

*High Power Solid-State LED Light Source*

# Golden III

## Introduction

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

**Golden III**, 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, and 4750~10000K for Cool White, similar to conventional indoor and outdoor light source, **Golden III** is particularly designed for architects and commercial lighting designers.

\*Note1 : To optimize product performance and lifetime, constant DC at advised forward current and T<sub>b</sub> less than 50°C should be applied.

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**Golden III Part Number Matrix**

Table.1

Color	P/N
Warm White	G103CLALCA
	G103CLDECA
	G103CLBGCA
Cool White	G103NWALCA
	G103NWDECA
	G103NWBGCA

**Golden III Material**

Chip Material	GaN Base
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**Golden III Chips Array**

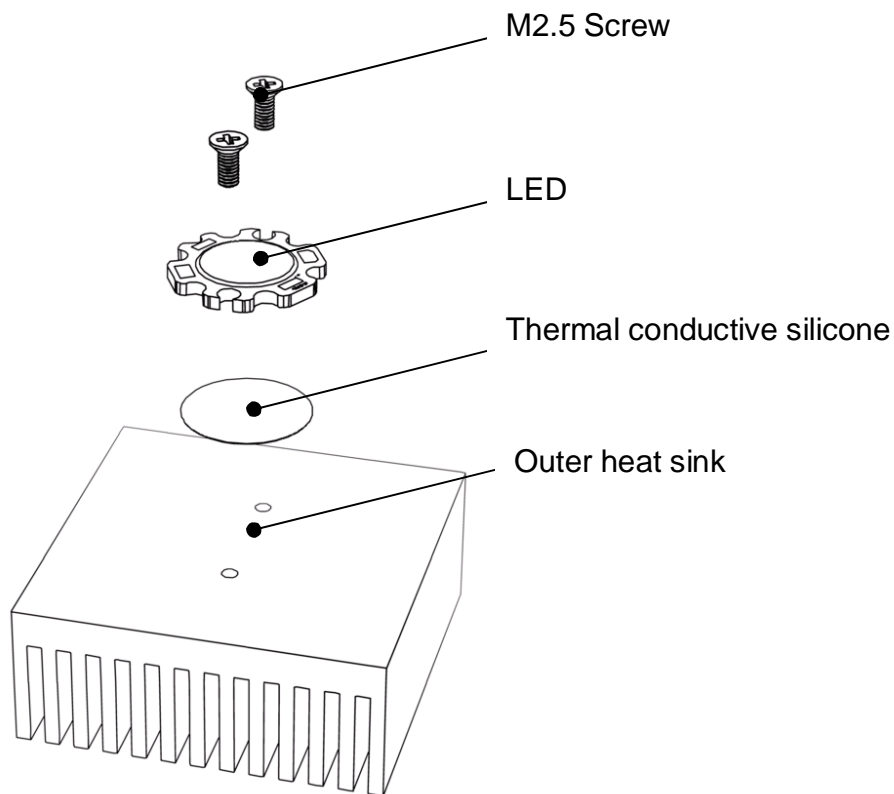
4 Chips Array
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## Golden III (G103)



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

### 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)		
G103CLALCA If=700mA;	95 lm	110 lm
G103CLDECA If=175mA;		
G103CLBGCA If=350mA		
Cool White (5400K)		
G103NWLCA If=700mA;	120lm	140 lm
G103NWDECA If=175mA;		
G103NWBGCA If=350mA		

Note1 : Luminous flux is measured in total power with tolerable errors of 10%. Minimum luminous flux performance guaranteed within published operating conditions.

Note2 : Higher luminous flux will become available in the near future.

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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 )					
G103CLALCA If=700mA;	2500K	3000K	3250K		
G103CLDECA If=175mA;					
G103CLBGCA If=350mA					
Cool White ( 5400K )				~120	~70
G103NWLCA If=700mA;	4750K	5400K	10000K		
G103NWDECA If=175mA;					
G103NWBGCA If=350mA					

Note1 : CRI value is measured with tolerable errors of 10%

## Electrical Characteristics

Table.4

P / N	Forward Voltage (V)		
	Min	Typ	Max
G103CLALCA < Warm White >			
G103NWALCA < Cool White >	3.3	3.5	3.7
@ If=700mA;			
G103CLDECA < Warm White >			
G103NWDECA < Cool White >	13	13.5	14
@ If=175mA;			
G103CLBGCA < Warm White >			
G103NWBGCA < Cool White >	6.6	7	7.4
@ If=350mA			

Note 1 : Lustrous Technology allows a tolerance of each LED for voltage measurements.

Note 2 : Measurements are taken under each nominal forward current.

## Absolute Maximum Ratings

Table.5

Parameters	G103XXXXCA	
DC Forward Current (mA)	G103CLALCA /G103NWALCA	700
	G103CLDECA /G103NWDECA	175
	G103CLBGCA /G103NWBGCA	350
LED Junction Temperature (°C)	< 125	
ESD Sensitivity	+4Kv -1.5KV (HBM)	
Thermal Resistance (°C/W)	5.5	
Operating Temperature (°C)	-25 ~ +85	
Storage Temperature (°C)	-40 ~ +100	
Soldering Temperature (°C)	260 (duration should be less than 5seconds)	

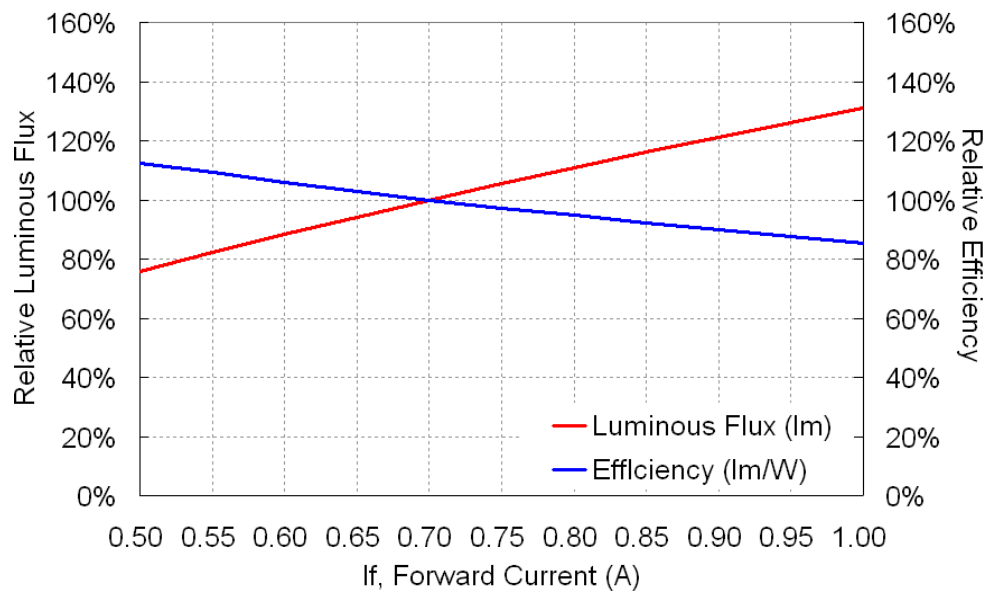
Note1 : Proper current operating must be observed to maintain junction temperature below the maximum.



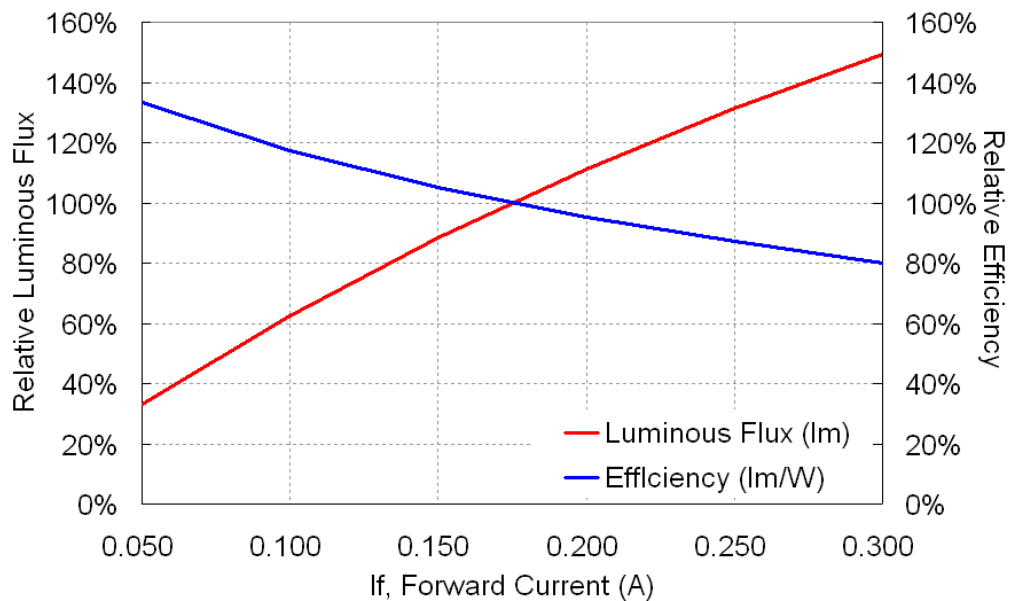
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**Relative Intensity vs. Current (T<sub>j</sub> = 25°C)**

**G103XXALXX**



**G103XXDEXX**

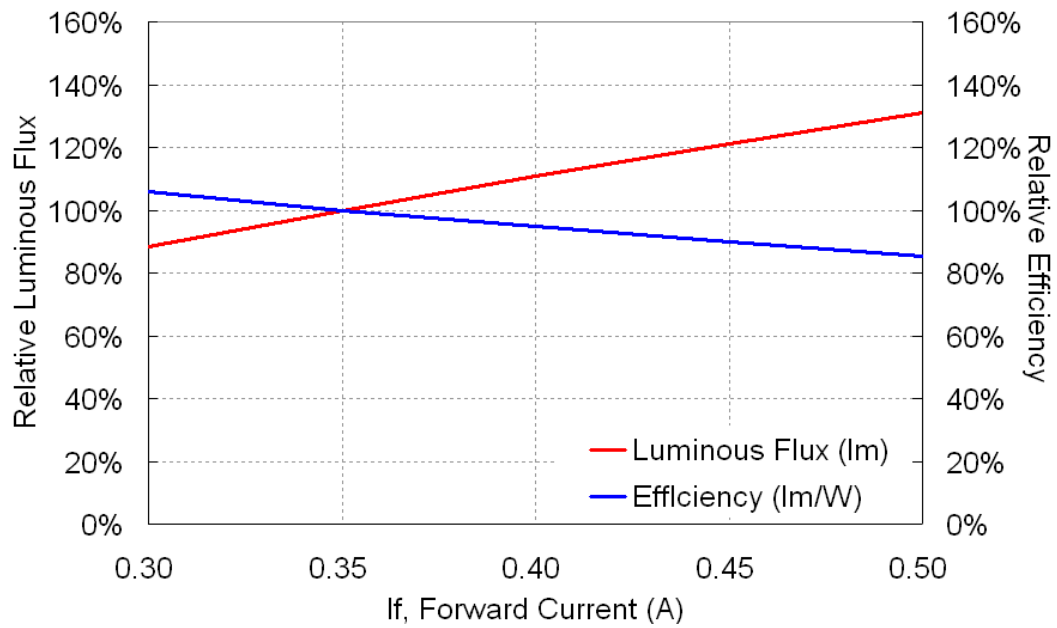


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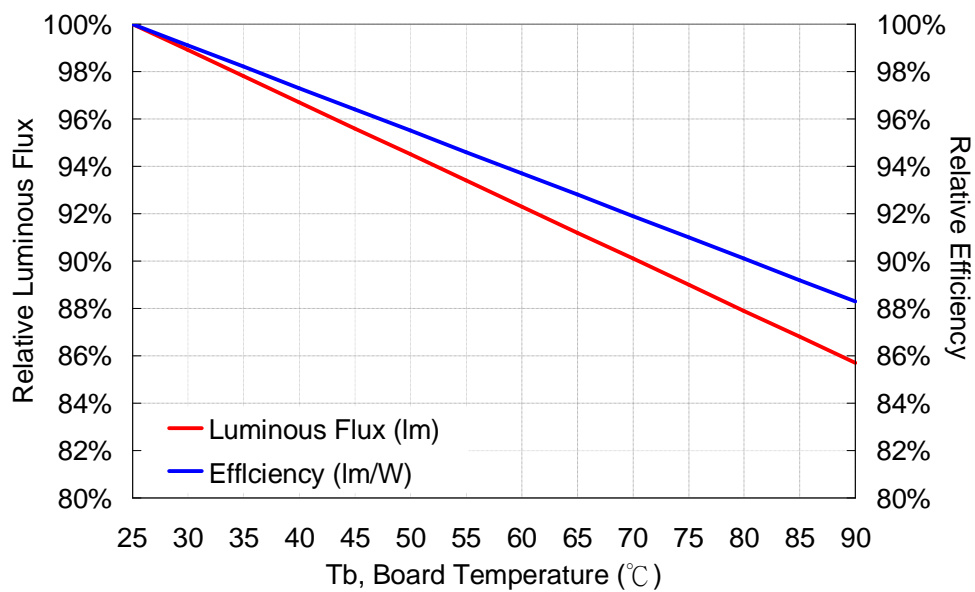
G103XXBGXX



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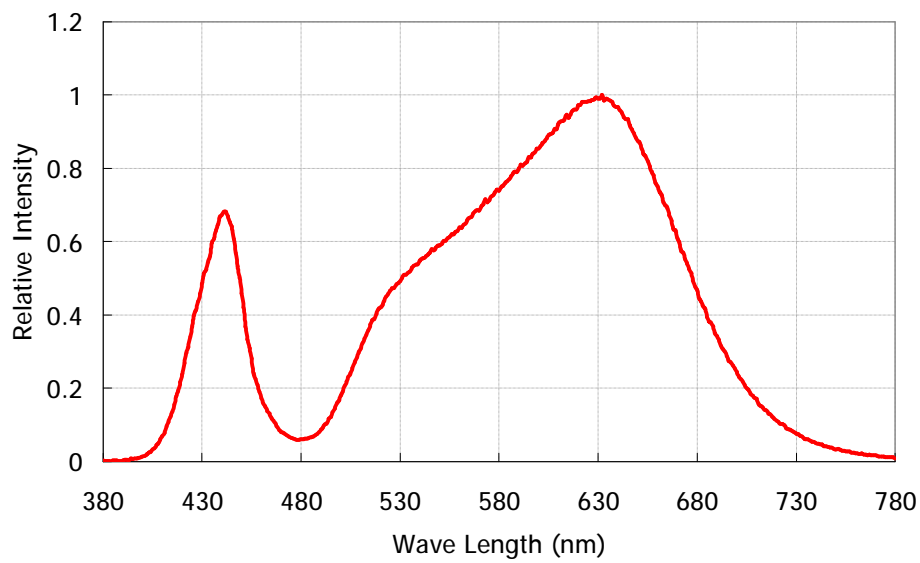
## Photometric Output vs. Board Temperature

( If = Advised DC Forward Current )

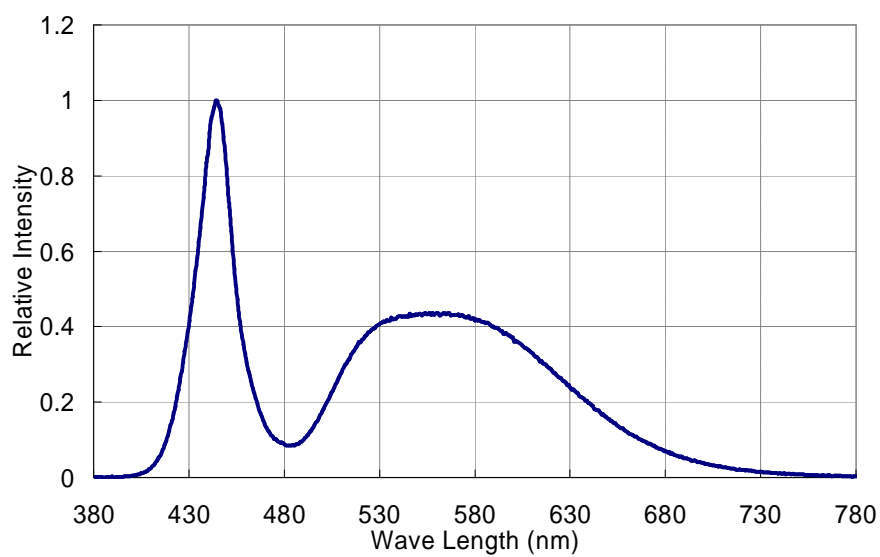


## Relative Spectral Power

### Warm White



### Cool White

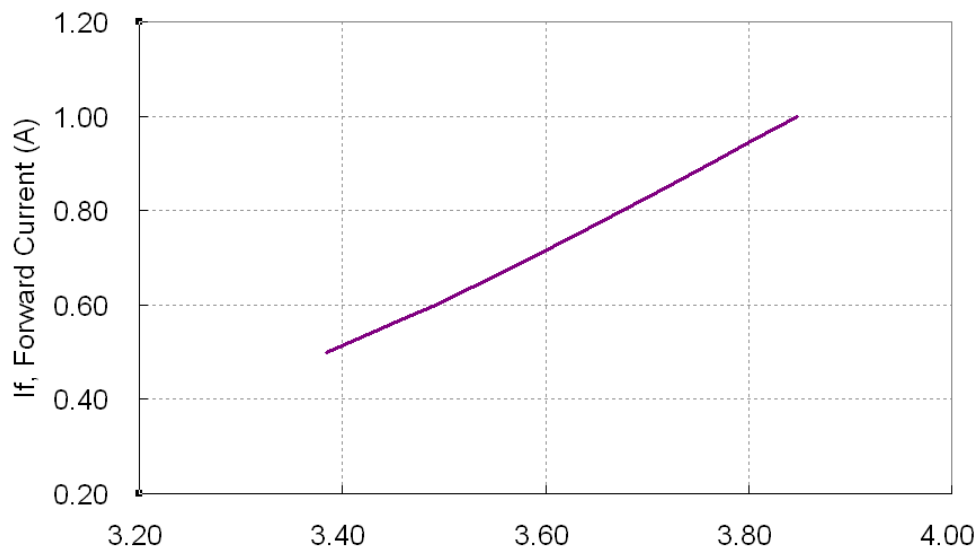


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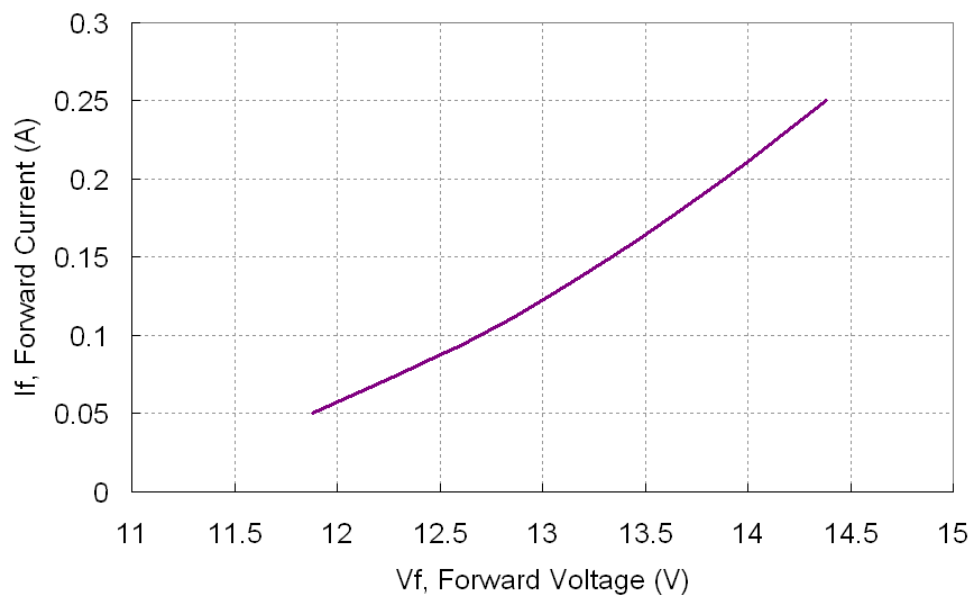
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**Forward Voltage vs. Current (T<sub>j</sub> = 25°C)**

**G103XXALXX**



**G103XXBGXX**



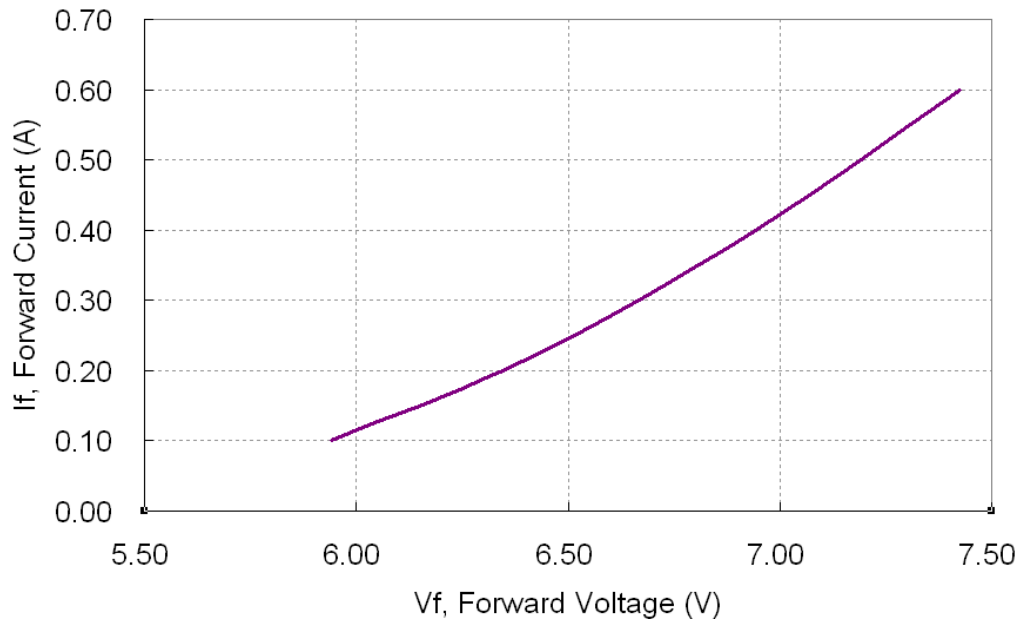
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G103XXBGXX



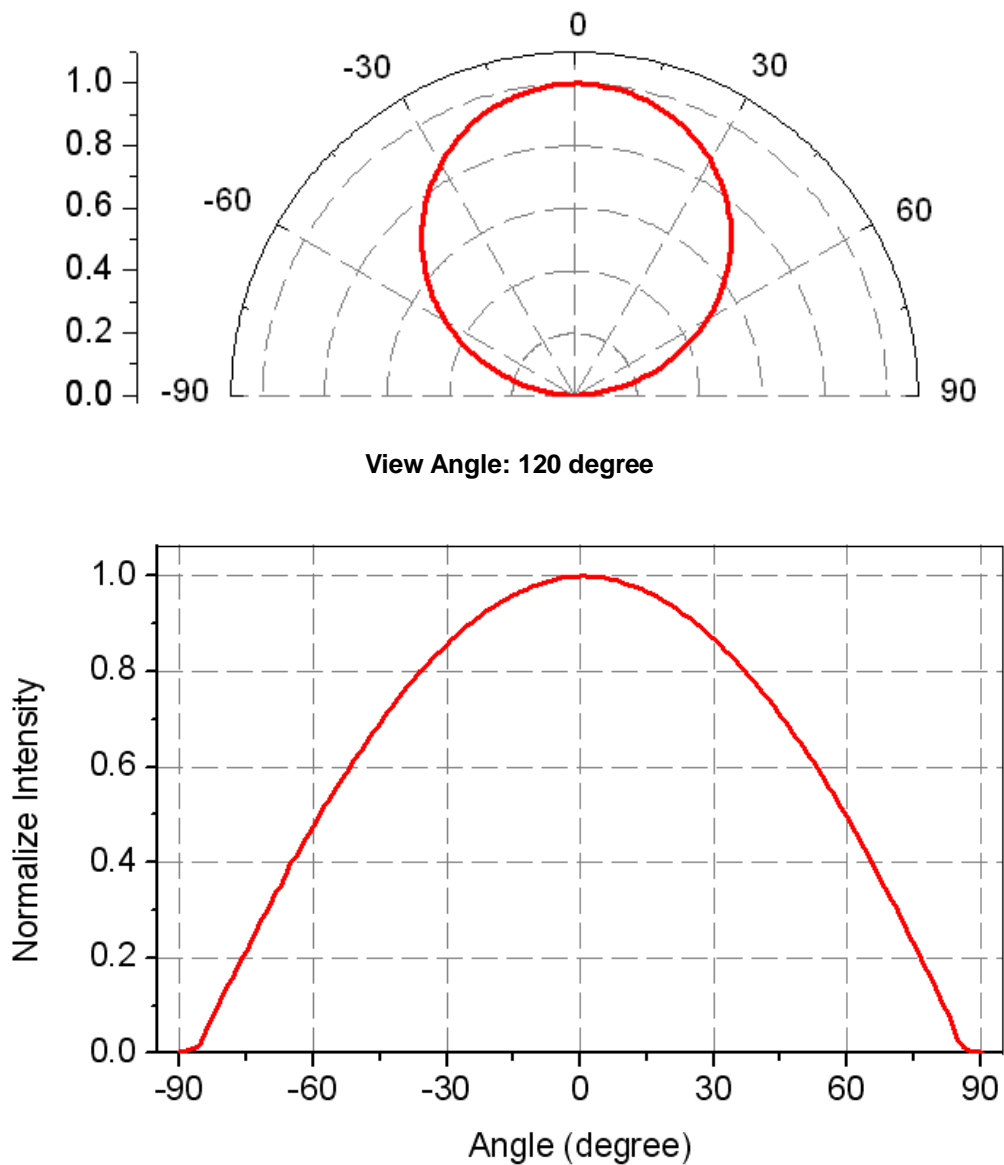
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**Typical Angular Beam Profile,  $T_j=25^{\circ}\text{C}$  \***



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

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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.**

## Brightness Binning Information \*

Table.6

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 luminous flux with tolerable errors of 10%.



**Binning Condition**

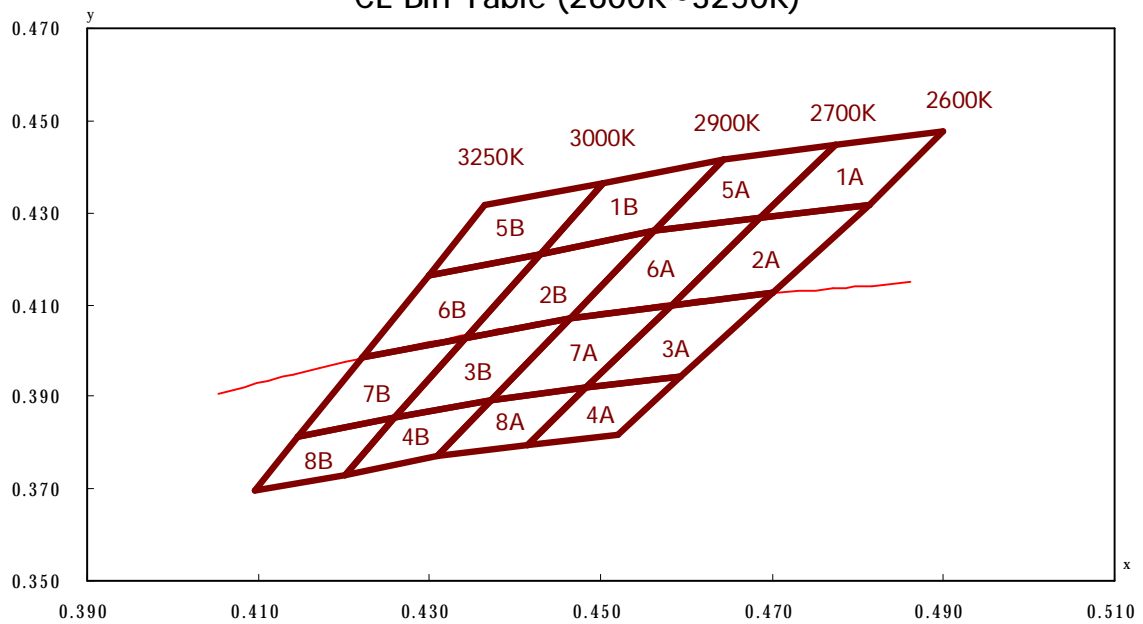
**Table.7**

<b>P/N</b>	<b>Forward Current (mA)</b>
G103CLALCA < Warm White > G103NWALCA < Cool White >	700
G103CLDECA < Warm White > G103NWDECA < Cool White >	175
G103CLBGCA < Warm White > G103NWBGCA < Cool White >	350

**Chromaticity Binning Information \*\***

**Warm White**

CL Bin Table (2600K~3250K)



\*\*Note : Chromaticity is measured in Chromaticity Coordinate (CIE 1931-xy) with tolerable errors of +/-0.005.

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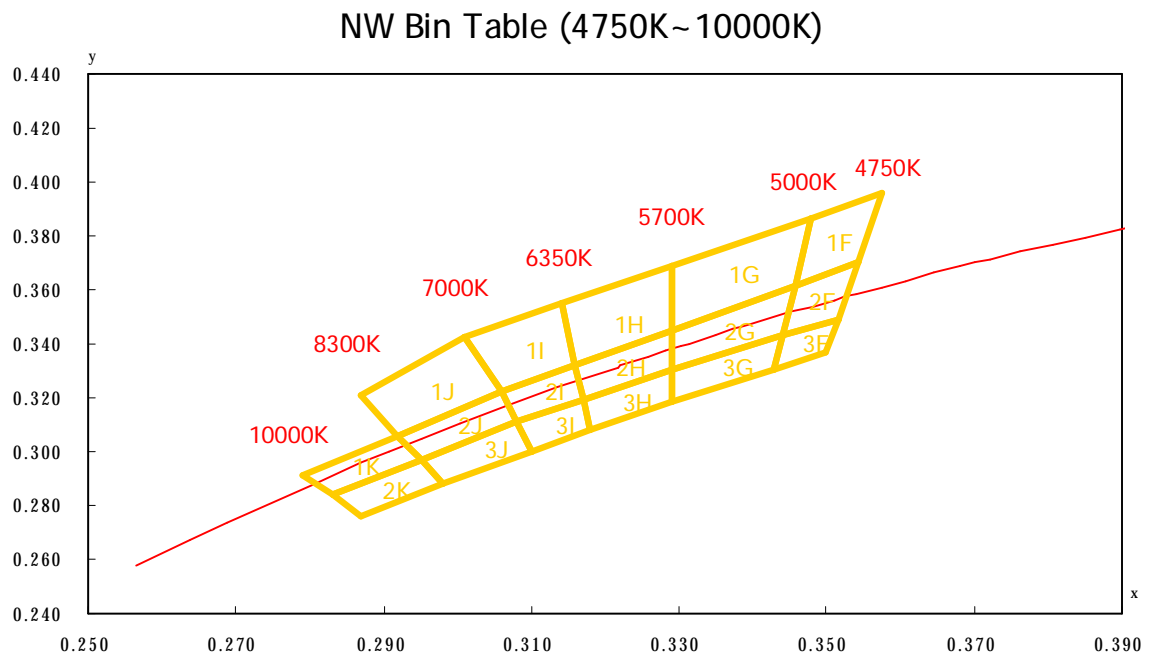
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**Table.8**

Warm-White Bin Coordinates												
CCT （K）			BIN		Chromaticity Coordinate （CIE 1931-xy）							
Min	Typ.	Max			CODE	x1	y1	x2	y2	x3	y3	x4
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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**Cool White**



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Table.9

Cool White Bin Table												
CCT (K)			BIN		Chromaticity Coordinate (CIE 1931-xy)							
Min	Typ.	Max			CODE	x1	y1	x2	y2	x3	y3	x4
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

<u>3</u>	<u>C L</u>	<u>V 0</u> - <u>M</u> - <u>3 B</u>
1	2	3 4 5
<u>X</u>	<u>X</u>	<u>09</u> <u>34</u> <u>X X X X</u>
6	7	8 9 10

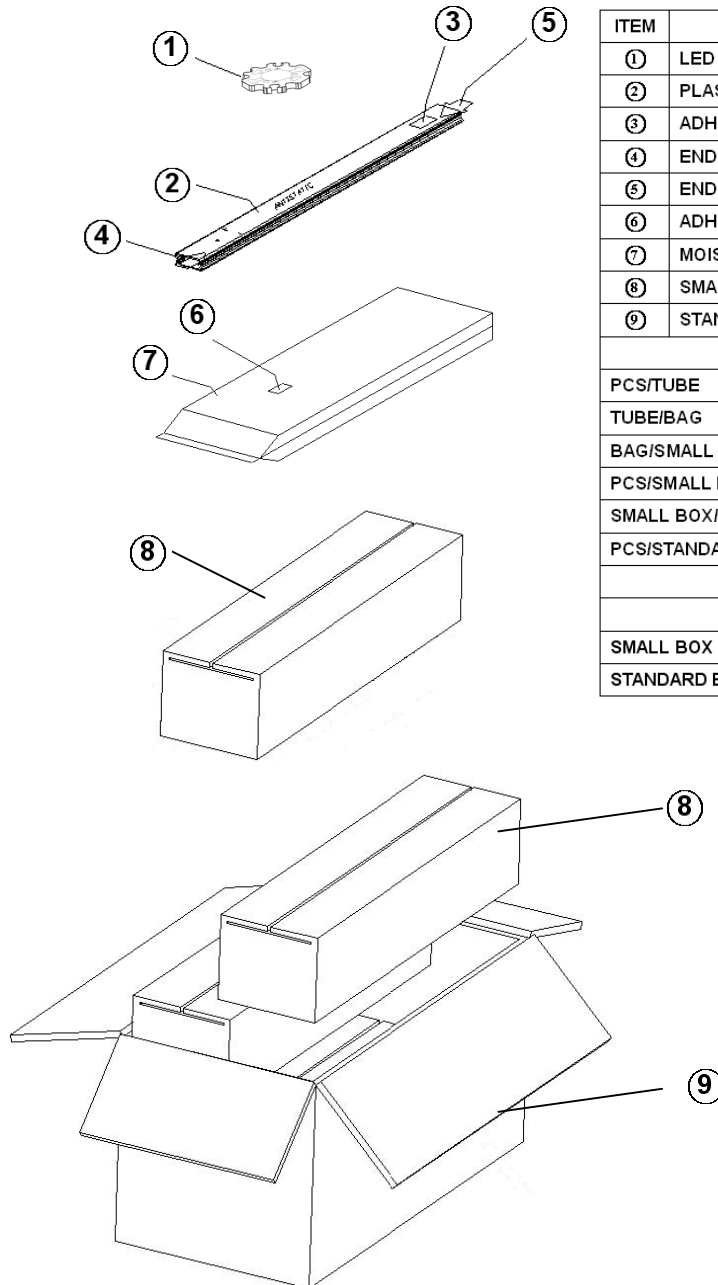
Table.11

1 Power	2 Color	3 Bin Vf	4 Luminous Flux	5 Chromaticity
3: 3W	CL: Warm White NW: Cool White	V0: Without Binned	See Bin Code Definition	See Bin Code Definition

6 Vf	7 Current	8 Year	9 Week	10 Internal Code
A : 3.5V B : 7V D : 14V	E : 175mA G : 350mA L : 700mA	09 : 2009 10 : 2010 11 : 2011	01 : 01 <sup>st</sup> Week 20 : 20 <sup>th</sup> Week 45 : 45 <sup>th</sup> 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	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(mm³)	WEIGHT(kg)
SMALL BOX	560×130×130	2.8±0.5
STANDARD BOX	580×280×280	11.9±0.5

## 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. When driving the products, the clamp voltage must be set at **5V** (for **G103XXALCA**) / **15V** (for **G103XXDECA**) **9V** (for **G103XXBGCA**) in driver.

### 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 : -40~90°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 of a year.
3. Storage Condition (after opening the MBB) :
  - I Storage Temperature : -40~90°C
  - I Relative Humidity < 90% 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.



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## **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, 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 providers 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.



**LUSTROUS TECHNOLOGY LTD**  
Green Technology of Lightings

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