
Powerlux

GREEN TECHNOLOGY OF LIGHTINGS

High Power Solid-State LED Light Source

Powerlux Diamond

Introduction

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

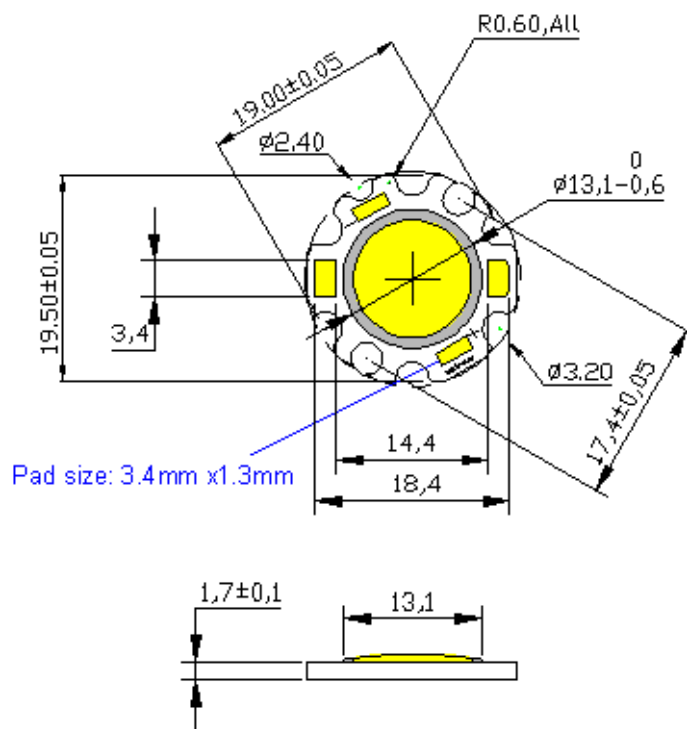
Powerlux Diamond, available in Star configuration, provides the best possible color rendering capability and Efficiency. With a nominal correlated color temperature of 2500~3100K for Warm White, and 4750~10000K for Cool White, similar to conventional indoor and outdoor light source, **Powerlux Diamond** is particularly designed for architects and commercial lighting designers.

Powerlux Diamond

Powerlux Diamond Part Number Matrix

Table.1

Color	P/N
Warm White (2800K)	NHA105CLC0P-CRCSB
	NHB105CLC0O-CRCSB
Cool White (6000K)	NHA105NWC0P-CRCSB
	NHB105NWC0O-CRCSB

Mechanical Dimensions**Powerlux Diamond**tolerance non-labeled: ± 0.07 mm

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

Stress Testing Item

Stress Test	Stress Condition	Stress Duration	Failure Criteria	Result (failed/tested)
RTOL	Ta=25°C Tj< =125°C, If=960mA(NHA) / 240mA(NHB)	Time=1000hrs	Note1	Pending
TMCL	-25°C to 125°C 15mins dwell time, 15mins transfer time	100 cycles	Note1	Pending
Mechanical Shock	1500 G, 0.5 ms pulse width 5 shocks each, 6 axis		Note2	Pending
Salt Atmosphere	Temp = 35°C Salt deposit 30 g/sq.m/da	Time=48 hrs	Note2	Pending
Solderability	Pb-Free reflow solder profile (JEDEC J-STD-020-D, or T=260°C, 10sec., 2 times		Note1	Pending

Note1: A failure is an LED that is open, shorted, or loses more than 15% of its initial light output.

Note2: A failure is an LED that is open or shorted.

Flux Characteristics at Junction Temperature Tj = 25 °C

Table.2

Color	Minimum Luminous Flux (lm) or Typical Luminous Flux (lm) or Radiometric Power (mW)	
	Minimum Luminous Flux (lm) or Radiometric Power (mW)	Typical Luminous Flux (lm) or Radiometric Power (mW)
Warm White (2800K)		
NHA105CL @ If=700mA;	150 lm	200 lm
NHB105CL @ If=175mA;		
Cool White (6000K)		
NHA105NW @ If=700mA;	200lm	260 lm
NHB105NW @ If=175mA;		

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

P / N	Color Temperature(K)			Color Rendering Index (CRI)	Viewing Angle (degrees)
	Min	Typ	Max	Typ	Typ
	Warm White (2800K)				
NHA105CL @ If=700mA;	2500K	2800K	3100K	75	120
NHB105CL @ If=175mA;					
Cool White (6000K)					
NHA105NW @ If=700mA;	4750K	6000K	10000K	75	120
NHB105NW @ If=175mA;					

Electrical Characteristics

Table.4

P / N	Forward Voltage (V)		
	Min	Typ	Max
NHA105CL < Warm White > NHA105NW < Cool White > @ If=700mA;	6	6.8	7.5
NHB105CL < Warm White > NHB105NW < Cool White > @ If=175mA;	25.6	27.2	28.8

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

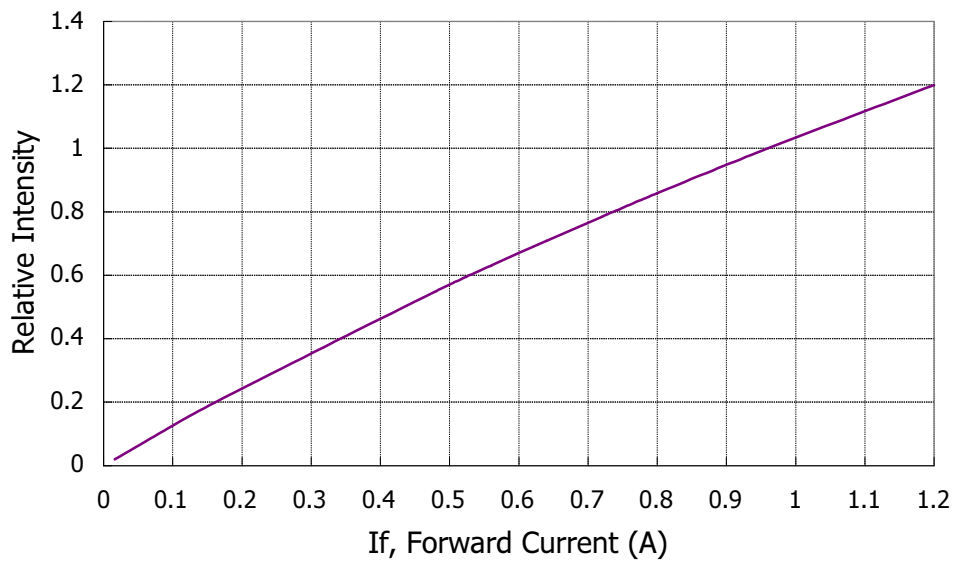
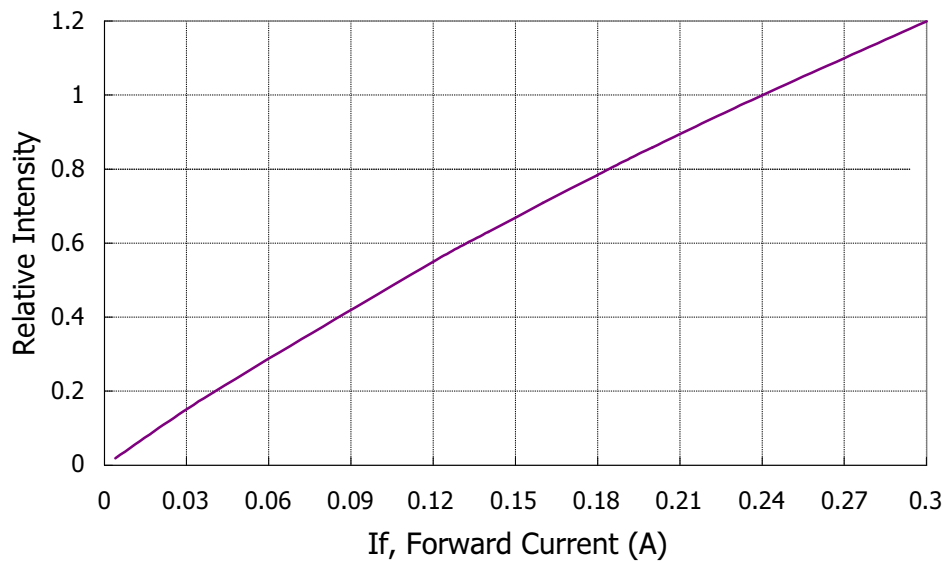
Note 2: Measurements are taken under each nominal forward current.

Absolute Maximum Ratings

Table.5

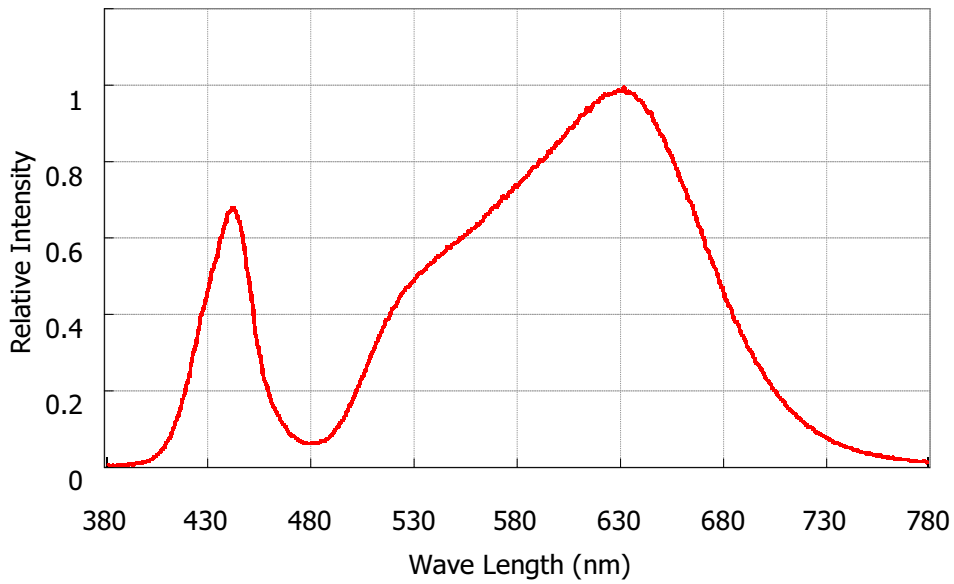
Parameters	NHA105CL / NHB105CL / NHA105NW / NHB105NW
DC Forward Current (mA)	NHA105CL / NHA105NW 700
	NHB105CL / NHB105NW 175
Peak Pulsed Forward Current (mA)	NHA105CL / NHA105NW 960
	NHB105CL / NHB105NW 240
LED Junction Temperature (°C)	< 120
ESD Sensitivity	+/- 3000 HBV
Thermal Resistance (°C/W)	5.5
Operating Temperature (°C)	-25 ~ +85
Storage Temperature (°C)	-25 ~ +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.

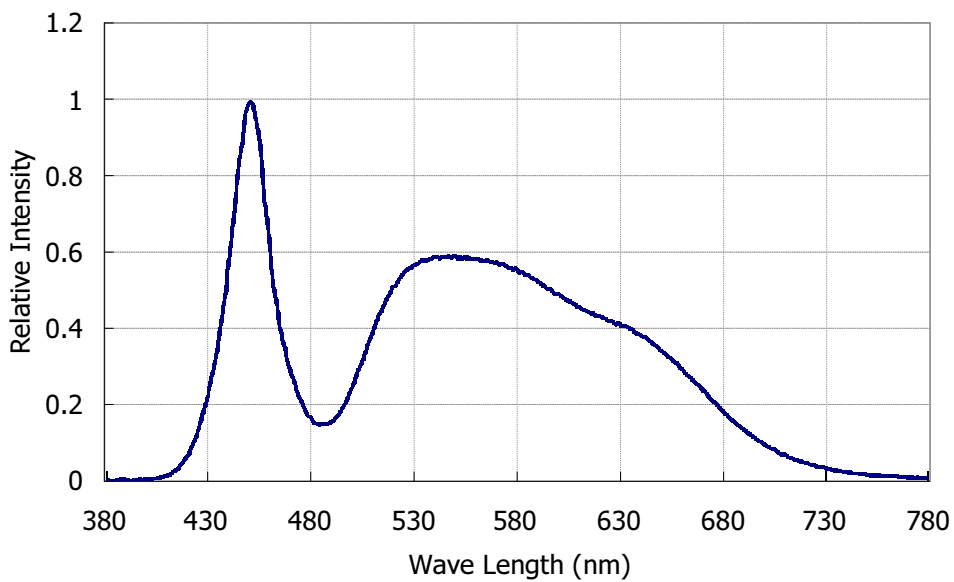
Relative Intensity vs. Current ($T_j = 25^\circ\text{C}$)**NHA105CL / NHA105NW****NHB105CL / NHB105NW**

Relative Spectral Power

Warm White (2800K)

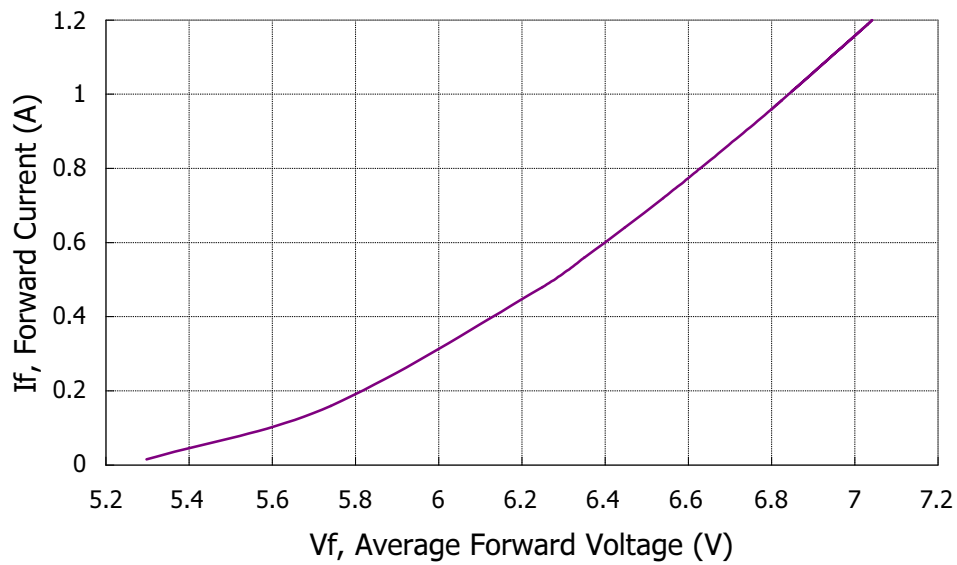


Cool White (6000K)

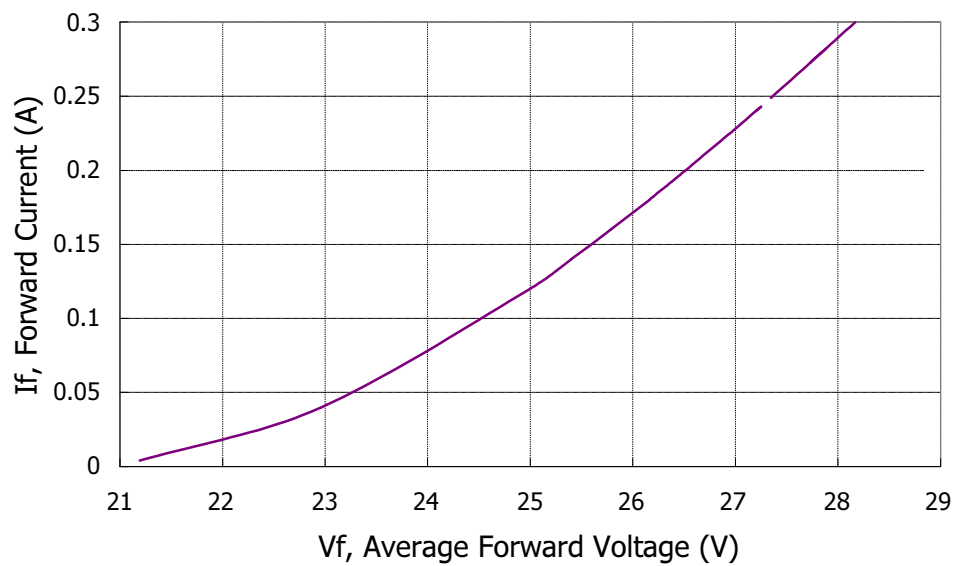


Forward Voltage vs. Current ($T_j = 25^\circ\text{C}$)

NHA105CL / NHA105NW

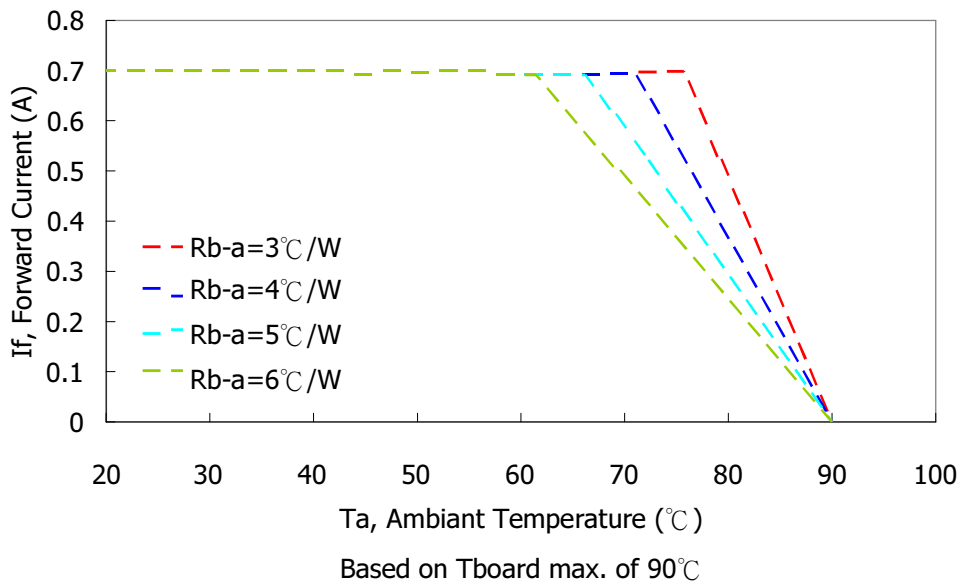


NHB105CL / NHB105NW

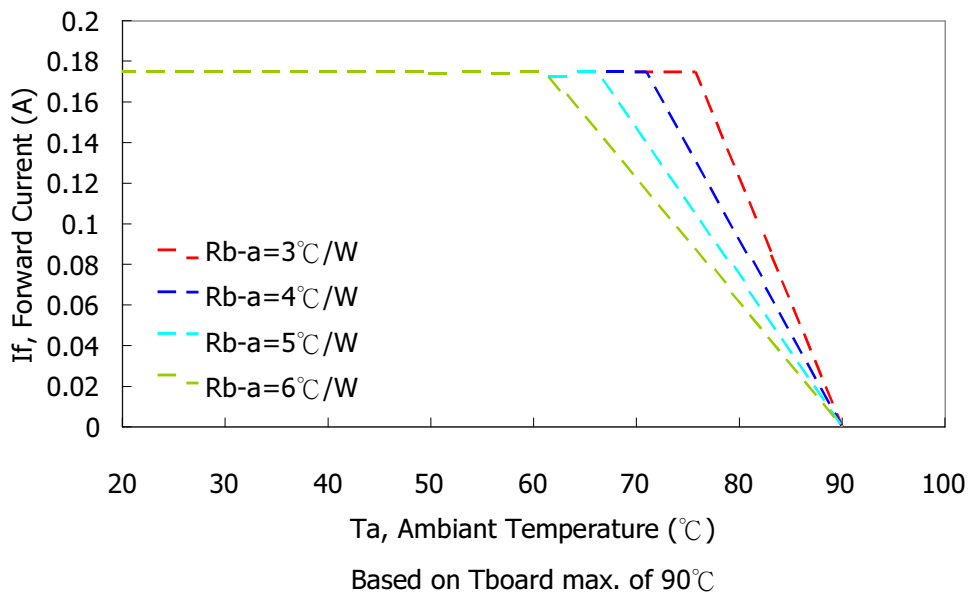


Operating Curve (Max. permissible forward current)

NHA105CL / NHA105NW



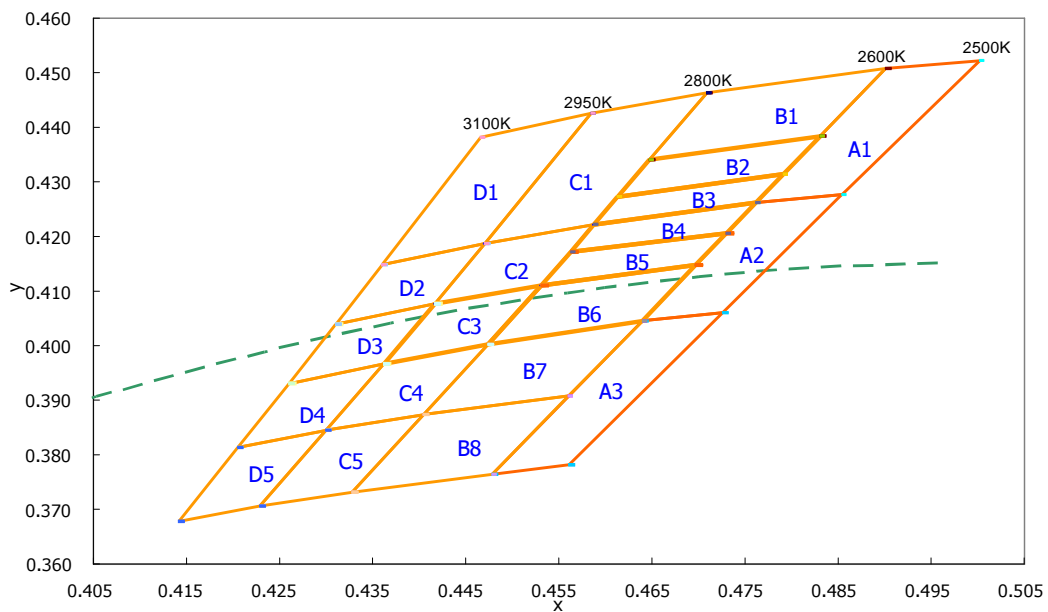
NHB105CL / NHB105NW



Bin Code

④ Warm White (2800K)

Warm White Bin Structure



Warm White BIN Table for NHA105CL													
NO	BIN CODE	Vf (V)		Lv (lm)		Chromaticity Coordinate (CIE 1931-xy)							
		min	max	min	max	x1	y1	x2	y2	x3	y3	x4	y4
01	V0-L1-A1	6	7.5	150	200	0.5002	0.4522	0.4901	0.4507	0.4762	0.4262	0.4854	0.4276
02	V0-L1-A2					0.4854	0.4276	0.4762	0.4262	0.4640	0.4045	0.4726	0.4060
03	V0-L1-A3					0.4726	0.4060	0.4640	0.4045	0.4478	0.3764	0.4561	0.3781
04	V0-L1-B1					0.4901	0.4507	0.4709	0.4463	0.4647	0.4340	0.4831	0.4383
05	V0-L1-B2					0.4831	0.4383	0.4647	0.4340	0.4613	0.4272	0.4791	0.4314

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06	V0-L1-B3				0.4791	0.4314	0.4613	0.4272	0.4587	0.4222	0.4762	0.4262
07	V0-L1-B4				0.4762	0.4262	0.4587	0.4222	0.4563	0.4172	0.4730	0.4205
08	V0-L1-B5				0.4730	0.4205	0.4563	0.4172	0.4531	0.4110	0.4697	0.4147
09	V0-L1-B6				0.4698	0.4146	0.4530	0.4109	0.4474	0.4002	0.4640	0.4045
10	V0-L1-B7				0.4640	0.4045	0.4474	0.4002	0.4405	0.3873	0.4560	0.3908
11	V0-L1-B8				0.4560	0.3908	0.4405	0.3873	0.4328	0.3731	0.4478	0.3764
12	V0-L1-C1				0.4709	0.4463	0.4585	0.4425	0.4470	0.4187	0.4587	0.4222
13	V0-L1-C2				0.4587	0.4222	0.4470	0.4187	0.4416	0.4075	0.4530	0.4109
14	V0-L1-C3				0.4530	0.4109	0.4416	0.4075	0.4362	0.3967	0.4474	0.4002
15	V0-L1-C4				0.4474	0.4002	0.4362	0.3967	0.4300	0.3845	0.4405	0.3873
16	V0-L1-C5				0.4405	0.3873	0.4300	0.3845	0.4229	0.3706	0.4328	0.3731
17	V0-L1-D1				0.4585	0.4425	0.4466	0.4382	0.4360	0.4148	0.4470	0.4187
18	V0-L1-D2				0.4470	0.4187	0.4360	0.4148	0.4310	0.4038	0.4416	0.4075
19	V0-L1-D3				0.4416	0.4075	0.4310	0.4038	0.4260	0.3930	0.4362	0.3967
20	V0-L1-D4				0.4362	0.3967	0.4260	0.3930	0.4205	0.3813	0.4300	0.3845
21	V0-L1-D5				0.4300	0.3845	0.4205	0.3813	0.4142	0.3678	0.4229	0.3706
22	V0-L2-A1		200	250	0.5002	0.4522	0.4901	0.4507	0.4762	0.4262	0.4854	0.4276
23	V0-L2-A2				0.4854	0.4276	0.4762	0.4262	0.4640	0.4045	0.4726	0.4060
24	V0-L2-A3				0.4726	0.4060	0.4640	0.4045	0.4478	0.3764	0.4561	0.3781
25	V0-L2-B1				0.4901	0.4507	0.4709	0.4463	0.4647	0.4340	0.4831	0.4383
26	V0-L2-B2				0.4831	0.4383	0.4647	0.4340	0.4613	0.4272	0.4791	0.4314
27	V0-L2-B3				0.4791	0.4314	0.4613	0.4272	0.4587	0.4222	0.4762	0.4262
28	V0-L2-B4				0.4762	0.4262	0.4587	0.4222	0.4563	0.4172	0.4730	0.4205

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29	V0-L2-B5					0.4730	0.4205	0.4563	0.4172	0.4531	0.4110	0.4697	0.4147
30	V0-L2-B6					0.4698	0.4146	0.4530	0.4109	0.4474	0.4002	0.4640	0.4045
31	V0-L2-B7					0.4640	0.4045	0.4474	0.4002	0.4405	0.3873	0.4560	0.3908
32	V0-L2-B8					0.4560	0.3908	0.4405	0.3873	0.4328	0.3731	0.4478	0.3764
33	V0-L2-C1					0.4709	0.4463	0.4585	0.4425	0.4470	0.4187	0.4587	0.4222
34	V0-L2-C2					0.4587	0.4222	0.4470	0.4187	0.4416	0.4075	0.4530	0.4109
35	V0-L2-C3					0.4530	0.4109	0.4416	0.4075	0.4362	0.3967	0.4474	0.4002
36	V0-L2-C4					0.4474	0.4002	0.4362	0.3967	0.4300	0.3845	0.4405	0.3873
37	V0-L2-C5					0.4405	0.3873	0.4300	0.3845	0.4229	0.3706	0.4328	0.3731
38	V0-L2-D1					0.4585	0.4425	0.4466	0.4382	0.4360	0.4148	0.4470	0.4187
39	V0-L2-D2					0.4470	0.4187	0.4360	0.4148	0.4310	0.4038	0.4416	0.4075
40	V0-L2-D3					0.4416	0.4075	0.4310	0.4038	0.4260	0.3930	0.4362	0.3967
41	V0-L2-D4					0.4362	0.3967	0.4260	0.3930	0.4205	0.3813	0.4300	0.3845
42	V0-L2-D5					0.4300	0.3845	0.4205	0.3813	0.4142	0.3678	0.4229	0.3706

Warm White BIN Table for NHB105CL													
NO	BIN CODE	Vf (V)		Lv (lm)		Chromaticity Coordinate (CIE 1931-xy)							
		min	max	min	max	x1	y1	x2	y2	x3	y3	x4	y4
01	V0-L1-A1	25.6	28.8	150	200	0.5002	0.4522	0.4901	0.4507	0.4762	0.4262	0.4854	0.4276
02	V0-L1-A2					0.4854	0.4276	0.4762	0.4262	0.4640	0.4045	0.4726	0.4060
03	V0-L1-A3					0.4726	0.4060	0.4640	0.4045	0.4478	0.3764	0.4561	0.3781
04	V0-L1-B1					0.4901	0.4507	0.4709	0.4463	0.4647	0.4340	0.4831	0.4383

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05	V0-L1-B2				0.4831	0.4383	0.4647	0.4340	0.4613	0.4272	0.4791	0.4314
06	V0-L1-B3				0.4791	0.4314	0.4613	0.4272	0.4587	0.4222	0.4762	0.4262
07	V0-L1-B4				0.4762	0.4262	0.4587	0.4222	0.4563	0.4172	0.4730	0.4205
08	V0-L1-B5				0.4730	0.4205	0.4563	0.4172	0.4531	0.4110	0.4697	0.4147
09	V0-L1-B6				0.4698	0.4146	0.4530	0.4109	0.4474	0.4002	0.4640	0.4045
10	V0-L1-B7				0.4640	0.4045	0.4474	0.4002	0.4405	0.3873	0.4560	0.3908
11	V0-L1-B8				0.4560	0.3908	0.4405	0.3873	0.4328	0.3731	0.4478	0.3764
12	V0-L1-C1				0.4709	0.4463	0.4585	0.4425	0.4470	0.4187	0.4587	0.4222
13	V0-L1-C2				0.4587	0.4222	0.4470	0.4187	0.4416	0.4075	0.4530	0.4109
14	V0-L1-C3				0.4530	0.4109	0.4416	0.4075	0.4362	0.3967	0.4474	0.4002
15	V0-L1-C4				0.4474	0.4002	0.4362	0.3967	0.4300	0.3845	0.4405	0.3873
16	V0-L1-C5				0.4405	0.3873	0.4300	0.3845	0.4229	0.3706	0.4328	0.3731
17	V0-L1-D1				0.4585	0.4425	0.4466	0.4382	0.4360	0.4148	0.4470	0.4187
18	V0-L1-D2				0.4470	0.4187	0.4360	0.4148	0.4310	0.4038	0.4416	0.4075
19	V0-L1-D3				0.4416	0.4075	0.4310	0.4038	0.4260	0.3930	0.4362	0.3967
20	V0-L1-D4				0.4362	0.3967	0.4260	0.3930	0.4205	0.3813	0.4300	0.3845
21	V0-L1-D5				0.4300	0.3845	0.4205	0.3813	0.4142	0.3678	0.4229	0.3706
22	V0-L2-A1		200	250	0.5002	0.4522	0.4901	0.4507	0.4762	0.4262	0.4854	0.4276
23	V0-L2-A2				0.4854	0.4276	0.4762	0.4262	0.4640	0.4045	0.4726	0.4060
24	V0-L2-A3				0.4726	0.4060	0.4640	0.4045	0.4478	0.3764	0.4561	0.3781
25	V0-L2-B1				0.4901	0.4507	0.4709	0.4463	0.4647	0.4340	0.4831	0.4383
26	V0-L2-B2				0.4831	0.4383	0.4647	0.4340	0.4613	0.4272	0.4791	0.4314
27	V0-L2-B3				0.4791	0.4314	0.4613	0.4272	0.4587	0.4222	0.4762	0.4262

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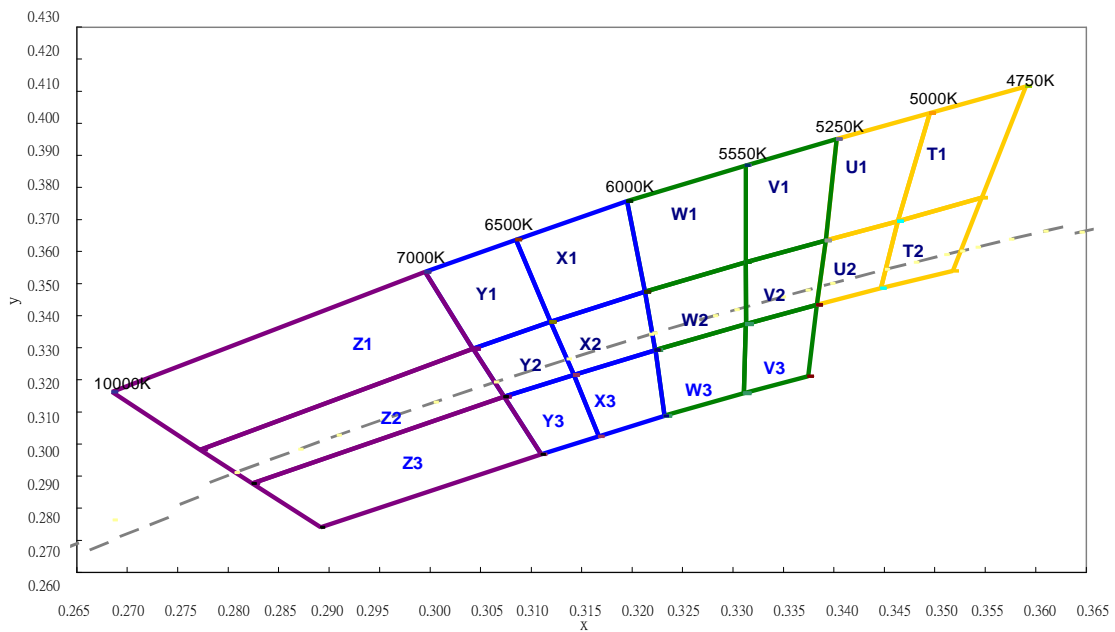
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28	V0-L2-B4				0.4762	0.4262	0.4587	0.4222	0.4563	0.4172	0.4730	0.4205
29	V0-L2-B5				0.4730	0.4205	0.4563	0.4172	0.4531	0.4110	0.4697	0.4147
30	V0-L2-B6				0.4698	0.4146	0.4530	0.4109	0.4474	0.4002	0.4640	0.4045
31	V0-L2-B7				0.4640	0.4045	0.4474	0.4002	0.4405	0.3873	0.4560	0.3908
32	V0-L2-B8				0.4560	0.3908	0.4405	0.3873	0.4328	0.3731	0.4478	0.3764
33	V0-L2-C1				0.4709	0.4463	0.4585	0.4425	0.4470	0.4187	0.4587	0.4222
34	V0-L2-C2				0.4587	0.4222	0.4470	0.4187	0.4416	0.4075	0.4530	0.4109
35	V0-L2-C3				0.4530	0.4109	0.4416	0.4075	0.4362	0.3967	0.4474	0.4002
36	V0-L2-C4				0.4474	0.4002	0.4362	0.3967	0.4300	0.3845	0.4405	0.3873
37	V0-L2-C5				0.4405	0.3873	0.4300	0.3845	0.4229	0.3706	0.4328	0.3731
38	V0-L2-D1				0.4585	0.4425	0.4466	0.4382	0.4360	0.4148	0.4470	0.4187
39	V0-L2-D2				0.4470	0.4187	0.4360	0.4148	0.4310	0.4038	0.4416	0.4075
40	V0-L2-D3				0.4416	0.4075	0.4310	0.4038	0.4260	0.3930	0.4362	0.3967
41	V0-L2-D4				0.4362	0.3967	0.4260	0.3930	0.4205	0.3813	0.4300	0.3845
42	V0-L2-D5				0.4300	0.3845	0.4205	0.3813	0.4142	0.3678	0.4229	0.3706

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④ Cool White (6000K)

Cool White Bin Structure



Cool White BIN Table for NHA105NW													
NO	BIN CODE	Vf (V)		Lv (lm)		Chromaticity Coordinate (CIE 1931-xy)							
		min	max	min	max	x1	y1	x2	y2	x3	y3	x4	y4
01	V0-L1-T1	6	7.5	200	260	0.3590	0.4088	0.3546	0.3741	0.3463	0.3667	0.3495	0.4005
02	V0-L1-T2					0.3546	0.3741	0.3518	0.3513	0.3446	0.3458	0.3463	0.3667
03	V0-L1-U1					0.3495	0.4005	0.3463	0.3667	0.3392	0.3608	0.3403	0.3924
04	V0-L1-U2					0.3463	0.3667	0.3446	0.3458	0.3383	0.3406	0.3392	0.3608
05	V0-L1-V1					0.3403	0.3924	0.3392	0.3608	0.3313	0.3540	0.3313	0.3841
06	V0-L1-V2					0.3392	0.3608	0.3383	0.3406	0.3313	0.3346	0.3313	0.3540
07	V0-L1-V3					0.3383	0.3406	0.3374	0.3184	0.3311	0.3132	0.3313	0.3346

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08	V0-L1-W1				0.3313	0.3841	0.3312	0.3540	0.3213	0.3448	0.3195	0.3730
09	V0-L1-W2				0.3313	0.3540	0.3313	0.3346	0.3223	0.3266	0.3213	0.3448
10	V0-L1-W3				0.3313	0.3346	0.3311	0.3132	0.3232	0.3061	0.3223	0.3266
11	V0-L1-X1				0.3195	0.3730	0.3213	0.3448	0.3119	0.3354	0.3085	0.3610
12	V0-L1-X2				0.3213	0.3448	0.3223	0.3266	0.3142	0.3188	0.3119	0.3354
13	V0-L1-X3				0.3223	0.3266	0.3232	0.3061	0.3167	0.2997	0.3142	0.3188
14	V0-L1-Y1				0.3085	0.3610	0.3119	0.3354	0.3042	0.3270	0.2995	0.3510
15	V0-L1-Y2				0.3119	0.3354	0.3142	0.3188	0.3073	0.3120	0.3042	0.3270
16	V0-L1-Y3				0.3142	0.3188	0.3167	0.2997	0.3110	0.2941	0.3073	0.3120
17	V0-L1-Z1				0.2995	0.3510	0.3042	0.3270	0.2772	0.2955	0.2685	0.3135
18	V0-L1-Z2				0.3042	0.3270	0.3073	0.3120	0.2824	0.2850	0.2772	0.2955
19	V0-L1-Z3				0.3073	0.3120	0.3110	0.2941	0.2892	0.2713	0.2824	0.2850
20	V0-L2-T1		260	320	0.3590	0.4088	0.3546	0.3741	0.3463	0.3667	0.3495	0.4005
21	V0-L2-T2				0.3546	0.3741	0.3518	0.3513	0.3446	0.3458	0.3463	0.3667
22	V0-L2-U1				0.3495	0.4005	0.3463	0.3667	0.3392	0.3608	0.3403	0.3924
23	V0-L2-U2				0.3463	0.3667	0.3446	0.3458	0.3383	0.3406	0.3392	0.3608
24	V0-L2-V1				0.3403	0.3924	0.3392	0.3608	0.3313	0.3540	0.3313	0.3841
25	V0-L2-V2				0.3392	0.3608	0.3383	0.3406	0.3313	0.3346	0.3313	0.3540
26	V0-L2-V3				0.3383	0.3406	0.3374	0.3184	0.3311	0.3132	0.3313	0.3346
27	V0-L2-W1				0.3313	0.3841	0.3312	0.3540	0.3213	0.3448	0.3195	0.3730
28	V0-L2-W2				0.3313	0.3540	0.3313	0.3346	0.3223	0.3266	0.3213	0.3448
29	V0-L2-W3				0.3313	0.3346	0.3311	0.3132	0.3232	0.3061	0.3223	0.3266
30	V0-L2-X1				0.3195	0.3730	0.3213	0.3448	0.3119	0.3354	0.3085	0.3610

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31	V0-L2-X2					0.3213	0.3448	0.3223	0.3266	0.3142	0.3188	0.3119	0.3354
32	V0-L2-X3					0.3223	0.3266	0.3232	0.3061	0.3167	0.2997	0.3142	0.3188
33	V0-L2-Y1					0.3085	0.3610	0.3119	0.3354	0.3042	0.3270	0.2995	0.3510
34	V0-L2-Y2					0.3119	0.3354	0.3142	0.3188	0.3073	0.3120	0.3042	0.3270
35	V0-L2-Y3					0.3142	0.3188	0.3167	0.2997	0.3110	0.2941	0.3073	0.3120
36	V0-L2-Z1					0.2995	0.3510	0.3042	0.3270	0.2772	0.2955	0.2685	0.3135
37	V0-L2-Z2					0.3042	0.3270	0.3073	0.3120	0.2824	0.2850	0.2772	0.2955
38	V0-L2-Z3					0.3073	0.3120	0.3110	0.2941	0.2892	0.2713	0.2824	0.2850

Cool White BIN Table for NHB105NW													
NO	BIN CODE	Vf (V)		Lv (lm)		Chromaticity Coordinate (CIE 1931-xy)							
		min	max	min	max	x1	y1	x2	y2	x3	y3	x4	y4
01	V0-L1-T1	25.6	28.8	200	260	0.3590	0.4088	0.3546	0.3741	0.3463	0.3667	0.3495	0.4005
02	V0-L1-T2					0.3546	0.3741	0.3518	0.3513	0.3446	0.3458	0.3463	0.3667
03	V0-L1-U1					0.3495	0.4005	0.3463	0.3667	0.3392	0.3608	0.3403	0.3924
04	V0-L1-U2					0.3463	0.3667	0.3446	0.3458	0.3383	0.3406	0.3392	0.3608
05	V0-L1-V1					0.3403	0.3924	0.3392	0.3608	0.3313	0.3540	0.3313	0.3841
06	V0-L1-V2					0.3392	0.3608	0.3383	0.3406	0.3313	0.3346	0.3313	0.3540
07	V0-L1-V3					0.3383	0.3406	0.3374	0.3184	0.3311	0.3132	0.3313	0.3346
08	V0-L1-W1					0.3313	0.3841	0.3312	0.3540	0.3213	0.3448	0.3195	0.3730
09	V0-L1-W2					0.3313	0.3540	0.3313	0.3346	0.3223	0.3266	0.3213	0.3448
10	V0-L1-W3					0.3313	0.3346	0.3311	0.3132	0.3232	0.3061	0.3223	0.3266

11	V0-L1-X1				0.3195	0.3730	0.3213	0.3448	0.3119	0.3354	0.3085	0.3610
12	V0-L1-X2				0.3213	0.3448	0.3223	0.3266	0.3142	0.3188	0.3119	0.3354
13	V0-L1-X3				0.3223	0.3266	0.3232	0.3061	0.3167	0.2997	0.3142	0.3188
14	V0-L1-Y1				0.3085	0.3610	0.3119	0.3354	0.3042	0.3270	0.2995	0.3510
15	V0-L1-Y2				0.3119	0.3354	0.3142	0.3188	0.3073	0.3120	0.3042	0.3270
16	V0-L1-Y3				0.3142	0.3188	0.3167	0.2997	0.3110	0.2941	0.3073	0.3120
17	V0-L1-Z1				0.2995	0.3510	0.3042	0.3270	0.2772	0.2955	0.2685	0.3135
18	V0-L1-Z2				0.3042	0.3270	0.3073	0.3120	0.2824	0.2850	0.2772	0.2955
19	V0-L1-Z3				0.3073	0.3120	0.3110	0.2941	0.2892	0.2713	0.2824	0.2850
20	V0-L2-T1		260	320	0.3590	0.4088	0.3546	0.3741	0.3463	0.3667	0.3495	0.4005
21	V0-L2-T2				0.3546	0.3741	0.3518	0.3513	0.3446	0.3458	0.3463	0.3667
22	V0-L2-U1				0.3495	0.4005	0.3463	0.3667	0.3392	0.3608	0.3403	0.3924
23	V0-L2-U2				0.3463	0.3667	0.3446	0.3458	0.3383	0.3406	0.3392	0.3608
24	V0-L2-V1				0.3403	0.3924	0.3392	0.3608	0.3313	0.3540	0.3313	0.3841
25	V0-L2-V2				0.3392	0.3608	0.3383	0.3406	0.3313	0.3346	0.3313	0.3540
26	V0-L2-V3				0.3383	0.3406	0.3374	0.3184	0.3311	0.3132	0.3313	0.3346
27	V0-L2-W1				0.3313	0.3841	0.3312	0.3540	0.3213	0.3448	0.3195	0.3730
28	V0-L2-W2				0.3313	0.3540	0.3313	0.3346	0.3223	0.3266	0.3213	0.3448
29	V0-L2-W3				0.3313	0.3346	0.3311	0.3132	0.3232	0.3061	0.3223	0.3266
30	V0-L2-X1				0.3195	0.3730	0.3213	0.3448	0.3119	0.3354	0.3085	0.3610
31	V0-L2-X2				0.3213	0.3448	0.3223	0.3266	0.3142	0.3188	0.3119	0.3354
32	V0-L2-X3				0.3223	0.3266	0.3232	0.3061	0.3167	0.2997	0.3142	0.3188
33	V0-L2-Y1				0.3085	0.3610	0.3119	0.3354	0.3042	0.3270	0.2995	0.3510

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34	V0-L2-Y2				0.3119	0.3354	0.3142	0.3188	0.3073	0.3120	0.3042	0.3270
35	V0-L2-Y3				0.3142	0.3188	0.3167	0.2997	0.3110	0.2941	0.3073	0.3120
36	V0-L2-Z1				0.2995	0.3510	0.3042	0.3270	0.2772	0.2955	0.2685	0.3135
37	V0-L2-Z2				0.3042	0.3270	0.3073	0.3120	0.2824	0.2850	0.2772	0.2955
38	V0-L2-Z3				0.3073	0.3120	0.3110	0.2941	0.2892	0.2713	0.2824	0.2850

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Print Code Guideline

<u>5</u>	<u>CL</u>	<u>V0</u>	<u>L0</u>	<u>B3</u>	<u>A</u>
1	2	3	4	5	6
<u>D</u>	<u>E</u>	<u>08</u>	<u>34</u>	<u>XXXXX</u>	
7	8	9	10	11	

1 Power	2 Color	3 Vf	4 Lm	5 Chromaticity	6 Customer Code
5: 5W	CL: Warm White NW: Cool White	See Bin Code Definition (p10~p19)	See Bin Code Definition (p10~p19)	See Bin Code Definition (p10~p19)	

7 Operating Condition	8 Chip	9 Year	10 Week	11 Internal Code
D: 7V, 700mA (NHA105CL / NHA105NW) E: 27V, 175mA (NHB105CL / NHB105NW)	E: Epistar	08: 2008 09: 2009 10: 2010	01: Week 01 02: Week 02 03: Week 03	

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 **9V (for NHA) / 30V (for NHB)** 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