

High Power Solid-State LED Light Source

LUSTRON X4

Introduction

For a brighter solid-state light source, Lustrous Technology is proud to release the new **LUSTRON X4**. Ideal for your wide range of lumen output, **LUSTRON X4** has the ability to generate from 500 lumens to 1,000 lumens for different purposes. The **LUSTRON X4** is energy efficient, and provides you the best lifetime performance over 30,000 hours. **LUSTRON X4** is a very powerful LED product which can be used for all types of Commercial and Architectural applications.

Note: To optimize the performance and lifetime, please maintain a constant current of less than the indicated T_b at 50° C.

LUSTRON X4

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LUSTRON X4 Part Number Matrix

Table.1

Color	P/N
Warm White	L410CLCNBA
	L410CLIGBA
Neutral White	L410MWCNBA
	L410MWIGBA
Cool White	L410NWCNDA
	L410NWIGDA

LUSTRON X4 Material

Chip Material	GaN Base
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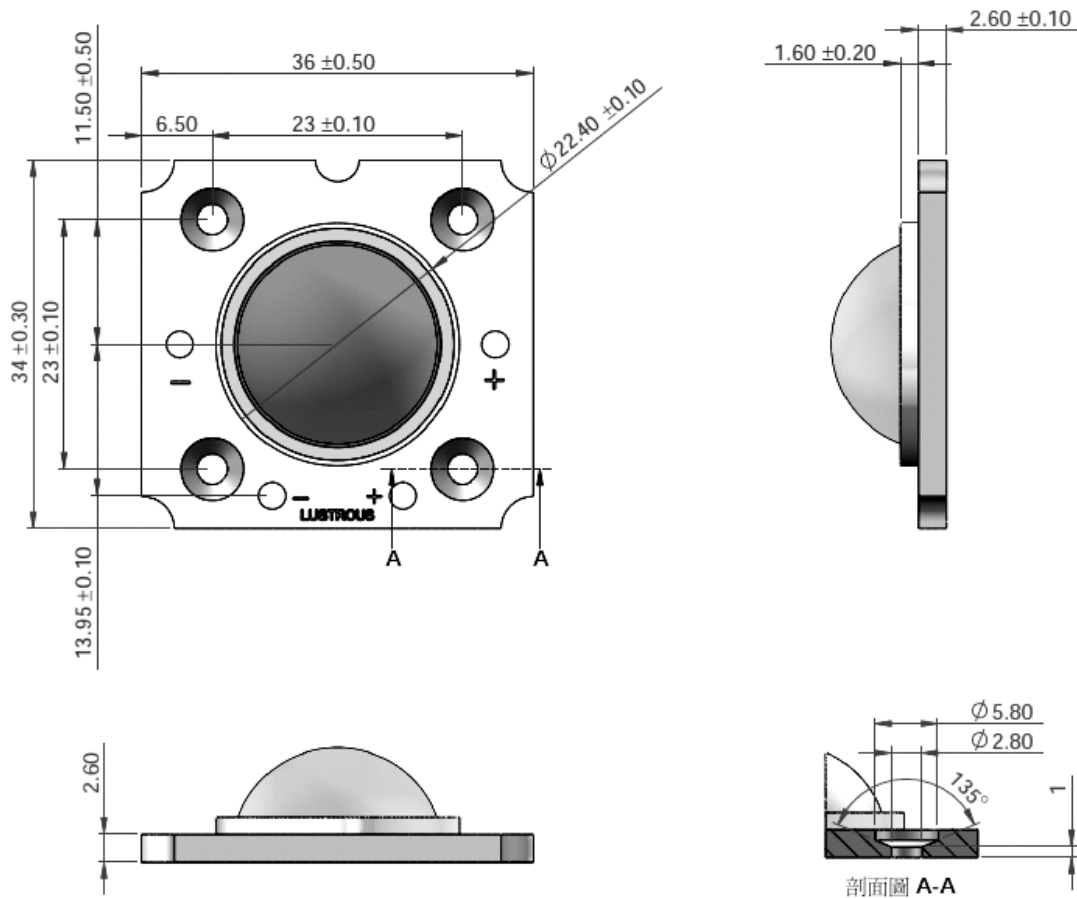
LUSTRON X4 Chips Array

9 Chips Array

LUSTRON X4

Mechanical Dimensions

LUSTRON X4



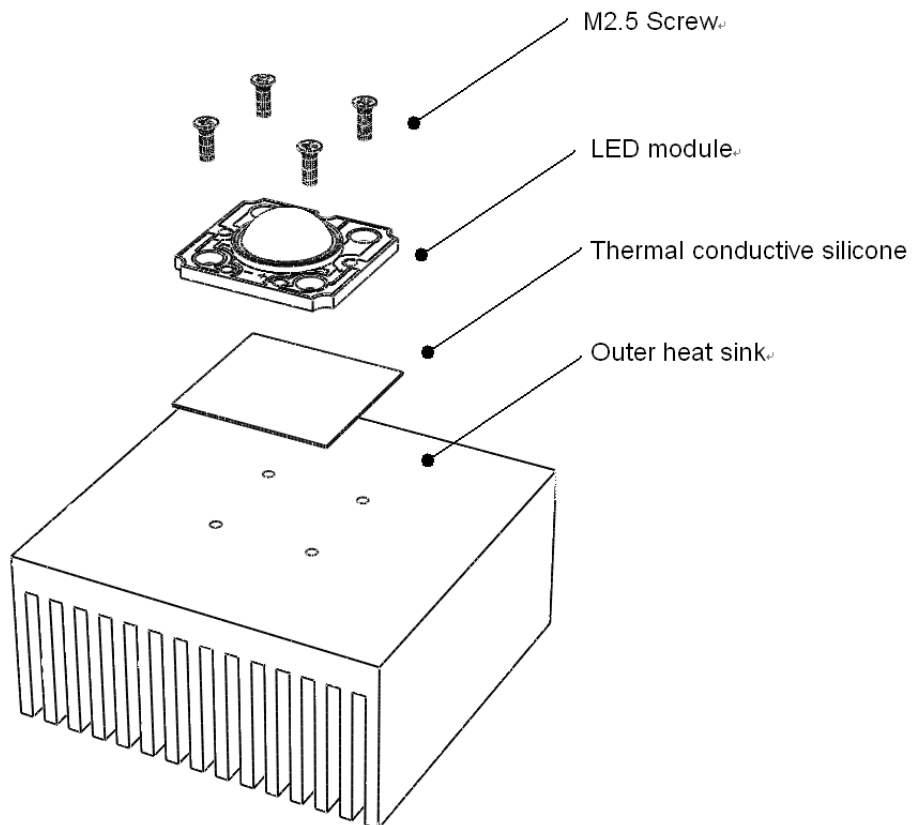
Note: These drawings are not for scale. All dimensions are in millimeters.

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Recommended installation screw pitch



Warning:

Do not touch the lighting surface area during installation.

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Flux Characteristics at 1050mA (L410XXCNXX) and at 350mA (L410XXIGXX), Junction Temperature Tj = 25°C

Table.2

Color	Luminous flux (lm)		
	Minimum	Typical	Maximum
Warm White (3000K)	600 lm	650 lm	700 lm
Neutral White (4000K)	700 lm	750 lm	830 lm
Cool White (5000K)	830 lm	1000 lm	1100 lm

Note1: Luminous flux is measured in total power with a tolerance rate of +/- 10%. Minimum luminous flux performance is guaranteed from the above data.

Note2: Higher luminous flux will be available in the future.

Optical Characteristics

Table.3

Color	λ_d (nm) or CCT(K)			Viewing Angle (degrees)	CRI
	Min	Typ	Max		
Warm White	2600K	3000K	3250K	~130	85
Neutral White	3250K	4000K	4750K		80
Cool White	4750K	5000K	10000K		65

Note: CRI value is measure with a tolerance rate of +/- 10%.

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Electrical Characteristics

Table.4
L410XXCNXX

Color	Forward Voltage (V) for 1050 mA forward current		
	Min	Typ	Max
Warm White			
Neutral White	8.64	9.45	10.8
Cool White			

L410XXIGXX

Color	Forward Voltage (V) for 350 mA forward current		
	Min	Typ	Max
Warm White			
Neutral White	25.9	28.35	32.4
Cool White			

Note1: Lustrous Technology allows a tolerance rate of +/- 10% for Lustrous products voltage measurement.

Note2: All figures are measured from the above forward current at 350mA and 1050mA.

Absolute Maximum Ratings

Table.5
L410XXCNXX

Parameters	For 1050mA forward current	
	Warm White/ Neutral White/Cool White	
Advised DC Forward Current (mA)	1050	
Max. DC Forward Current (mA)	1500	
LED Junction Temperature (°C)	< 125	
ESD Sensitivity	+/- 4kV (HBM)	
Thermal Resistance (°C/W)	~2	
Operating Temperature (°C)	-20 ~ +80	
Storage Temperature (°C)	-20 ~ +80	
Soldering Temperature (°C)	260 (duration should be less than 5 seconds)	

L410XXIGXX

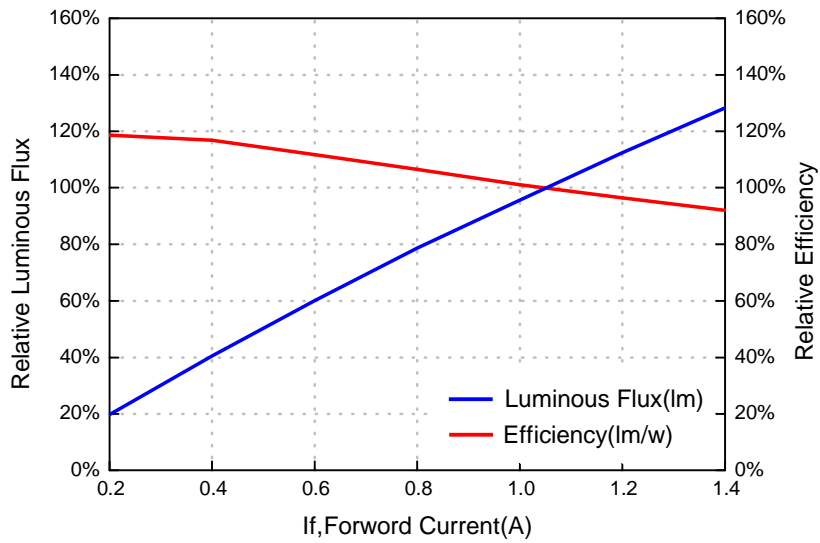
Parameters	For 350mA forward current	
	Warm White/ Neutral White/ Cool White	
Advised DC Forward Current (mA)	350	
Max. DC Forward Current (mA)	400	
LED Junction Temperature (°C)	< 125	
ESD Sensitivity	+/- 4kV (HBM)	
Thermal Resistance (°C/W)	~2	
Operating Temperature (°C)	-20 ~ +80	
Storage Temperature (°C)	-20 ~ +80	
Soldering Temperature (°C)	260 (duration should be less than 5 seconds)	

Note1: To avoid exceeding the maximum junction temperature, please set the forward current with caution.

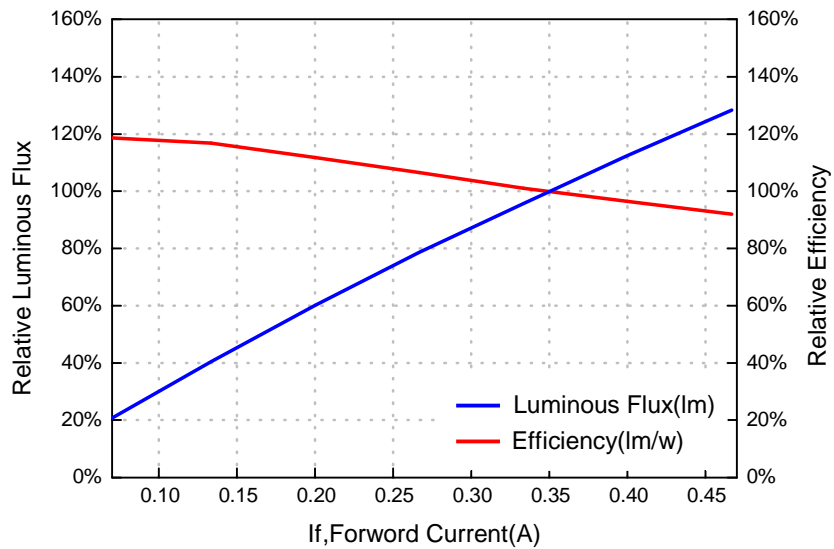
Note2: If you decide to set the maximum DC current for Lustrous products, please pay attention on the thermal design of your luminaries.

Relative Intensity vs. Current (T_j = 25°C)

L410XXCNXX

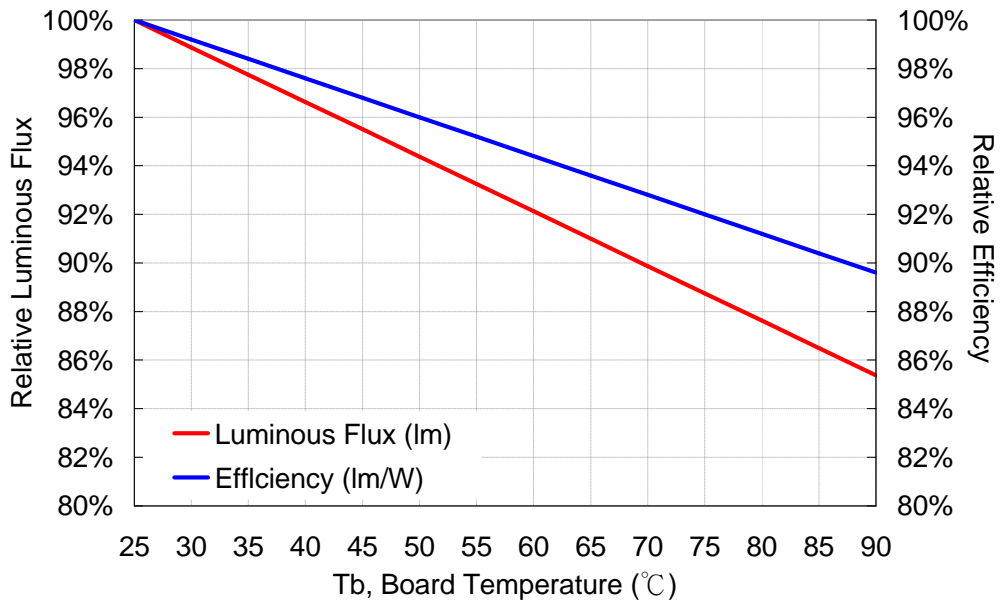


L410XXIGXX



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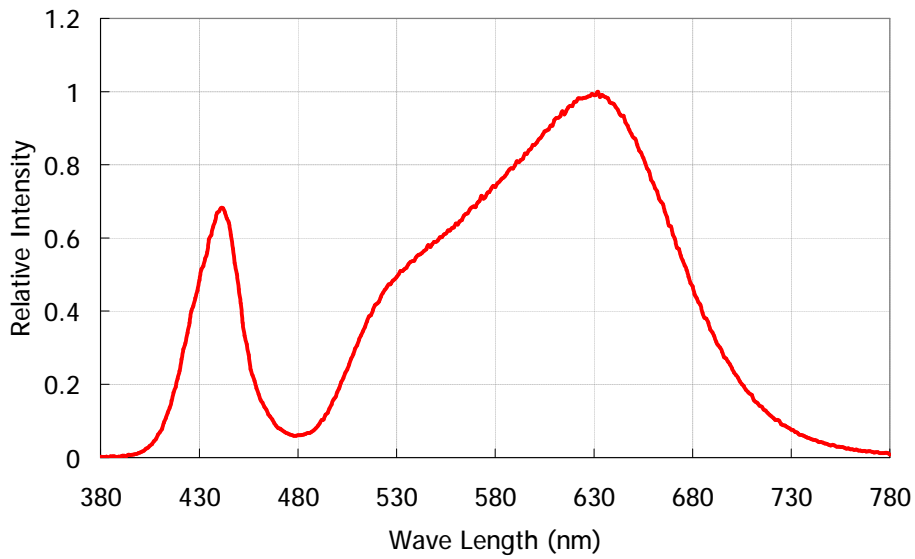
Photometric Output vs. Junction Temperature



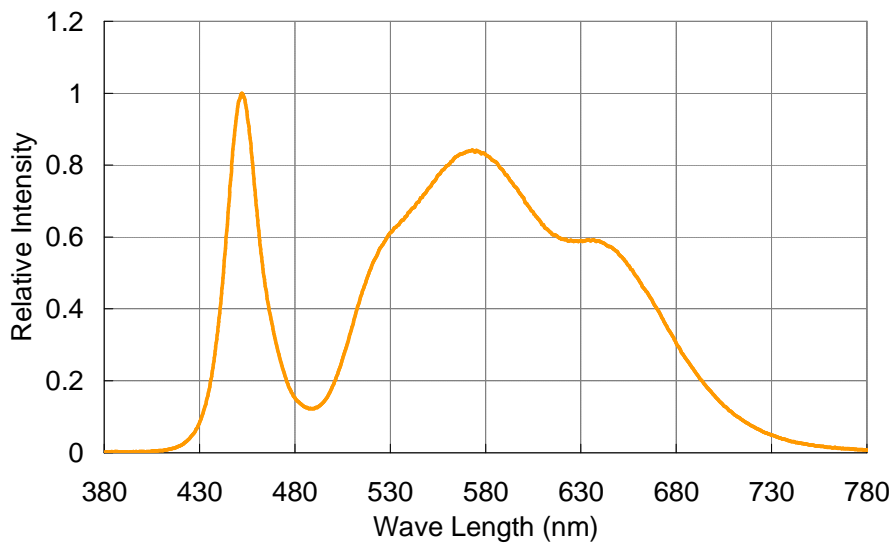
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Relative Spectral Power

Warm White (3000K)

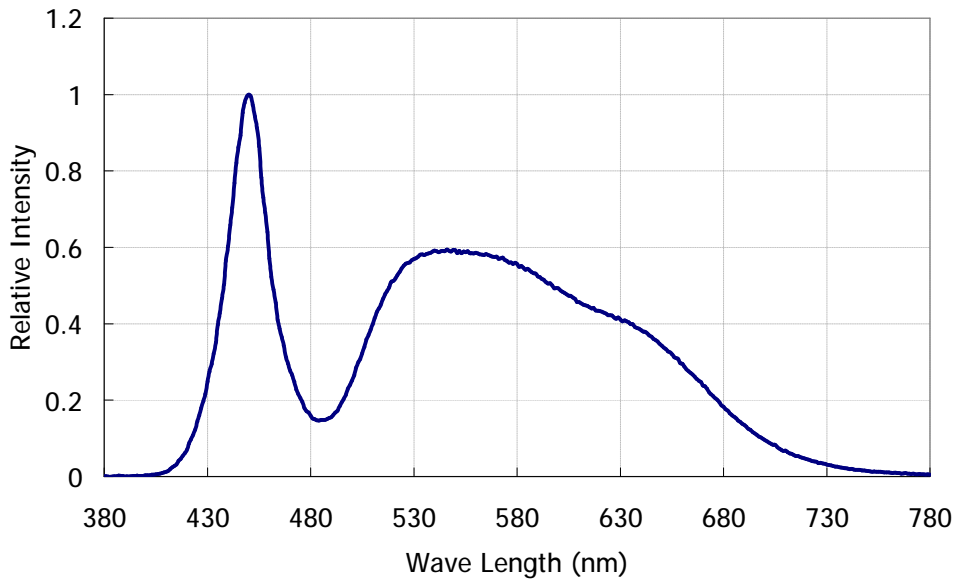


Neutral White (4000K)



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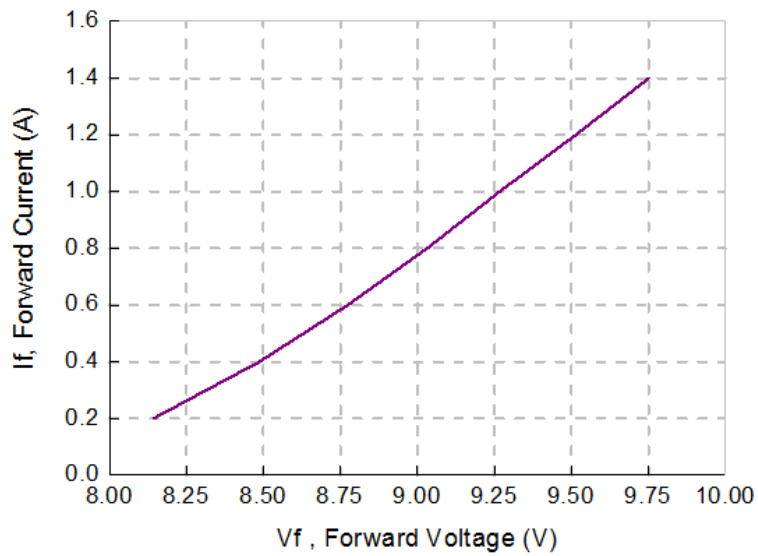
Cool White (5000K)



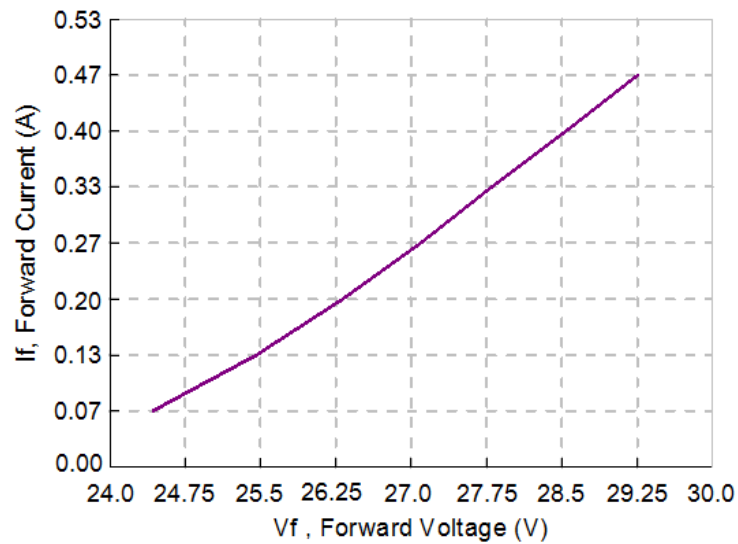
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Forward Voltage vs. Current (T_j = 25°C)

L410XXCNXX

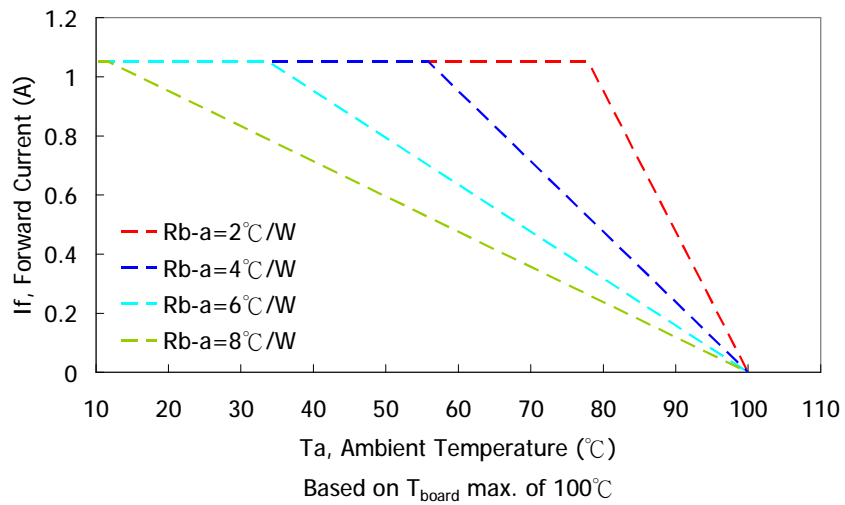


L410XXIGXX

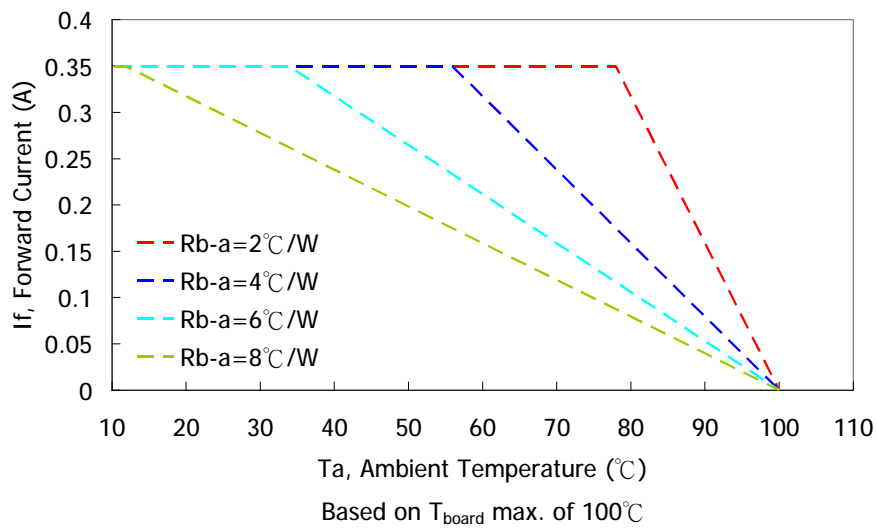


Operating Curve (Max. permissible forward current)

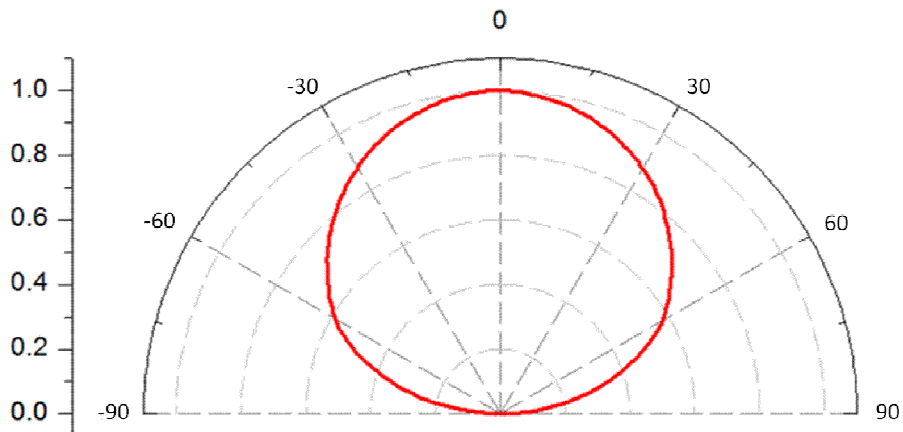
L410XXCNXX



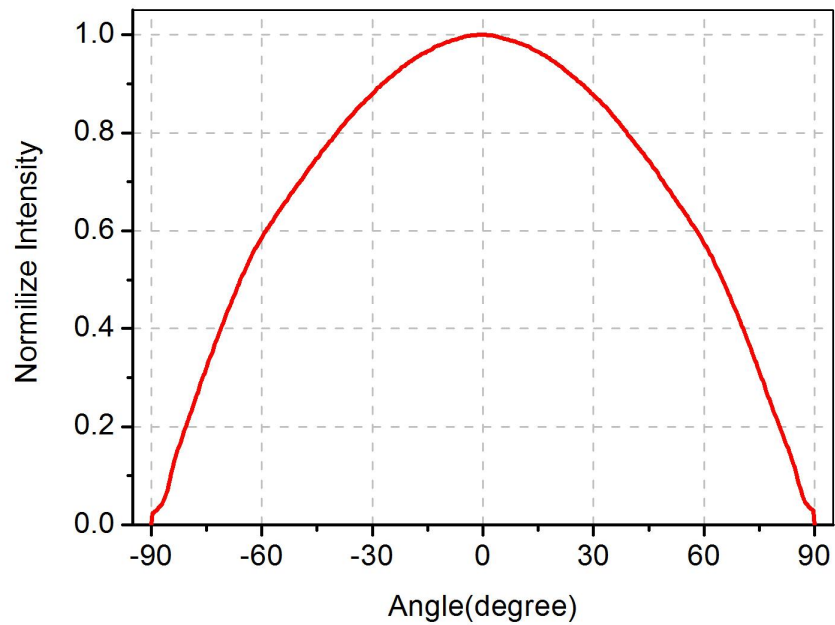
L410XXIGXX



Typical Angular Beam Profile, T_j=25°C *



View Angle: 130 degree



* Note1 : Detail beam profile data can be provided to certain qualified customers

Product Binning

In the manufacturing process, there is a natural variation of specifications between LEDs. In order to minimize variation in the end product of application, Lustrous Technology uses the current ANSI code binning procedures to measure its products for performance in luminous flux and chromaticity.

The tables below list the standard photometric bins for Lustrous LED products (tested and binned at the indicated test current). **Product availability in a particular bin varies by product and production run. Please contact your Lustrous sales representative for further information regarding product availability.**

Binning Condition

Table.6
L410XXCNXX

Color	Forward Current (mA)
Warm White	
Neutral White	1050
Cool White	

L410XXIGXX

Color	Forward Current (mA)
Warm White	
Neutral White	350
Cool White	

Luminous Flux Binning Information *

Table.7

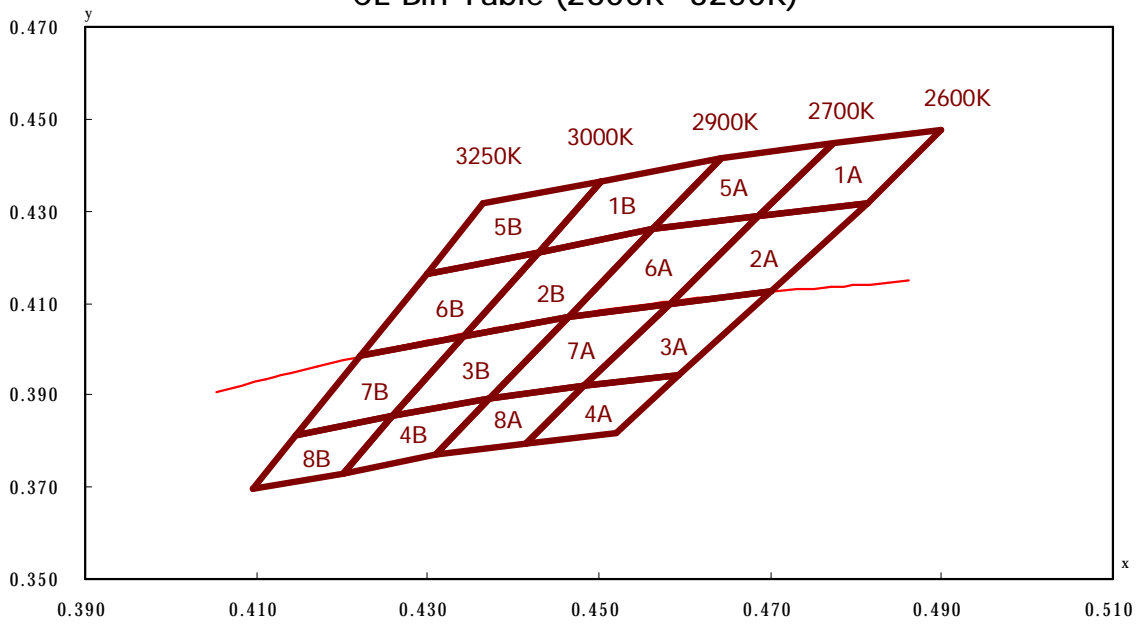
BIN Code	Lv (lm)	
	min.	max.
A	5	20
B	20	40
C	40	60
D	60	80
E	80	110
F	110	140
G	140	170
H	170	200
I	200	240
J	240	280
K	280	320

BIN Code	Lv (lm)	
	min.	max.
L	320	360
M	360	400
N	400	450
O	450	500
P	500	580
Q	580	660
R	660	740
S	740	860
T	860	980
U	980	1100
V	1100	1300

Note: Luminous flux is measured in total power with a tolerance rate of +/- 10%.

Chromaticity Binning Information **
Warm White

CL Bin Table (2600K~3250K)



Note: Chromaticity is measured in Chromaticity Coordinate (CIE 1931-xy) with a tolerance rate of +/- 10%.

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Table.8

Warm-White Bin Coordinates												
CCT (K)			BIN CODE	Chromaticity Coordinate (CIE 1931-xy)								
Min	Typ.	Max		x1	y1	x2	y2	x3	y3	x4	y4	
2600	2700	2900	A	1A	0.4687	0.4289	0.4774	0.4447	0.4900	0.4477	0.4813	0.4319
				2A	0.4582	0.4099	0.4687	0.4289	0.4813	0.4319	0.4700	0.4126
				3A	0.4483	0.3919	0.4582	0.4099	0.4700	0.4126	0.4593	0.3944
				4A	0.4414	0.3794	0.4483	0.3919	0.4593	0.3944	0.4519	0.3818
				5A	0.4562	0.4260	0.4642	0.4416	0.4774	0.4447	0.4687	0.4289
				6A	0.4465	0.4071	0.4562	0.4260	0.4687	0.4289	0.4582	0.4099
				7A	0.4373	0.3893	0.4465	0.4071	0.4582	0.4099	0.4483	0.3919
				8A	0.4309	0.3769	0.4373	0.3893	0.4483	0.3919	0.4414	0.3794
2900	3000	3250	B	1B	0.4430	0.4212	0.4503	0.4366	0.4642	0.4416	0.4562	0.4260
				2B	0.4342	0.4028	0.4430	0.4212	0.4562	0.4260	0.4465	0.4071
				3B	0.4259	0.3853	0.4342	0.4028	0.4465	0.4071	0.4373	0.3893
				4B	0.4201	0.3731	0.4259	0.3853	0.4373	0.3893	0.4309	0.3769
				5B	0.4299	0.4165	0.4364	0.4316	0.4503	0.4366	0.4430	0.4212
				6B	0.4221	0.3984	0.4299	0.4165	0.4430	0.4212	0.4342	0.4028
				7B	0.4147	0.3814	0.4221	0.3984	0.4342	0.4028	0.4259	0.3853
				8B	0.4095	0.3694	0.4147	0.3814	0.4259	0.3853	0.4201	0.3731

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Neutral White

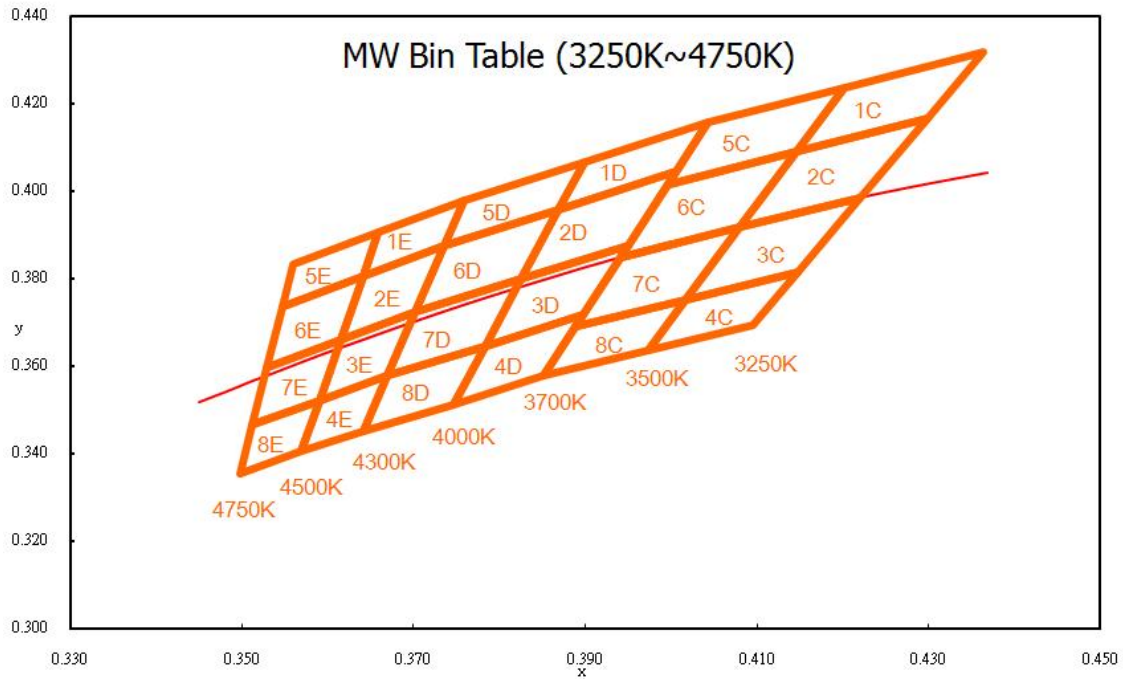


Table.9

Natural White Bin Table												
CCT (K)			BIN CODE	Chromaticity Coordinate (CIE 1931-xy)								
Min	Typ.	Max		x1	y1	x2	y2	x3	y3	x4	y4	
3250	3500	3700	C	1C	0.4146	0.4089	0.4202	0.4235	0.4364	0.4316	0.4299	0.4165
				2C	0.4080	0.3916	0.4146	0.4089	0.4299	0.4165	0.4221	0.3984
				3C	0.4017	0.3751	0.4080	0.3916	0.4221	0.3984	0.4147	0.3814
				4C	0.3973	0.3635	0.4017	0.3751	0.4147	0.3814	0.4095	0.3694
				5C	0.3996	0.4015	0.4043	0.4157	0.4202	0.4235	0.4146	0.4089

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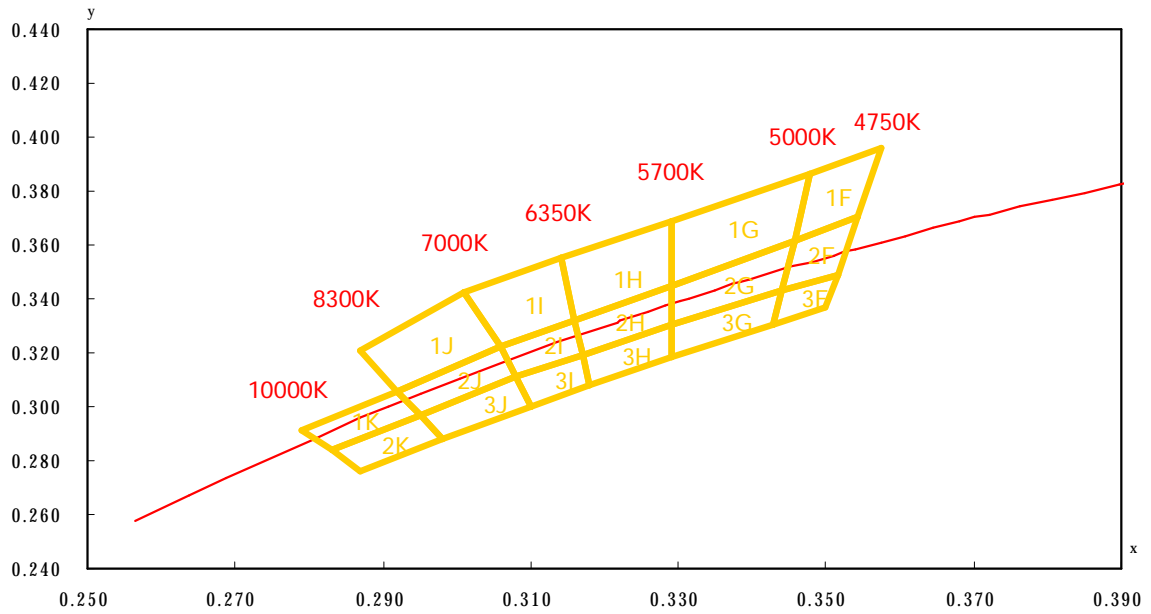
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				6C	0.3941	0.3848	0.3996	0.4015	0.4146	0.4089	0.4080	0.3916
				7C	0.3889	0.3690	0.3941	0.3848	0.4080	0.3916	0.4017	0.3751
				8C	0.3852	0.3578	0.3889	0.3690	0.4017	0.3751	0.3973	0.3635
3700	4000	4300	D	1D	0.3869	0.3958	0.3899	0.4066	0.4043	0.4157	0.4006	0.4044
				2D	0.3825	0.3798	0.3869	0.3958	0.4006	0.4044	0.3950	0.3875
				3D	0.3783	0.3646	0.3825	0.3798	0.3950	0.3875	0.3898	0.3716
				4D	0.3746	0.3513	0.3783	0.3646	0.3898	0.3716	0.3852	0.3578
				5D	0.3736	0.3874	0.3759	0.3978	0.3899	0.4066	0.3869	0.3958
				6D	0.3702	0.3722	0.3736	0.3874	0.3869	0.3958	0.3825	0.3798
				7D	0.3670	0.3578	0.3702	0.3722	0.3825	0.3798	0.3783	0.3646
				8D	0.3642	0.3450	0.3670	0.3578	0.3783	0.3646	0.3746	0.3513
4300	4500	4750	E	1E	0.3641	0.3804	0.3659	0.3904	0.3759	0.3978	0.3736	0.3874
				2E	0.3615	0.3659	0.3641	0.3804	0.3736	0.3874	0.3702	0.3722
				3E	0.3590	0.3521	0.3615	0.3659	0.3702	0.3722	0.3670	0.3578
				4E	0.3569	0.3407	0.3590	0.3521	0.3670	0.3578	0.3642	0.3450
				5E	0.3548	0.3736	0.3560	0.3832	0.3659	0.3904	0.3641	0.3804
				6E	0.3529	0.3597	0.3548	0.3736	0.3641	0.3804	0.3615	0.3659
				7E	0.3512	0.3465	0.3529	0.3597	0.3615	0.3659	0.3590	0.3521
				8E	0.3498	0.3355	0.3512	0.3465	0.3590	0.3521	0.3569	0.3407

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Cool White

NW Bin Table (4750K~10000K)



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Table.10

Cool White Bin Table												
CCT (K)			BIN CODE	Chromaticity Coordinate (CIE 1931-xy)								
Min	Typ.	Max		x1	y1	x2	y2	x3	y3	x4	y4	
4750	4850	5000	F	1F	0.3479	0.3867	0.3457	0.3617	0.3544	0.3704	0.3576	0.3957
				2F	0.3457	0.3617	0.3440	0.3429	0.3515	0.3487	0.3544	0.3704
				3F	0.3440	0.3429	0.3429	0.3307	0.3500	0.3371	0.3515	0.3487
5000	5300	5700	G	1G	0.3290	0.3690	0.3290	0.3450	0.3457	0.3617	0.3479	0.3867
				2G	0.3457	0.3617	0.3440	0.3429	0.3290	0.3300	0.3290	0.3450
				3G	0.3290	0.3300	0.3290	0.3180	0.3429	0.3307	0.3440	0.3429
5700	6000	6350	H	1H	0.3290	0.3690	0.3290	0.3450	0.3160	0.3320	0.3140	0.3550
				2H	0.3290	0.3450	0.3290	0.3300	0.3170	0.3190	0.3160	0.3320
				3H	0.3170	0.3190	0.3290	0.3300	0.3290	0.3180	0.3180	0.3080
6350	6500	7000	I	1I	0.3140	0.3550	0.3160	0.3320	0.3060	0.3220	0.3010	0.3420
				2I	0.3160	0.3320	0.3170	0.3190	0.3080	0.3110	0.3060	0.3220
				3I	0.3080	0.3110	0.3170	0.3190	0.3180	0.3080	0.3100	0.3000
7000	7650	8300	J	1J	0.3010	0.3420	0.3060	0.3220	0.2920	0.3060	0.2870	0.3210
				2J	0.3060	0.3220	0.3080	0.3110	0.2950	0.2970	0.2920	0.3060
				3J	0.2950	0.2970	0.3080	0.3110	0.3100	0.3000	0.2980	0.2880
8300	9000	10000	K	1K	0.2920	0.3060	0.2950	0.2970	0.2830	0.2840	0.2790	0.2910
				2K	0.2830	0.2840	0.2950	0.2970	0.2980	0.2880	0.2870	0.2760

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Print Code Guideline

L4 10 NW C N D X
 1 2 3 4 5 6 7
XXXXXXXXXXXXXXXXXX
 8
V0 -T -2G XX XX XX
 9 10 11 12 13 14

Table.11

1 Type	2 Power	3 Color	4 Vf	5 Current	6 CRI
L4	10 : 10W	NW : Cool White MW : Neutral White CL : Warm White	C : 10.5 V I : 31.5 V	G : 350 mA N : 1050 mA	B : 80~90 C : 70~80 D : 60~70

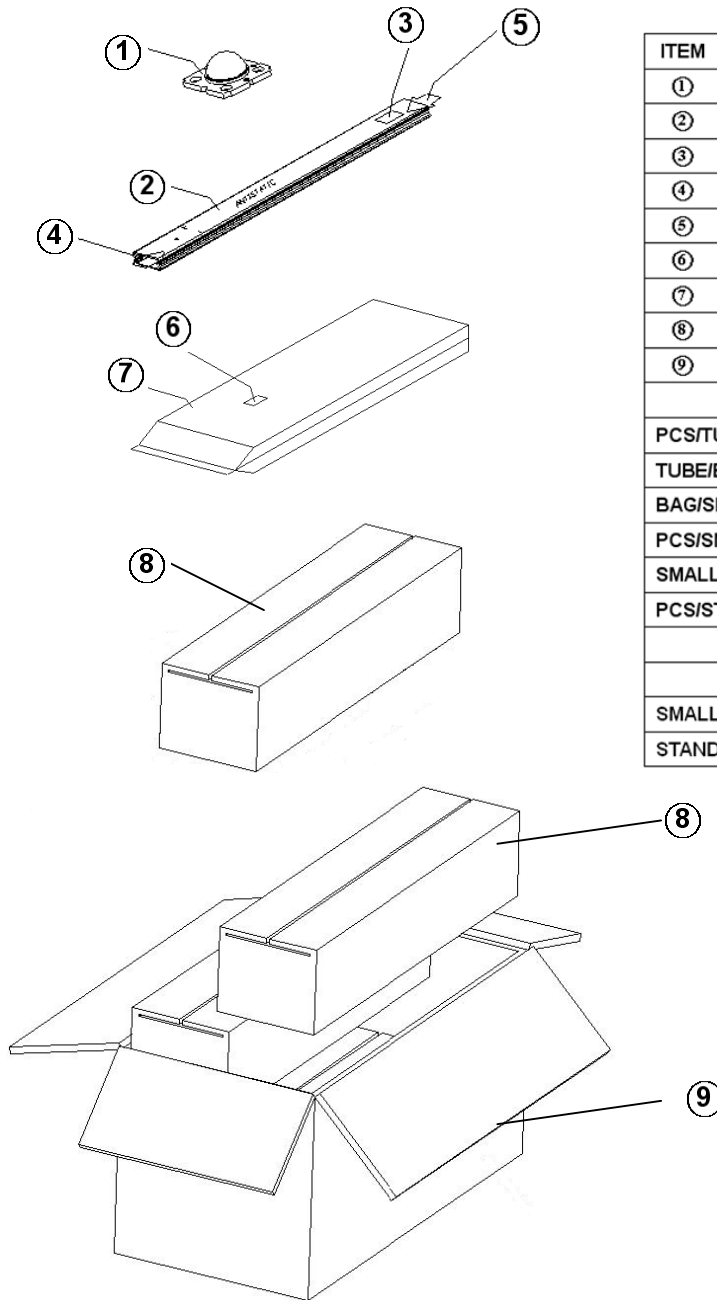
7 Customer Code	8 Internal Code	9 Bin Vf	10 Luminous Flux	11 Chromaticity
		V0 : Without Binned	See Bin Code Definition	See Bin Code Definition

12 Year	13 Month	14 Week
09 : 2009	01 : January	01 : 01 st Week
10 : 2010	05 : May	20 : 20 th Week
11 : 2011	10 : October	45 : 45 th Week

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Standard Packaging



ITEM	DESCRIPTION	
①	LED	
②	PLASTIC TUBE	
③	ADHESIVE MAIN LABEL	
④	END-PLUG WHITE	
⑤	END-PLUG BLACK	
⑥	ADHESIVE MAIN LABEL	
⑦	MOISTURE BARRIER BAG	
⑧	SMALL BOX	
⑨	STANDARD BOX	
STACKING METHOD		
PCS/TUBE		10
TUBE/BAG		10
BAG/SMALL BOX		2
PCS/SMALL BOX		200
SMALL BOX/STANDARD BOX		4
PCS/STANDARD BOX		800
SIZE AND WEIGHT		
	SIZE(mm ³)	WEIGHT(kg)
SMALL BOX	560x130x130	3.7±0.5
STANDARD BOX	580x280x280	15.5±0.5

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Precaution for Use

Over-current Proof

1. Do not reverse current the LEDs we suggest current limit resistors for extra protection.
2. The maximum overshoot current should be limited to 130% of normal drive current.
3. The ripple of driving current should not exceed +/-10% of normal driving current.
4. The typical driving current for this series is 1050 mA for L310XXCNXX and 350 mA for L310XXIGXX.
5. When driving the products, the clamp voltage must be set at 12V(L310XXCNXX) and 33V(L310XXIGXX) in driver.

Storage

1. Do not open the Moisture Barrier Bag (MBB) before you are ready to install the LEDs.
2. Storage Condition (before opening the MBB) :
 - I Storage Temperature: -20~50°C
 - I Relative Humidity < 90% RH
 - I Please re-seal the MBB when storing longer than 3 weeks.
 - I The products should be used within half a year.
3. Storage Condition (after opening the MBB) :
 - I Storage Temperature: -20~50°C
 - I Relative Humidity < 90% RH
 - I The products should used or installed as soon as possible after opening the MBB. Otherwise, the LED product must be baked at 80+/-5°C, 24 hours before installation.

Installation

Do not touch the lighting surface area during installation.

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Company Information

Founded in 2004, Lustrous Technology endeavors to bring in a new era of Solid-State Lighting (SSL). In order to promote innovative new designs and maintain superior quality we have located our R&D and production facilities in Taiwan. Our commitment to excellence has helped us earn quality awards and unique patents in many countries, such as Taiwan and US. Our finest LED lighting products are designed to provide the best in performance and reliability for your next LED applications. Besides high power LED products, our professional and experienced R&D team also provides excellent secondary optical services for customers to solve any lens problems. After years of accomplishment, we have successfully established long-term and trustful worthy business relationships with several most prestigious corporations, such as Delta Electronics, Inc. and Neng Tyi Co., Ltd. If your company is considering any Lustrous products, feel free to contact our sales personnel for a brief introduction or arrange a tour of our ISO 9000 facility in Taiwan.

**Lustrous Technology may make process and material changes affecting performance and characteristics of our products without further notice. These products supplied after changes will continue to meet published specifications, but may not be identical to products supplied as samples or under prior orders.



LUSTROUS TECHNOLOGY LTD
Green Technology of Lightings

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