

High Power Solid-State LED Light Source

Golden X3

Introduction

For a brighter solid-state light source, **Golden X3** is an energy-efficient building block generating enough light outputs suitable for most applications in lighting field. **Golden X3** offers the best solid-state light source and you might realize your modern ideas of lightings.

Golden X3, available in Star configuration, provides the best possible performance with lifetime longer than 30,000 hours*. With a nominal correlated color temperature of 2500~3250K for Warm White, 3250K~4750K for Natural White, and 4750~10000K for Cool White, similar to conventional indoor and outdoor light source, **Golden X3** is particularly designed for architects and commercial lighting designers.

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

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Golden X3 Part Number Matrix

Table.1

Color	P/N
Warm White	G310CLCNBA
	G310CLIGBA
Natural White	G310MWCNBA
	G310MWIGBA
Cool White	G310NWCNDA
	G310NWIGDA

Golden X3 Material

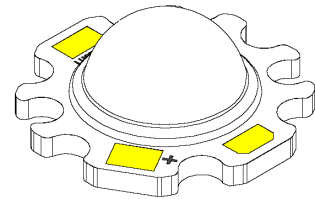
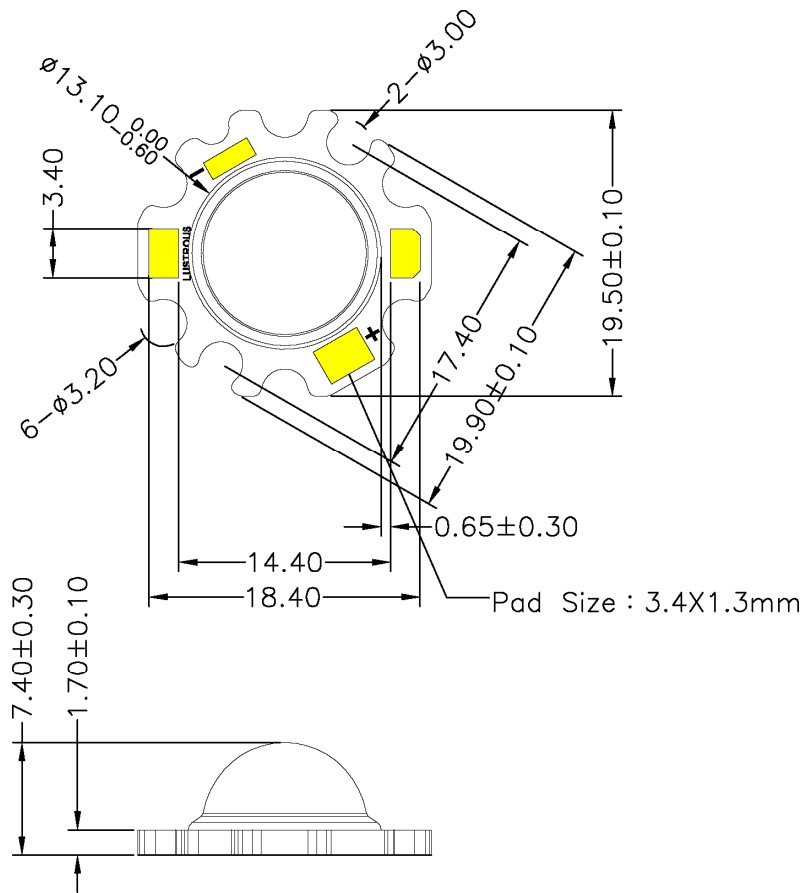
Chip Material	GaN Base
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Golden X3 Chips Array

9 Chips Array

Mechanical Dimensions

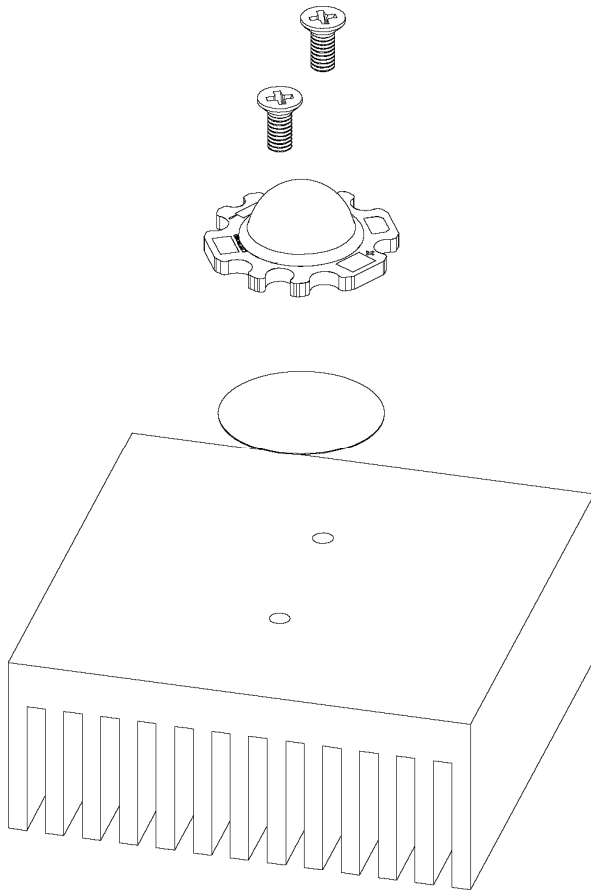
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Note : Drawing not to scale. All dimensions are in millimeters.

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Recommended installation screw pitch



Warning : **Do not** touch the lighting area during handling and assembling

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Flux Characteristics at Junction Temperature $T_j = 25^{\circ}C$

Table.2

Color	Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)
Warm White (3000K)		
G310CLCNBA If=1050mA;	500 lm	550 lm
G310CLIGBA If=350mA;		
Natural White (4000K)		
G310MWCNBA If=1050mA;	580 lm	650 lm
G310MWIGBA If=350mA;		
Cool White (5000K)		
G310NWCNDA If=1050mA;	740 lm	850 lm
G310NWIGDA If=350mA;		

Note1 : Luminous flux is measured in total power with tolerance rate of $\pm 10\%$. Minimum luminous flux performance is guaranteed from the above data.

Note2 : Luminous binning information can be found in Table.6.

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Optical Characteristics

Table.3

P / N	Color Temperature (K)			Viewing Angle (degrees)	Color Rendering Index (CRI)
	Min	Typ	Max	Typ	Typ
Warm White (3000K)					
G310CLCNBA If=1050mA;	2500K	3000K	3250K		85
G310CLIGBA If=350mA;					
Natural White (4000K)					
G310MWCNBA If=1050mA;	3250K	4000K	4750K	130	80
G310MWIGBA If=350mA;					
Cool White (5000K)					
G310NWCNDA If=1050mA;	4750K	5000K	10000K		65
G310NWIGDA If=350mA;					

Note1 : CRI value is measured with tolerance rate of $\pm 10\%$

Electrical Characteristics

Table.4

P / N	Forward Voltage (V)		
	Min	Typ	Max
G310CLCNBA < Warm White >	9	9.9	10.8
G310MWCNBA < Natural White >			
G310NWCNDA < Cool White >			
@ If=1050mA;			
G310CLIGBA < Warm White >	27	29.7	32.4
G310MWIGBA < Natural White >			
G310NWIGDA < Cool White >			
@ If=350mA;			

Note1: Lustrous Technology allows a tolerance of each LED for voltage measurements.

Note2: Measurements are taken under each nominal forward current.

Absolute Maximum Ratings

Table.5

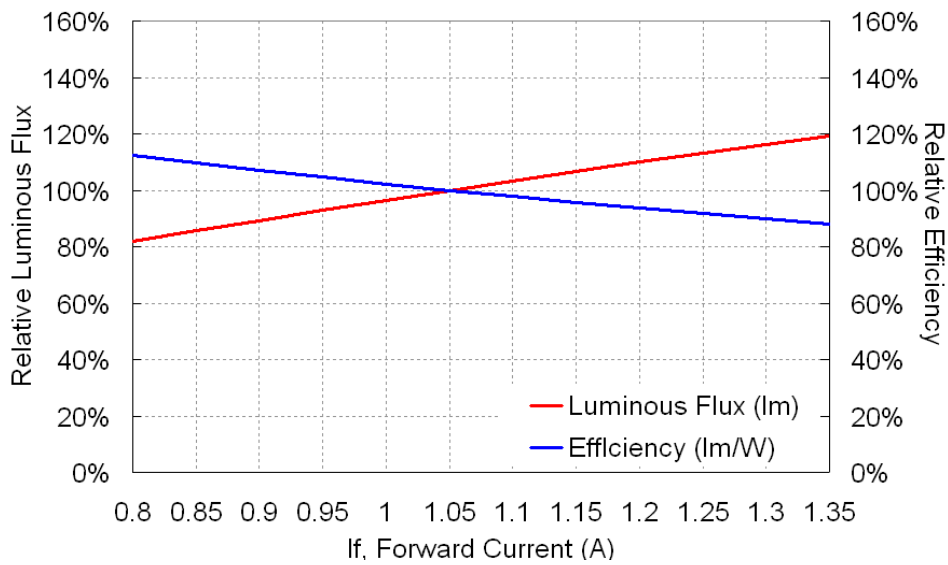
Parameters	G310XXXXXA	
DC Forward Current (mA)	G310CLCNBA / G310MWCNBA/ G310NWCNDA	1050
	G310CLIGBA / G310MWIGBA/ G310NWCNDA	350
LED Junction Temperature (°C)	< 115	
ESD Sensitivity	+/-4kV (HBM)	
Thermal Resistance (°C/W)	1.7	
Operating Temperature (°C)	-25 ~ +80	
Storage Temperature (°C)	-20 ~ +50	

Note1: Proper current operating must be observed to maintain junction temperature below the maximum.

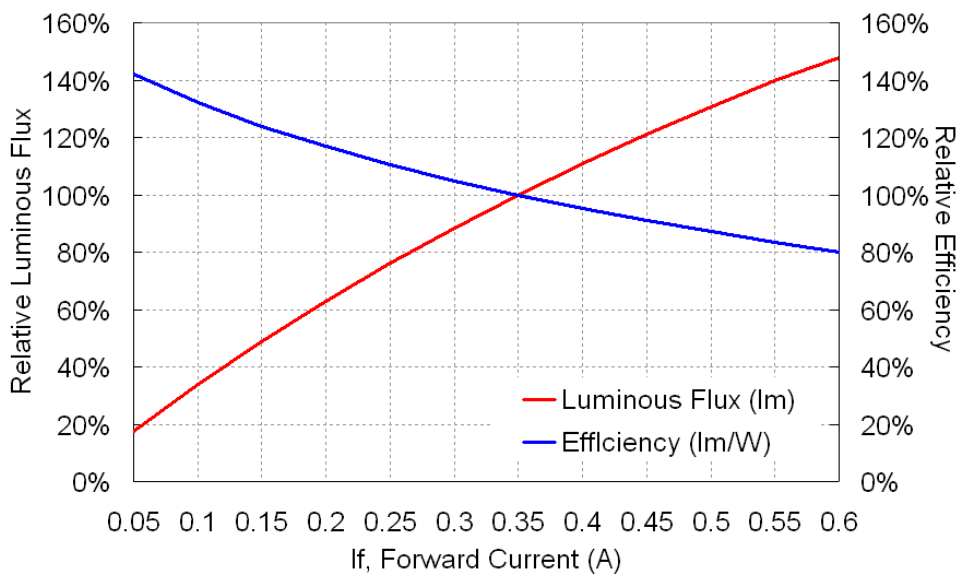
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Relative Intensity vs. Current (T_j = 25°C)

G310CLCNBA / G310MWCNBA/ G310NWCNDA



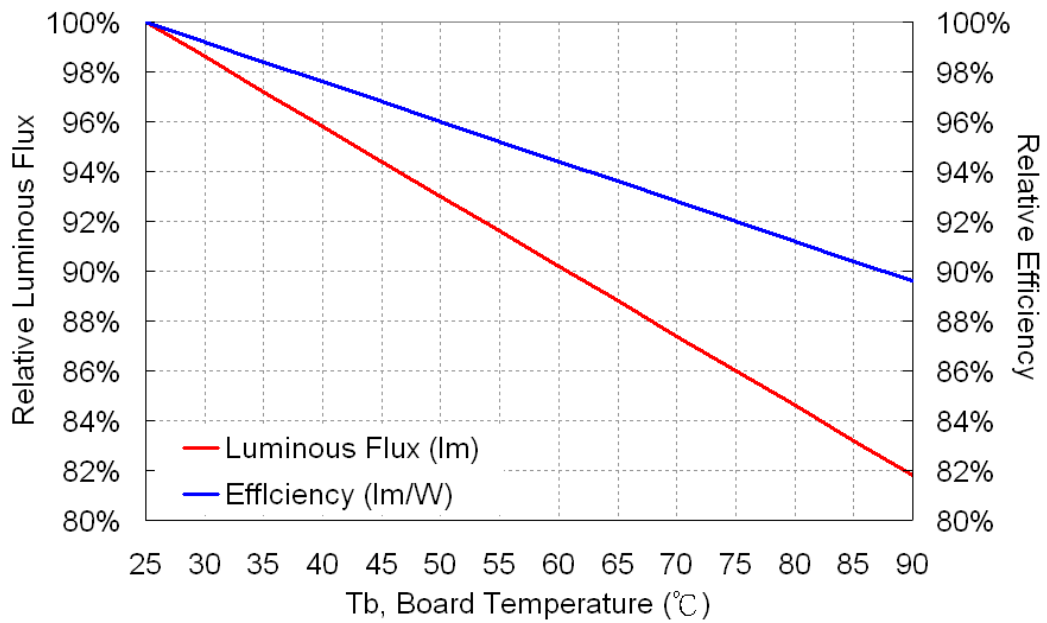
G310CLIGBA / G310MWIGBA/ G310NWIGDA



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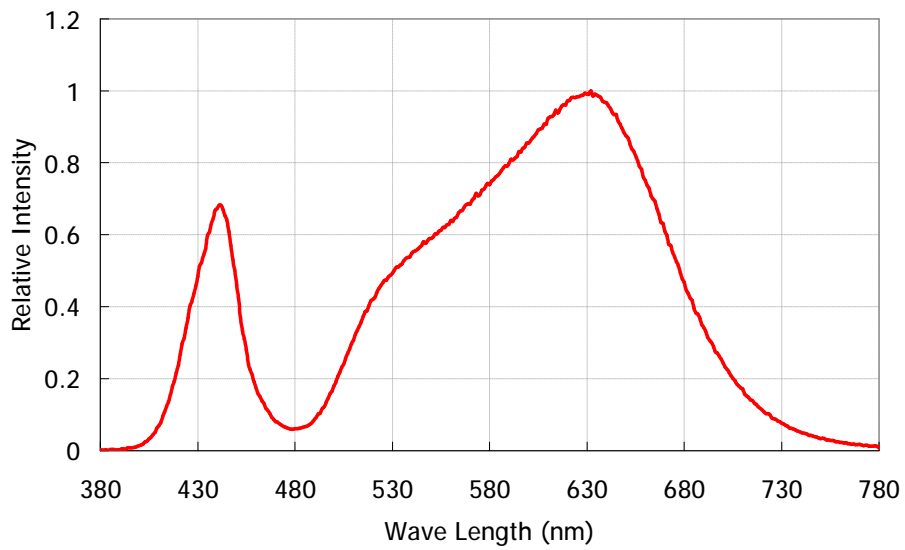
Photometric Output vs. Board Temperature

(If = Advised DC Forward Current)

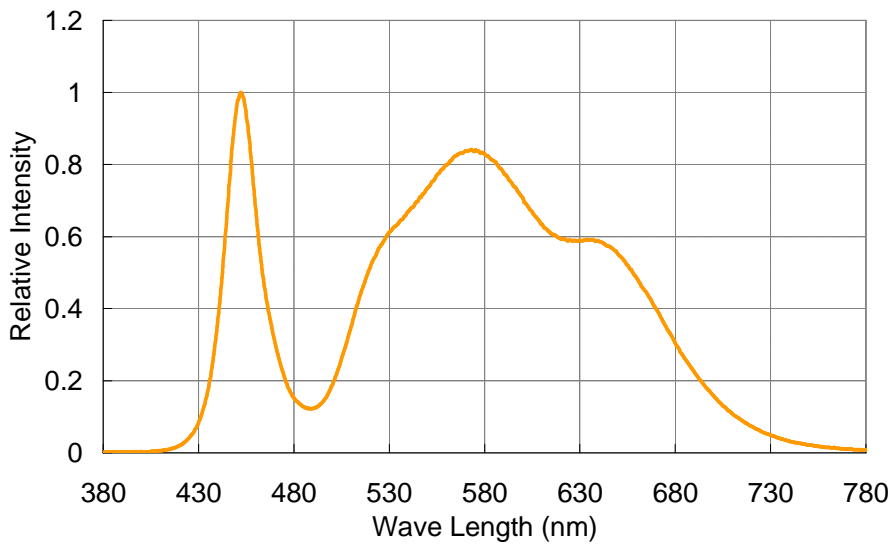


Relative Spectral Power

Warm White



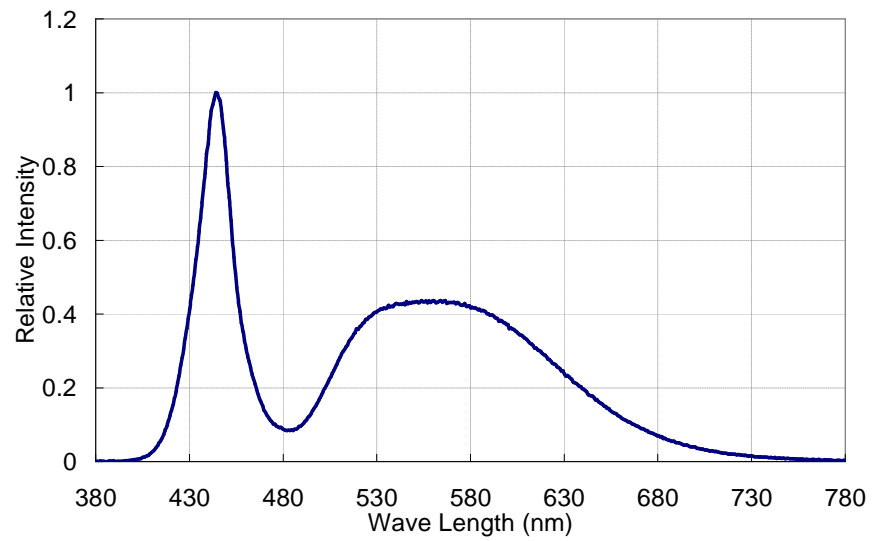
Natural White



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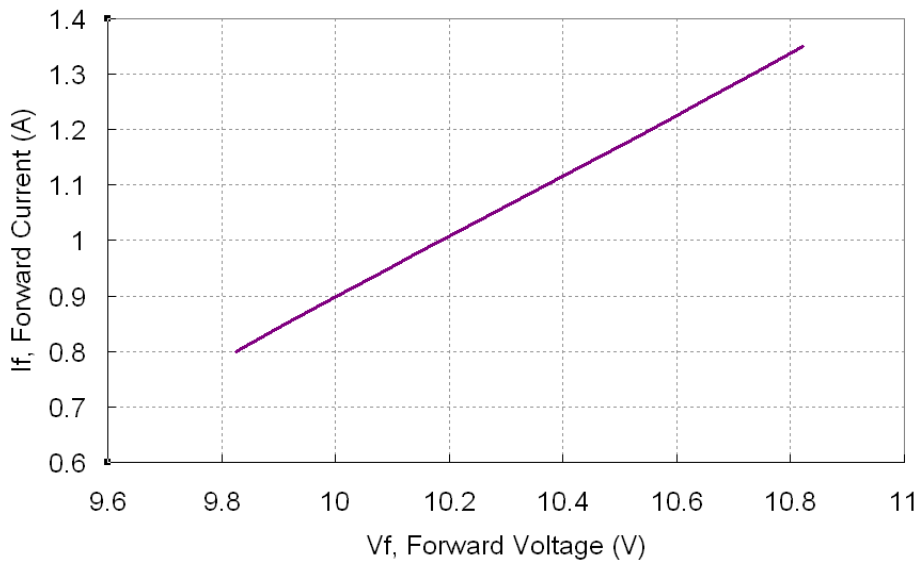
Cool White



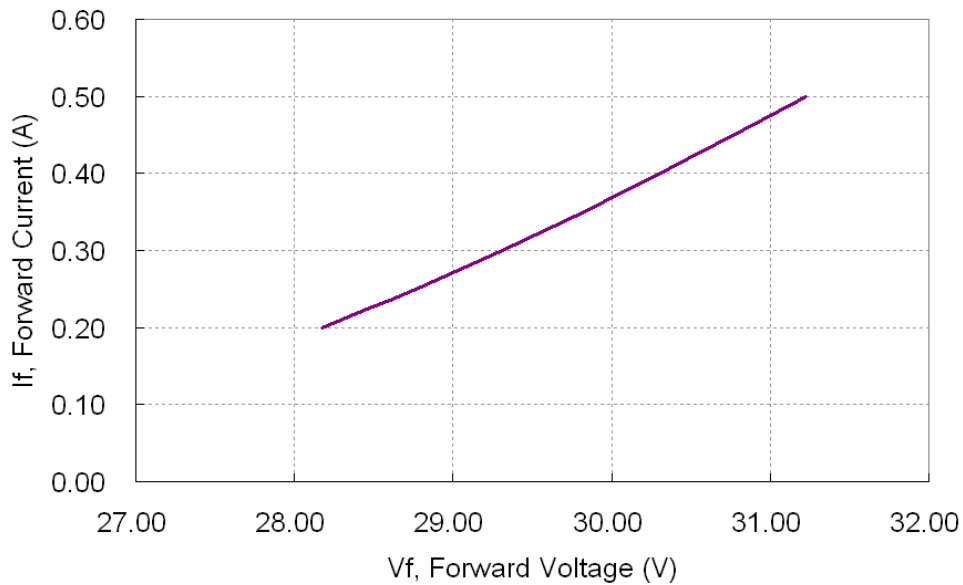
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Forward Voltage vs. Current (T_j = 25°C)

G310CLCNBA / G310MWCNBA / G310NWCNDA

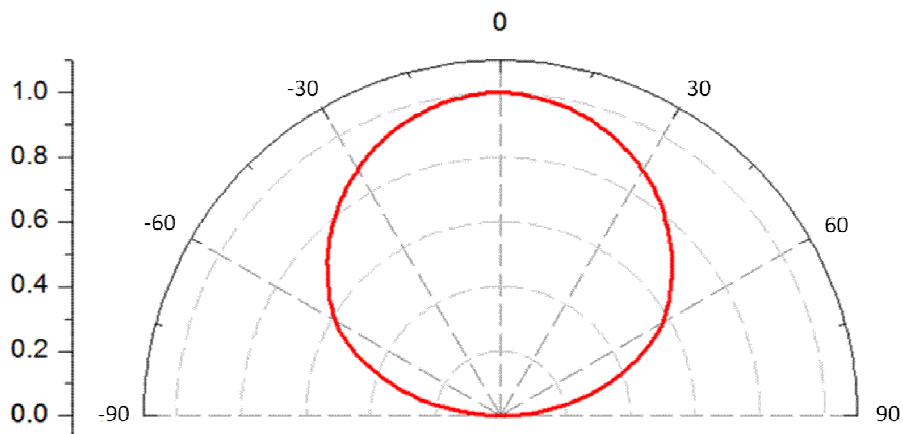


G310CLIGBA / G310MWIGBA / G310NWIGDA

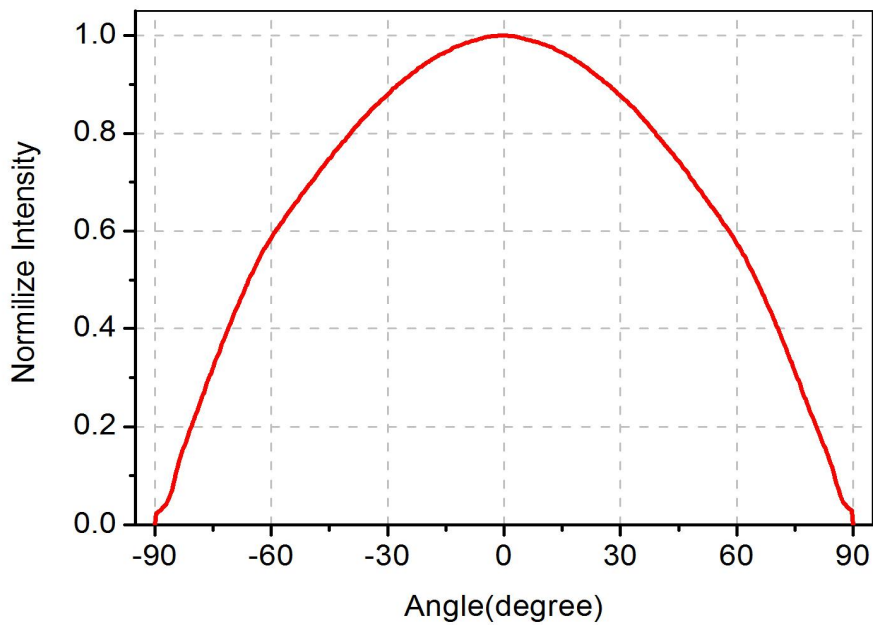


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Typical Angular Beam Profile, T_j=25°C *



View Angle: 130 degree



* Note1 : Photometrics data is ready on request

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Product Binning

Typical manufacturing processes of LED result in a variation in performance surrounding the typical data sheet values. In order to minimize variation in the end product of application, Lustrous bins its products for performance in Luminous Flux and chromaticity.

The tables below list the standard photometric bins for Lustrous LED (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

P/N	Forward Current (mA)
G310CLCNBA < Warm White >	
G310MWCNBA < Natural White >	1050
G310NWCNDA < Cool White >	
G310CLIGBA < Warm White >	
G310MWIGBA < Natural White >	350
G310NWIGDA < Cool White >	

Luminous Flux Binning Information *

Table.7

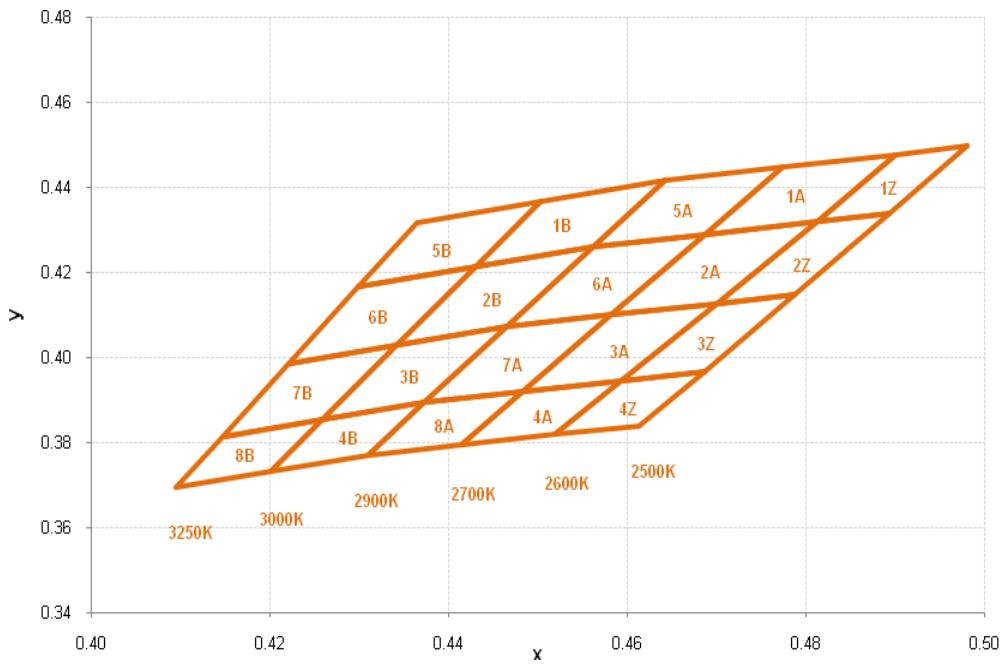
BIN Code	Lv (lm)	
	min.	max.
A	5	20
B	20	40
C	40	60
D	60	80
E	80	110
F	110	140
G	140	170
H	170	200
I	200	240
J	240	280
K	280	320

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 tolerance rate of $\pm 10\%$.

Chromaticity Binning Information **

Warm White



**Note : Chromaticity is measured in Chromaticity Coordinate (CIE 1931-xy) with tolerance rate of ± 0.005 .

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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	
2500	2550	2600	Z	1Z	0.4900	0.4477	0.4980	0.4496	0.4893	0.4338	0.4813	0.4319
				2Z	0.4813	0.4319	0.4893	0.4338	0.4787	0.4146	0.4700	0.4126
				3Z	0.4700	0.4126	0.4787	0.4146	0.4687	0.3965	0.4593	0.3944
				4Z	0.4593	0.3944	0.4687	0.3965	0.4613	0.3839	0.4519	0.3818
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	2950	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

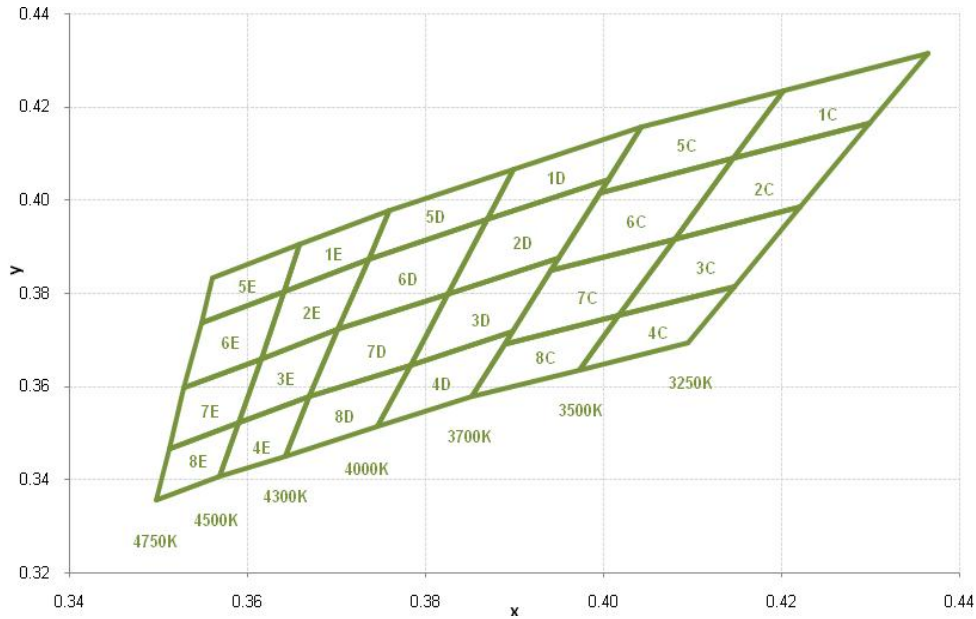


Table.9

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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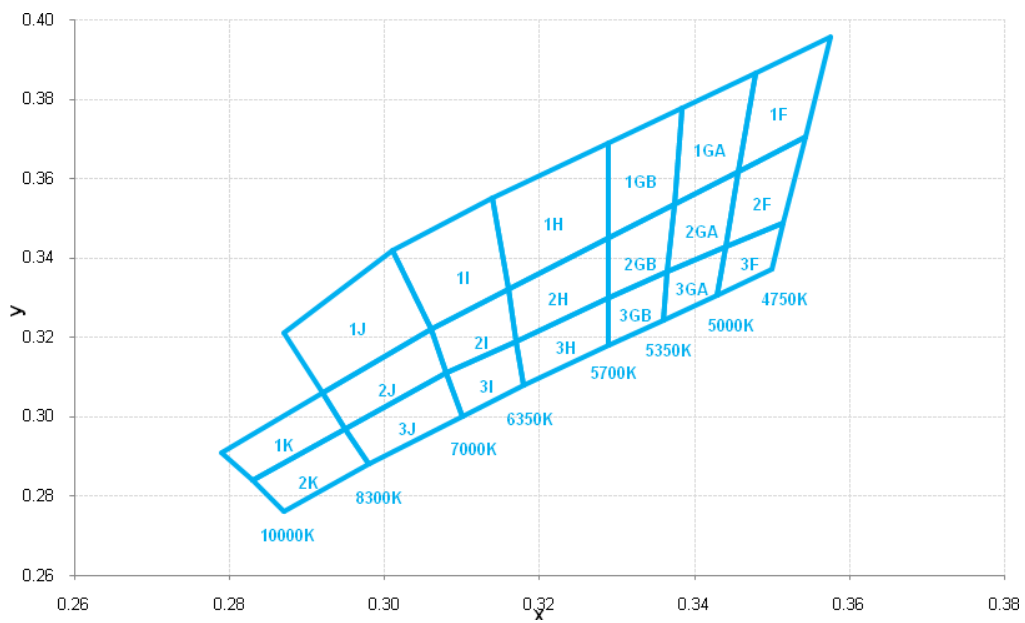
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				6C	0.3941	0.3848	0.3996	0.4015	0.4146	0.4089	0.4080	0.3916
				7C	0.3889	0.3690	0.3941	0.3848	0.4080	0.3916	0.4017	0.3751
				8C	0.3852	0.3578	0.3889	0.3690	0.4017	0.3751	0.3973	0.3635
3700	4000	4300	D	1D	0.3869	0.3958	0.3899	0.4066	0.4043	0.4157	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



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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	5175	5350	G	1GA	0.3385	0.3779	0.3374	0.3534	0.3457	0.3617	0.3479	0.3867
				2GA	0.3374	0.3534	0.3365	0.3365	0.3440	0.3429	0.3457	0.3617
				3GA	0.3365	0.3365	0.3360	0.3244	0.3429	0.3307	0.3440	0.3429
5350	5525	5700	G	1GB	0.3290	0.3690	0.3290	0.3450	0.3374	0.3534	0.3385	0.3779
				2GB	0.3290	0.3450	0.3290	0.3300	0.3365	0.3365	0.3374	0.3534
				3GB	0.3290	0.3300	0.3290	0.3180	0.3360	0.3244	0.3365	0.3365
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

G3 10 NW C N D A
 1 2 3 4 5 6 7

XXXXXXXXXXXXXXXXXX

8

V0 - S -2GA XX XX XX
 9 10 11 12 13 14

Table.11

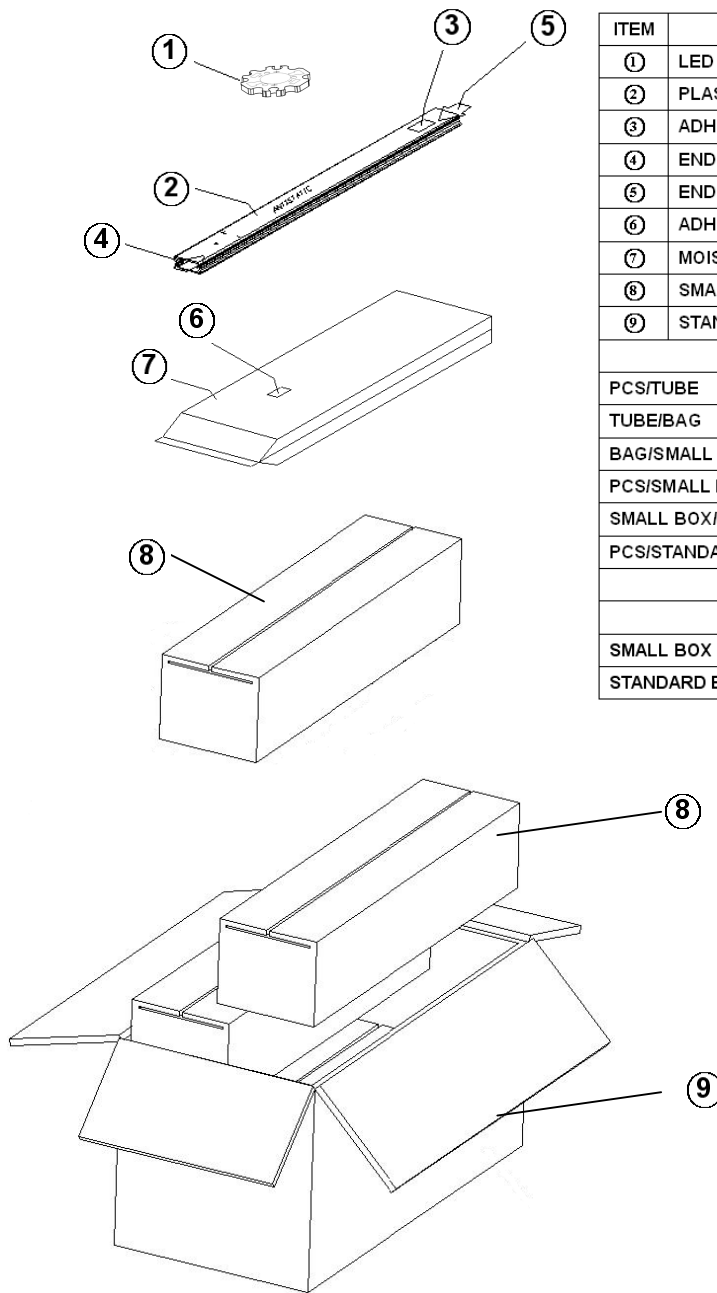
1 Type	2 Power	3 Color	4 Vf	5 Current	6 CRI
G3	10 : 10W	NW : Cool White MW : Neutral White CL : Warm White	C : 10.5 V I : 31.5 V	G : 350 mA N : 1050 mA	B : 80~90 D : 60~70

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

Golden X3

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		20
TUBE/BAG		25
BAG/SMALL BOX		2
PCS/SMALL BOX		1000
SMALL BOX/STANDARD BOX		4
PCS/STANDARD BOX		4000
SIZE AND WEIGHT		
	SIZE(mm ³)	WEIGHT(kg)
SMALL BOX	560×130×130	2.8±0.5
STANDARD BOX	580×280×280	11.9±0.5

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Precaution for Use

Over-current Proof

1. Customer must not drive the LEDs with reverse current and should apply resistors for extra protection.
2. The maximum overshoot of driving current should be limited under normal driving current * 1.3 times.
3. The ripple of driving current should not be over +/-10% of normal driving current.
4. The typical driving current for this series is **350mA (for G310XXIGXA) / 1050mA (for G310XXCNXA)**.
5. When driving the products, the clamp voltage must be set at **12V (for G310XXCNXA) / 36V (for G310XXIGXA)** in drive.

Storage

1. Do not open the moisture barrier bag (MBB) before the products are ready to be used.
2. Storage Condition (before opening the MBB) :
 - I Storage Temperature : -20~50°C
 - I Relative Humidity < 60% RH
 - I Please re-seal the MBB when storing longer than 3 weeks.
 - I The products should be used within half of a year.
3. Storage Condition (after opening the MBB) :
 - I Storage Temperature : -20~50°C
 - I Relative Humidity < 60% RH
 - I The products should be used (assembled) as soon as possible after opening the MBB. Otherwise, LED must be baked at 80+/-5°C, 24 hours before handling and assembling.

Handling

1. Do not touch the lighting area during handling and assembling.

Company Information

Lustrous Technology, founded in 2004, endeavors to bring a new era of solid-state lighting. Our R&D development center and production facilities are based in Taiwan, a famous island for IT technology in the world. Our products are well designed in both performance and reliability. Lustrous is one of the leading high-power LED manufacturer and solution provider in the world.

**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.

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