0.321	0.306	0.3040	0.3300	0.3170	0.3430
0.307	0.315	0.319	0.327	0.309	0.305	0.320	0.317	0.307	0.315	0.319	0.327
0.319	0.327	0.330	0.339	0.320	0.317	0.330	0.329	0.319	0.327	0.3300	0.3390
0.320	0.317	0.330	0.329	0.321	0.306	0.330	0.318	0.3170	0.3430	0.3290	0.3550

B5-1		B5-2		B5-3		B5-4		B3-1		B3-2	
x	y	x	y	x	y	x	y	x	y	x	y
0.292	0.286	0.300	0.295	0.296	0.276	0.304	0.285	0.283	0.305	0.293	0.316
0.287	0.295	0.297	0.305	0.292	0.286	0.300	0.295	0.287	0.295	0.297	0.305
0.297	0.305	0.307	0.315	0.300	0.295	0.309	0.305	0.297	0.305	0.307	0.315
0.300	0.295	0.309	0.305	0.304	0.285	0.311	0.294	0.293	0.316	0.304	0.33



Luminous Intensity Bin:

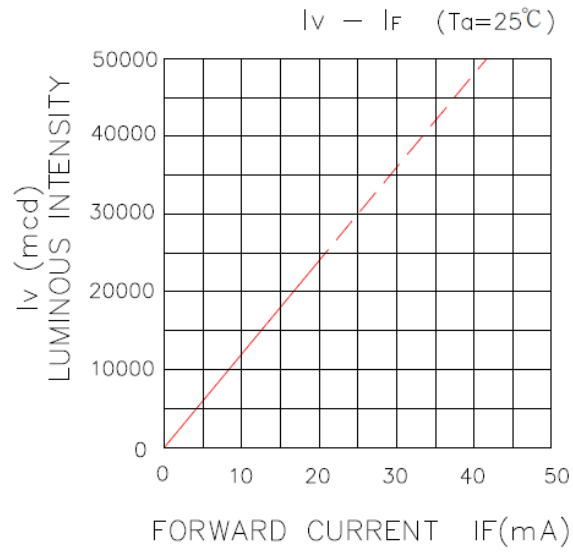
Rank @20mA (mcd)			
Color	Code name	Low	High
White	X10A	10000	12000
	X12A	12000	14000
	X14A	14000	16000
	X16A	16000	18000
	X18A	18000	20000
	X20A	20000	22000
	X22A	22000	24000
	X24A	24000	26000

Forward Voltage (VF) Bin:

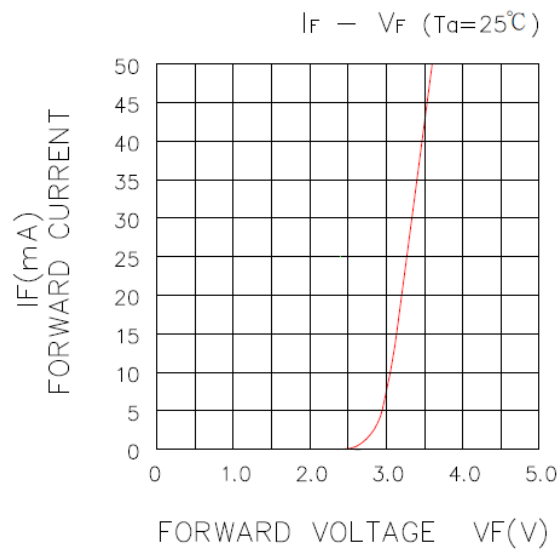
VF Rank @ 20mA			
Color	Code name	Low	High
White	01	2.8	3.0
	23	3.0	3.2
	45	3.2	3.4
	67	3.4	3.6



■ Characteristic Curves

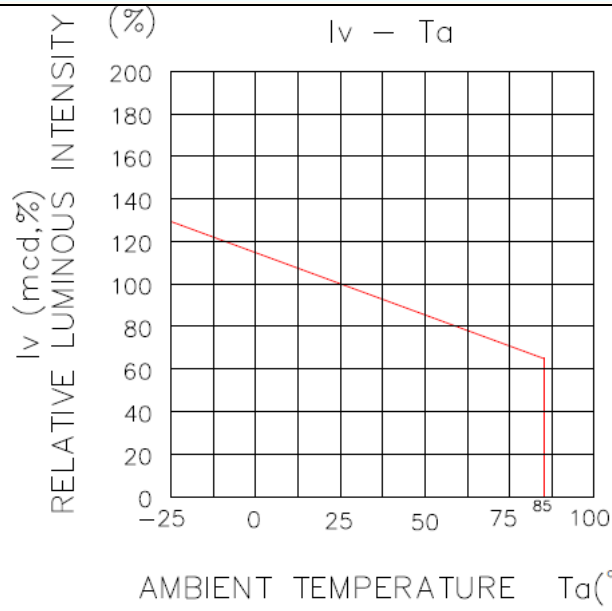


luminous intensity vs. Forward current

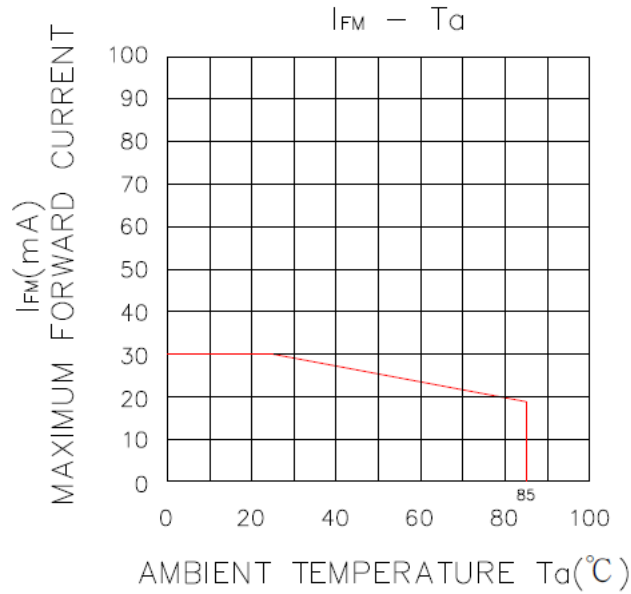


Forward Voltage vs. Forward Current



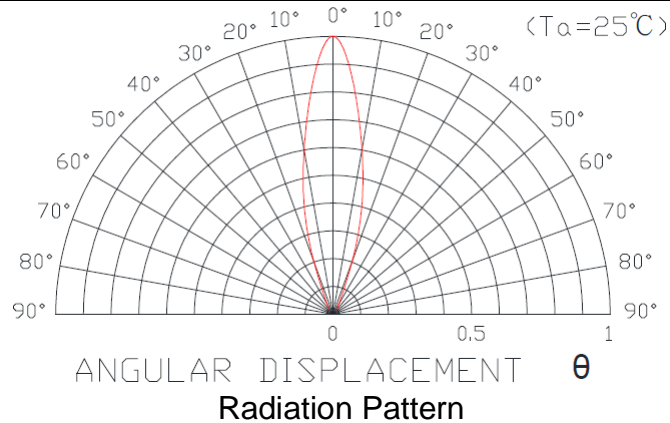


Relative Luminous Intensity vs Ambient Temperature



Maximum Forward current vs Ambient Temperature





■ Reliability test:

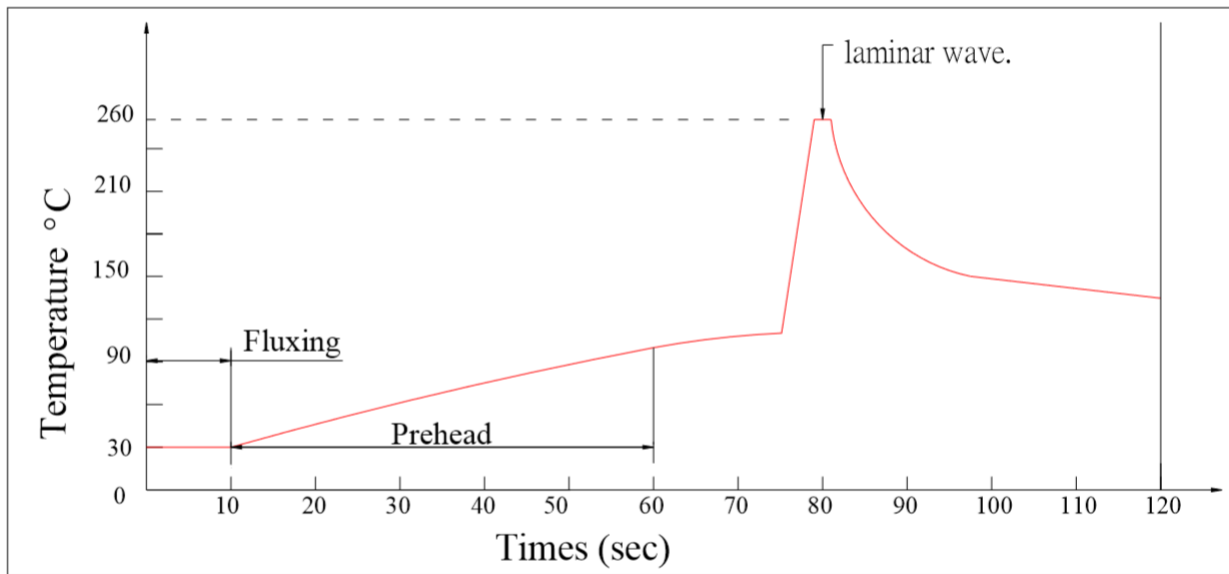
No	Item	Condition	Time/Cycle	Criteria	Ac / Re	Sample size
1	Soldering Heat Test	260°C	5 sec	Open / Short	0 / 1	20 pcs
2	Thermal Shock	0 (5min) °C ~100 (5min) °C	20 cycle	Open / Short	0 / 1	20 pcs
3	High Temp. Storage	100°C	1000 Hrs	Open / Short	0 / 1	20 pcs
4	Low Temp. Storage	-40°C	1000 Hrs	Open / Short	0 / 1	20 pcs
5	Temperature Cycle Test	-40 ~85 °C	100 Cycles , 200Hrs	Open / Short	0 / 1	20 pcs
6	High Temp. High Humidity Test	60 , 90% RH °C	1000 Hrs	Open / Short	0 / 1	20 pcs
7	DC Operation Life Test	IF=20mA	1000 Hrs	Power decay	≤30%	20 pcs




■ Solder Profile:

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


Shape	Lead Frame Type
Hand soldering	1.Temp.at tip of iron : 300 °C max.(30W max.) 2.Soldering time : 3 sec max. 3.Distance : 3 mm MIN (from solder joint to case)
DIP soldering	1.Preheat temp : 100 °C max , 60 sec max. 2.Bath temp : 260 °C max. 3.Bath time : 3 sec max. 4.Distance : 3 mm MIN (From solder joint to case)
Recommended soldering profile	1.Preheat temp. : 100 °C , 50 sec max. 2.Peak temp. : 260 °C max. 3.Peak time : 3 sec max. 4.Duration above: 200°C , 3 sec max.




■ Labeling




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 Bag
QLLP01XWCX-XXX		1000 / 2000

■ Revision History:

Revision Date:	Changes:	Version #:
06-23-2018	Initial release	1.0

