

Technical Datasheet LS 30

(All patents pending)

High Power Solid-State LED Light Source

LUSTRON X3

Introduction

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

LUSTRON X3 provides the best possible performance with life time longer than 30,000 hours*. With a nominal correlated color temperature of 2500~3100K for Warm White and 4750~10000K for Cool White, similar to conventional indoor light source, **LUSTRON X3** is particularly designed for architects and commercial lighting designers.

*Note1: To optimize product performance and life time, constant DC at indicated forward current and T_b less than 60°C should be applied.

LUSTRON X3^{SL}

LUSTROUS[®]

GREEN TECHNOLOGY OF LIGHTINGS

LUSTRON X3 Part Number Matrix

Table.1

Color	P/N
Warm White (3000K)	
Cool White (5200K)	

LUSTRON X3 Material

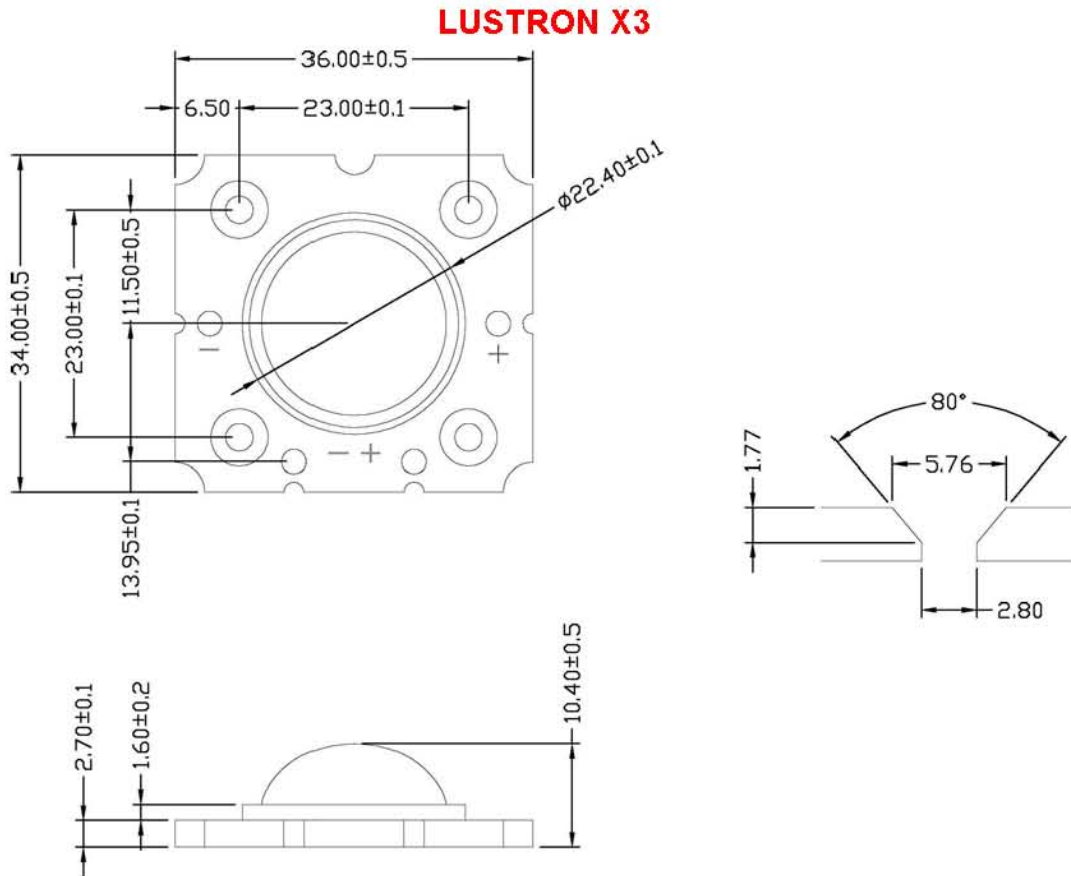
Chip Material	GaN Base
---------------	----------

LUSTRON X3 Chips Array

9 Chips Array

LUSTRON X3^{SL}

Mechanical Dimensions



Note1: Drawing not to scale. All dimensions are in millimeters.

LUSTROUS[®]

GREEN TECHNOLOGY OF LIGHTINGS

Flux Characteristics at 800mA, Junction Temperature T_j = 25°C

Table.2

Color	Minimum Luminous Flux (lm) or Typical Luminous Flux (lm) or Radiometric Power (mW)	
	Radiometric Power (mW)	Radiometric Power (mW)
Warm White		
Cool White		

Note1: Brightness 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.

Optical Characteristics

Table.3

Color	λ _d (nm) or CCT(K)			Spectral Half-Width (nm)	Viewing Angle (degrees)	CRI
	Min	Typ	Max			
Warm White	2500K	3000K	3100K	-	~120	75
Cool White	4750K	5200K	10000K	-	~120	75

LUSTRON X3^{SL}

Electrical Characteristics

Table.4

Color	Forward Voltage (V) for 800mA forward current		
	Min	Typ	Max
Warm White	9.3	9.7	10.2
Cool White	9.3	9.7	10.2

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

Note2: Measurements are taken under each nominal forward current.

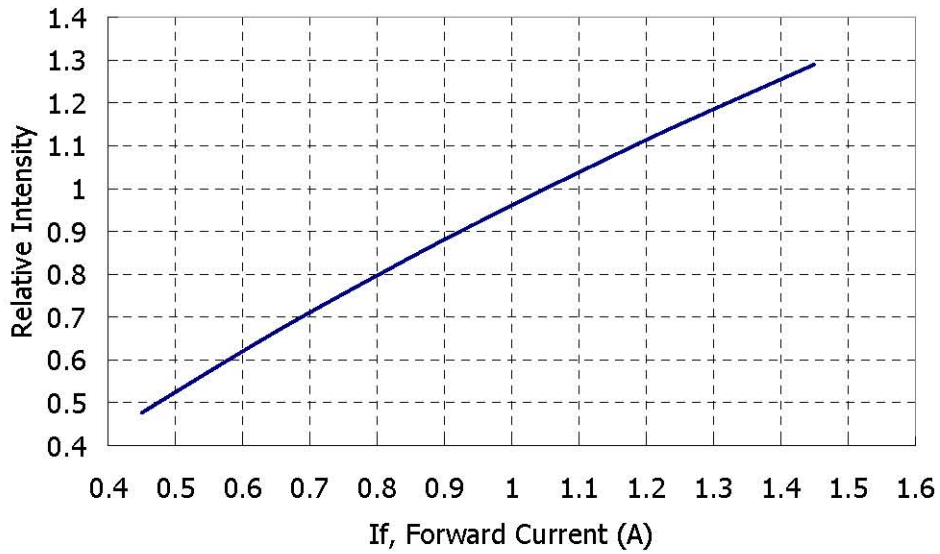
Absolute Maximum Ratings

Table.5

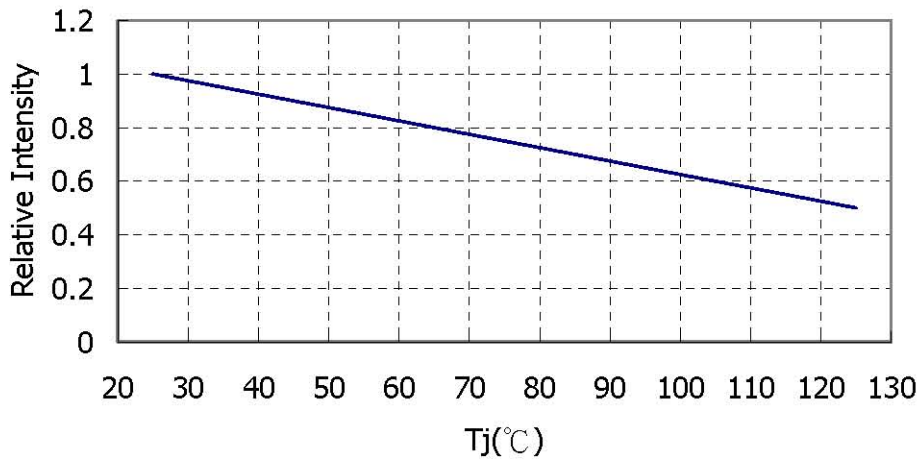
Parameters	For 800mA forward current
	Warm White/ Cool White
DC Forward Current (mA)	800
Peak Pulsed Forward Current (mA)	1200
LED Junction Temperature ($^{\circ}C$)	< 125
ESD Sensitivity	+/- 4kV (HBM)
Thermal Resistance ($^{\circ}C/W$)	~2.5
Operating Temperature ($^{\circ}C$)	-25 ~ +85
Storage Temperature ($^{\circ}C$)	-25 ~ +100
Soldering Temperature ($^{\circ}C$)	260 (duration should be less than 5 seconds)

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

Relative Intensity vs. Current ($T_j = 25^\circ\text{C}$)



Photometric Output vs. Junction Temperature ($I_f = 800\text{mA}$)



LUSTROUS[®]
GREEN TECHNOLOGY OF LIGHTINGS

Relative Spectral Power

Warm White (3000K)

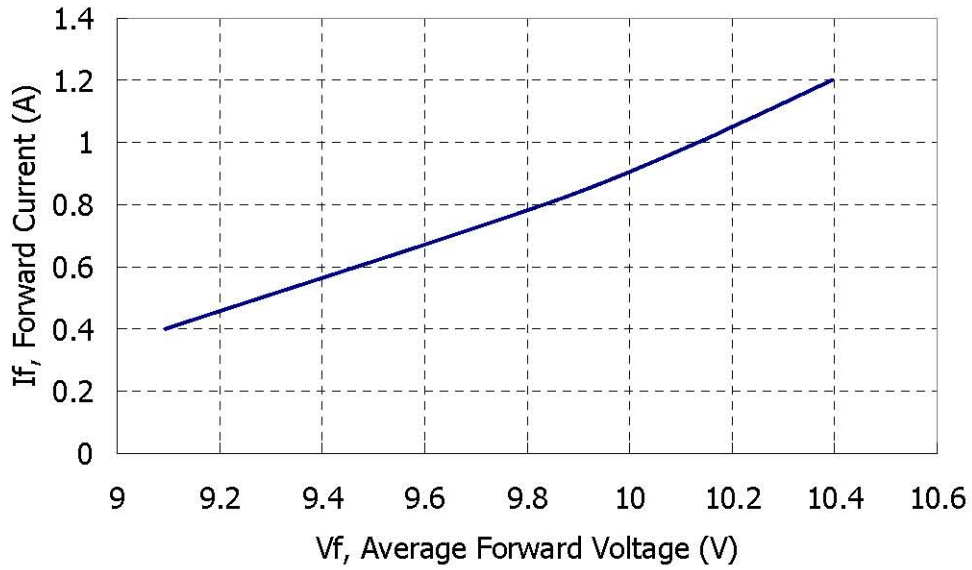
Pending

Cool White (5200K)

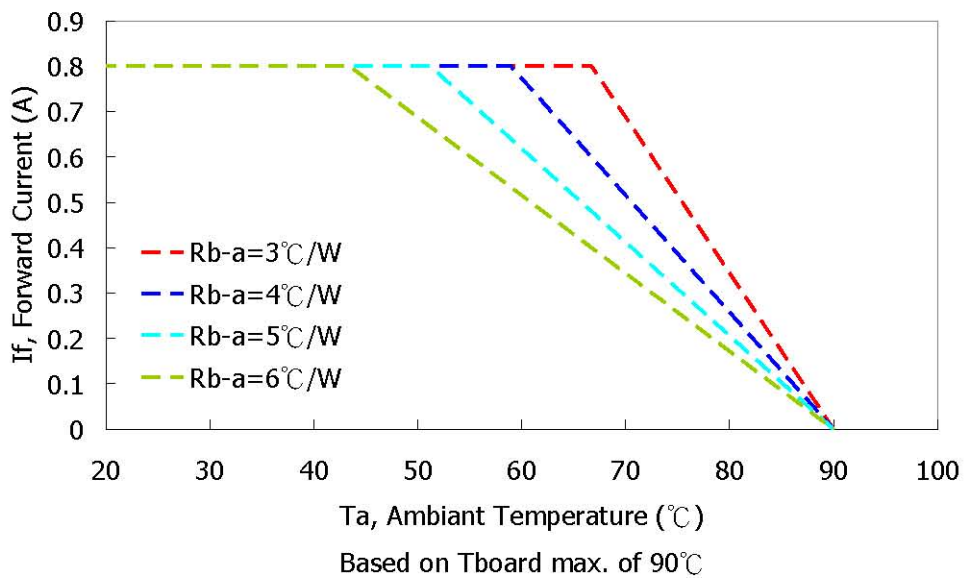
Pending

LUSTRON X3^{SL}

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



Operating Curve (Max. permissible forward current)



LUSTROUS[®]

GREEN TECHNOLOGY OF LIGHTINGS

Typical Angular Beam Profile, Tj=25°C *

Pending

LUSTRON X3^{SL}

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 brightness 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

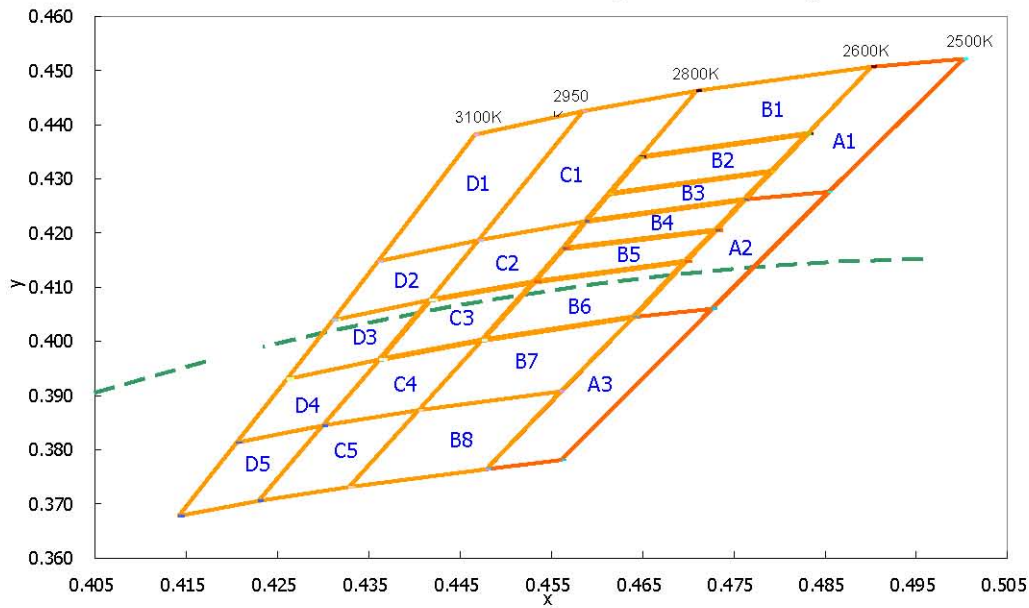
BIN Code	Lv (lm)		BIN Code	Lv (lm)	
	min.	max.		min.	max.
A	110	140	K	450	500
B	140	170	L	500	550
C	170	200	M	550	600
D	200	230	N	600	680
E	230	260	O	680	760
F	260	290	P	760	840
G	290	330	Q	840	920
H	330	370	R	920	1000
I	370	410	S	1000	1100
J	410	450	T	1100	1200

*Note1: Brightness is measured in total luminous flux with tolerable errors of 10%. Maximum.

Chromaticity Binning Information *

Warm White

Warm White BIN Table (2500~3100K)



BIN Code	Chromaticity Coordinate (CIE 1931-xy)							
	x1	y1	x2	y2	x3	y3	x4	y4
A1	0.5002	0.4522	0.4901	0.4507	0.4762	0.4262	0.4854	0.4276
A2	0.4854	0.4276	0.4762	0.4262	0.4640	0.4045	0.4726	0.4060
A3	0.4726	0.4060	0.4640	0.4045	0.4478	0.3764	0.4561	0.3781
B1	0.4901	0.4507	0.4709	0.4463	0.4647	0.4340	0.4831	0.4383
B2	0.4831	0.4383	0.4647	0.4340	0.4613	0.4272	0.4791	0.4314
B3	0.4791	0.4314	0.4613	0.4272	0.4587	0.4222	0.4762	0.4262
B4	0.4762	0.4262	0.4587	0.4222	0.4563	0.4172	0.4730	0.4205
B5	0.4730	0.4205	0.4563	0.4172	0.4531	0.4110	0.4697	0.4147
B6	0.4697	0.4147	0.4531	0.4110	0.4474	0.4002	0.4640	0.4045
B7	0.4640	0.4045	0.4474	0.4002	0.4405	0.3873	0.4560	0.3908

LUSTROUS[®]

GREEN TECHNOLOGY OF LIGHTINGS

B8	0.4560	0.3908	0.4405	0.3873	0.4328	0.3731	0.4478	0.3764
C1	0.4709	0.4463	0.4585	0.4425	0.4470	0.4187	0.4587	0.4222
C2	0.4587	0.4222	0.4470	0.4187	0.4417	0.4076	0.4531	0.4110
C3	0.4531	0.4110	0.4417	0.4076	0.4362	0.3967	0.4474	0.4002
C4	0.4474	0.4002	0.4362	0.3967	0.4300	0.3845	0.4405	0.3873
C5	0.4405	0.3873	0.4300	0.3845	0.4229	0.3706	0.4328	0.3731
D1	0.4585	0.4425	0.4466	0.4382	0.4360	0.4148	0.4470	0.4187
D2	0.4470	0.4187	0.4360	0.4148	0.4311	0.4039	0.4417	0.4076
D3	0.4417	0.4076	0.4311	0.4039	0.4260	0.3930	0.4362	0.3967
D4	0.4362	0.3967	0.4260	0.3930	0.4205	0.3813	0.4300	0.3845
D5	0.4300	0.3845	0.4205	0.3813	0.4142	0.3678	0.4229	0.3706

LUSTRON X3^{SL}

Cool White

Cool White Bin Table (4750~10000K)

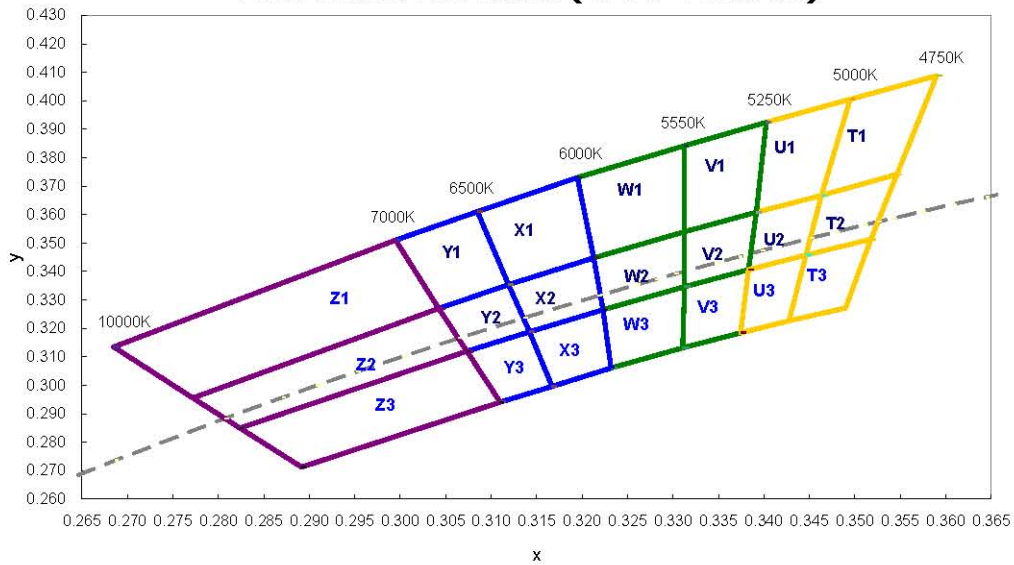


Table.9

BIN Code	Chromaticity Coordinate (CIE 1931-xy)							
	x1	y1	x2	y2	x3	y3	x4	y4
T1	0.3590	0.4088	0.3546	0.3741	0.3463	0.3667	0.3495	0.4005
T2	0.3546	0.3741	0.3518	0.3513	0.3446	0.3458	0.3463	0.3667
T3	0.3518	0.3513	0.3490	0.3272	0.3428	0.3227	0.3446	0.3458
U1	0.3495	0.4005	0.3463	0.3667	0.3392	0.3608	0.3403	0.3924
U2	0.3463	0.3667	0.3446	0.3458	0.3383	0.3406	0.3392	0.3608
U3	0.3446	0.3458	0.3428	0.3227	0.3374	0.3184	0.3383	0.3406
V1	0.3403	0.3924	0.3392	0.3608	0.3313	0.3540	0.3313	0.3841
V2	0.3392	0.3608	0.3383	0.3406	0.3313	0.3346	0.3313	0.3540
V3	0.3383	0.3406	0.3374	0.3184	0.3311	0.3132	0.3313	0.3346
W1	0.3313	0.3841	0.3312	0.3540	0.3213	0.3448	0.3195	0.3730
W2	0.3313	0.3540	0.3313	0.3346	0.3223	0.3266	0.3213	0.3448

LUSTROUS[®]

GREEN TECHNOLOGY OF LIGHTINGS

W3	0.3313	0.3346	0.3311	0.3132	0.3232	0.3061	0.3223	0.3266
X1	0.3195	0.3730	0.3213	0.3448	0.3119	0.3354	0.3085	0.3610
X2	0.3213	0.3448	0.3223	0.3266	0.3142	0.3188	0.3119	0.3354
X3	0.3223	0.3266	0.3232	0.3061	0.3167	0.2997	0.3142	0.3188
Y1	0.3085	0.3610	0.3119	0.3354	0.3042	0.3270	0.2995	0.3510
Y2	0.3119	0.3354	0.3142	0.3188	0.3073	0.3120	0.3042	0.3270
Y3	0.3142	0.3188	0.3167	0.2997	0.3110	0.2941	0.3073	0.3120
Z1	0.2995	0.3510	0.3042	0.3270	0.2772	0.2955	0.2685	0.3135
Z2	0.3042	0.3270	0.3073	0.3120	0.2824	0.2850	0.2772	0.2955
Z3	0.3073	0.3120	0.3110	0.2941	0.2892	0.2713	0.2824	0.2850

*Note1: Chromaticity is measured in Chromaticity Coordinate (CIE 1931-xy) with tolerable errors of +/-0.005.Maximum.

LUSTRON X3^{SL}

Print Code Guideline

L A S 1 1 0 N W C 0 D – S N F S D

1

X X X X X X X X X X X X X X 08 34

2

3

4

V 0 – N – V 2 – X

5

6

7

8

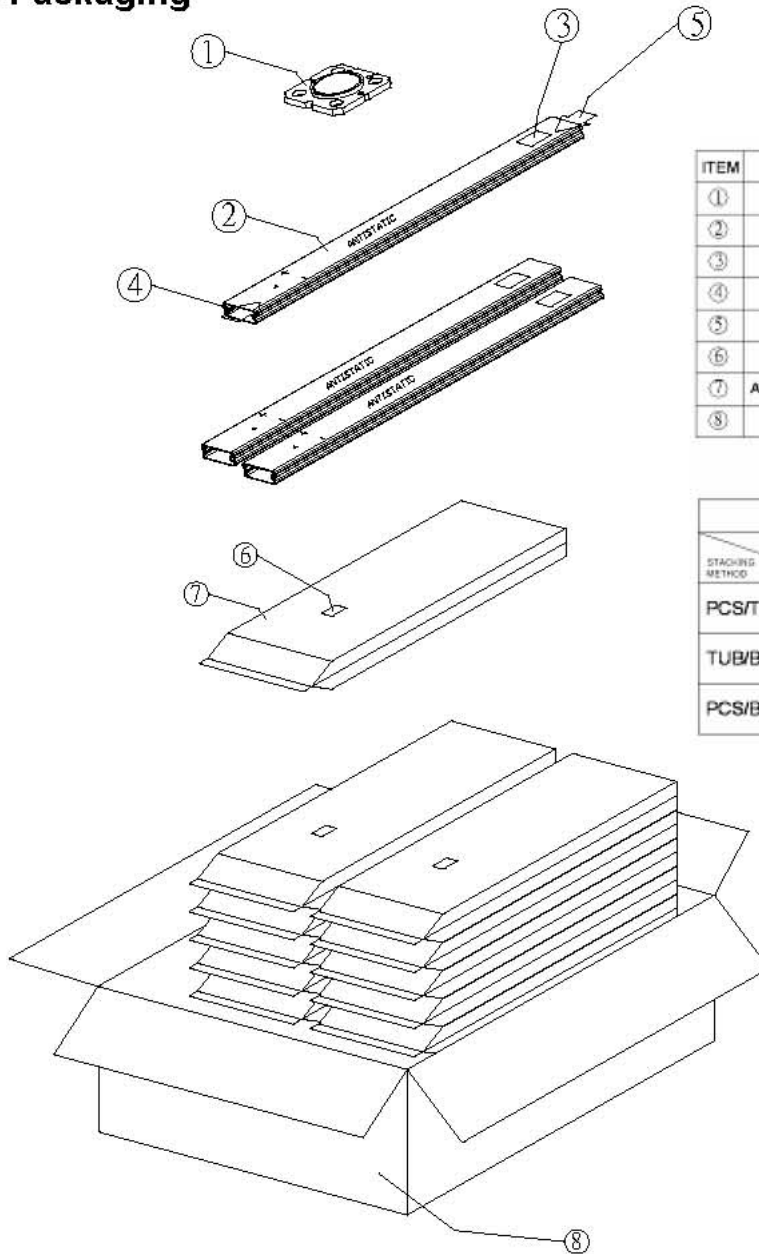
Table.10

1 P/N	2 Internal Code	3 Year	4 Week
Warm White (3000K):		08: 2008	01: Week 01
Cool White (5200K):		09: 2009	02: Week 02
		10: 2010	03: Week 03

5 Vf	6 Brightness	7 Chromaticity	8 Customer Code
V0: Without Binned	See Bin Code Definition	See Bin Code Definition	

LUSTROUS[®]
GREEN TECHNOLOGY OF LIGHTINGS

Typical Packaging



ITEM	DESCRIPTION
①	LUSTRON X3
②	PLASTIC TUBE
③	ADHESIVE MAIN LABEL
④	END-PLUG WHITE
⑤	END-PLUG BLACK
⑥	ADHESIVE MAIN LABEL
⑦	ALUMINUM MOISTURE BARRIER BAG
⑧	BOX

STACKING METHOD	
PROD NO	LUSTRON X3
PCS/TUB	10
TUB/BUNDLE	2
PCS/BOX	600 (20 x 30)

LUSTRON X3^{SL}

Precaution for Use

Over-current Proof

1. Customer must not drive the LEDs with reverse current and should apply resistors for extra protection.
2. When driving the products, the clamp voltage must be set at **12V** 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):
 - Storage Temperature: -40~80°C
 - Relative Humidity < 90% RH
 - Please re-seal the MBB when storing longer than 3 weeks.
 - The products should be used within half of a year.
3. Storage Condition (after opening the MBB):
 - Storage Temperature: -40~80°C
 - Relative Humidity < 90% RH
 - The products should be used (assembled) as soon as possible after opening the MBB.

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.

All rights reserved. Product specifications are subject to change without further notice.

LUSTRON X3^{SL}
