

SMD ■ Side View LEDs

BL-3804GN1PM2C-XXXXXXXXXXXX



Features

- . Side view white LED
- . White SMT package
- . Lead frame package with individual 2 pins
- . Wide viewing angle
- . Soldering methods: IR reflow soldering
- . Pb-free
- . The product itself will remain within RoHS compliant version.
- . Compliance with EU REACH.
- . Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Descriptions

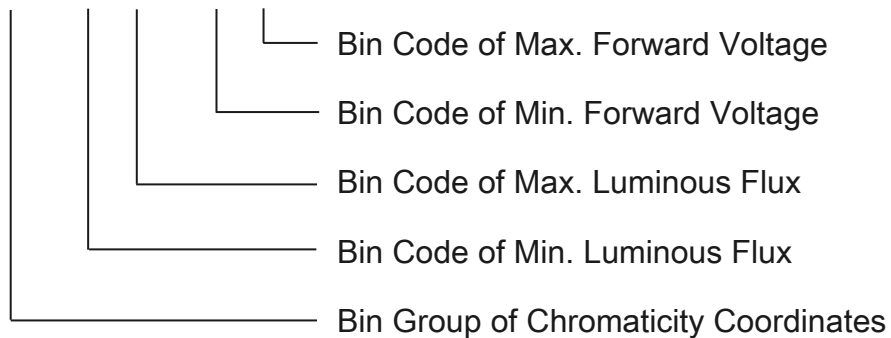
- . Due to the package design, 3804 has wide viewing angle, low power consumption and white LEDs are devices that are materialized by combing blue chips and special phosphor. This feature makes the LED ideal for light guide application.

Applications

- . LCD Back Light
- . Mobile Phones
- . Indicators
- . Illuminations
- . Switch Light

Coding:

BL-3804GN1PM2C-XX XXX XX XXX XX



Device Selection Guide

Chip	Emitted Color	Resin Color
InGaN	Pure White	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @10ms)	I_{FP}	60	mA
Power Dissipation	P_d	110	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
Soldering Temperature	T_{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Notes: *1The products are sensitive to static electricity and must be carefully taken when handling products.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux	Φ	7.25	-----	9.50	lm	
Viewing Angle	2θ 1/2	-----	120	-----	deg	IF=20mA
Forward Voltage	V_F	2.70	-----	3.00	V	
Reverse Current	IR	-----	-----	1	μ A	$V_R=5V$

Notes:

1. Tolerance of Luminous Flux: $\pm 5\%$
2. Tolerance of Forward Voltage: $\pm 0.05V$

C.I.E. Range Code Of Group

Group	Bin Code
S7	NA0-3,NA0-4 (Subdivide four)
S9	NB5-3,NB5-4 (Subdivide four)
SG	NA0-4, NB5-3 (Subdivide four)
SQ	NA0-3-4/NA0-4-3/NA0-4-4/NB5-3-3/A0-3b-2/A0-4b-1/A0-4b-2/B5-3b-1
F5	NA0-4-3, NA0-4-4, NB5-3-3, NB5-3-4, A0-4b-1, A0-4b-2, B5-3b-1, B5-3b-2
F6	NA0-3-3,NA0-3-4,NA0-4-3,NA0-4-4,A0-3b-1,A0-3b-2,A0-4b-1,A0-4b-2

Bin Range of Luminous Flux

Bin Code	Lm(Min.)	Lm(Max.)	Unit	Condition	Mcd(Min.)	Mcd(Max.)
B72	7.25	7.50			2595	2685
B75	7.50	7.75			2685	2775
B77	7.75	8.00			2775	2865
B80	8.00	8.25			2865	2955
B82	8.25	8.50	lm	I _F =20mA	2955	3045
B85	8.50	8.75			3045	3135
B87	8.75	9.00			3135	3225
B90	9.00	9.25			3225	3315
B92	9.25	9.50			3315	3405

Notes: Tolerance of Luminous Intensity、Luminous Flux: ± 5%

The spec. for intensity is quantified in lm, mcd is for reference only.

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
D27	2.70	2.80		
D28	2.80	2.90	V	I _F =20mA
D29	2.90	3.00		

Note: Tolerance of Forward Voltage: ± 0.05V

Bin Range of Chromaticity Coordinate

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
NA0-3-1	0.2760	0.2530	NA0-3-2	0.2805	0.2600
	0.2720	0.2580		0.2770	0.2650
	0.2770	0.2650		0.2820	0.2720
NA0-3-3	0.2805	0.2600	NA0-3-4	0.2850	0.2670
	0.2800	0.2480		0.2840	0.2550
	0.2760	0.2530		0.2805	0.2600
A0-3b-1	0.2805	0.2600	A0-3b-2	0.2850	0.2670
	0.2840	0.2550		0.2880	0.2620
	0.2840	0.2550		0.2880	0.2620
A0-4a-1	0.2870	0.2510	A0-4a-2	0.2910	0.2580
	0.2830	0.2440		0.2870	0.2510
	0.2800	0.2480		0.2840	0.2550
NA0-4-1	0.2840	0.2550	NA0-4-2	0.2880	0.2620
	0.2820	0.2720		0.2865	0.2795
	0.2793	0.2755		0.2840	0.2836
NA0-4-3	0.2840	0.2836	NA0-4-4	0.2887	0.2916
	0.2865	0.2795		0.2910	0.2870
	0.2850	0.2670		0.2893	0.2743
A0-4b-1	0.2820	0.2720	A0-4b-2	0.2865	0.2795
	0.2865	0.2795		0.2910	0.2870
	0.2893	0.2743		0.2935	0.2815
A0-3a	0.2880	0.2620	A0-3a	0.2920	0.2690
	0.2850	0.2670		0.2920	0.2690
	0.2893	0.2743		0.2960	0.2760
A0-3a	0.2920	0.2690	A0-3a	0.2960	0.2760
	0.2910	0.2580		0.2945	0.2645
	0.2880	0.2620		0.2920	0.2690
A0-3a	0.2920	0.2690	A0-3a	0.2960	0.2760
	0.2945	0.2645		0.2980	0.2710
	0.2720	0.2580			
A0-3a	0.2793	0.2755			
	0.2820	0.2720			
	0.2720	0.2580			

Notes: Tolerance of Chromaticity Coordinates: ± 0.005

Chromaticity Coordinates of Bin Code

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
B5-3a-1	0.2910	0.2870	B5-3a-2	0.2950	0.2940
	0.2887	0.2916		0.2928	0.2987
	0.2928	0.2987		0.2968	0.3058
NB5-3-1	0.2950	0.2940	NB5-3-2	0.2990	0.3010
	0.2935	0.2815		0.2975	0.2885
	0.2910	0.2870		0.2950	0.2940
NB5-3-3	0.2950	0.2940	NB5-3-4	0.2990	0.3010
	0.2975	0.2885		0.3015	0.2955
	0.2960	0.2760		0.3000	0.2830
B5-3b-1	0.2935	0.2815	B5-3b-2	0.2975	0.2885
	0.2975	0.2885		0.3015	0.2955
	0.3000	0.2830		0.3040	0.2900
B5-4a-1	0.2980	0.2710	B5-4a-2	0.3021	0.2782
	0.2960	0.2760		0.3000	0.2830
	0.3000	0.2830		0.3040	0.2900
NB5-4-1	0.3021	0.2782	NB5-4-2	0.3062	0.2853
	0.2990	0.3010		0.3030	0.3080
	0.2968	0.3058		0.3008	0.3128
NB5-4-3	0.3008	0.3128	NB5-4-4	0.3048	0.3198
	0.3030	0.3080		0.3070	0.3150
	0.3015	0.2955		0.3055	0.3025
B5-4b-1	0.2990	0.3010	B5-4b-2	0.3030	0.3080
	0.3030	0.3080		0.3070	0.3150
	0.3055	0.3025		0.3095	0.3095
NB5-4-3	0.3040	0.2900	NB5-4-4	0.3080	0.2970
	0.3015	0.2955		0.3055	0.3025
	0.3055	0.3025		0.3095	0.3095
B5-4b-1	0.3080	0.2970	B5-4b-2	0.3120	0.3040
	0.3062	0.2853		0.3102	0.2923
	0.3040	0.2900		0.3080	0.2970
	0.3080	0.2970		0.3120	0.3040
	0.3102	0.2923		0.3142	0.2993

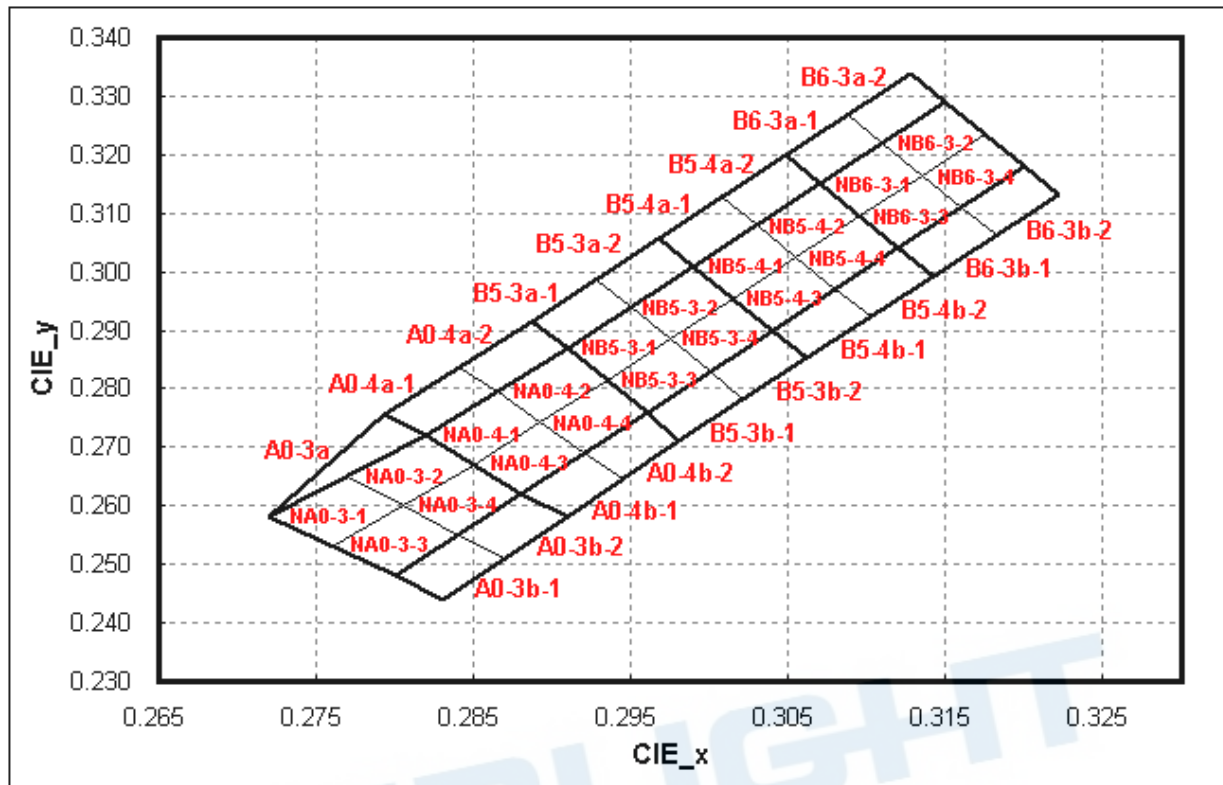
Notes: Tolerance of Chromaticity Coordinates: ± 0.005

Chromaticity Coordinates of Bin Code

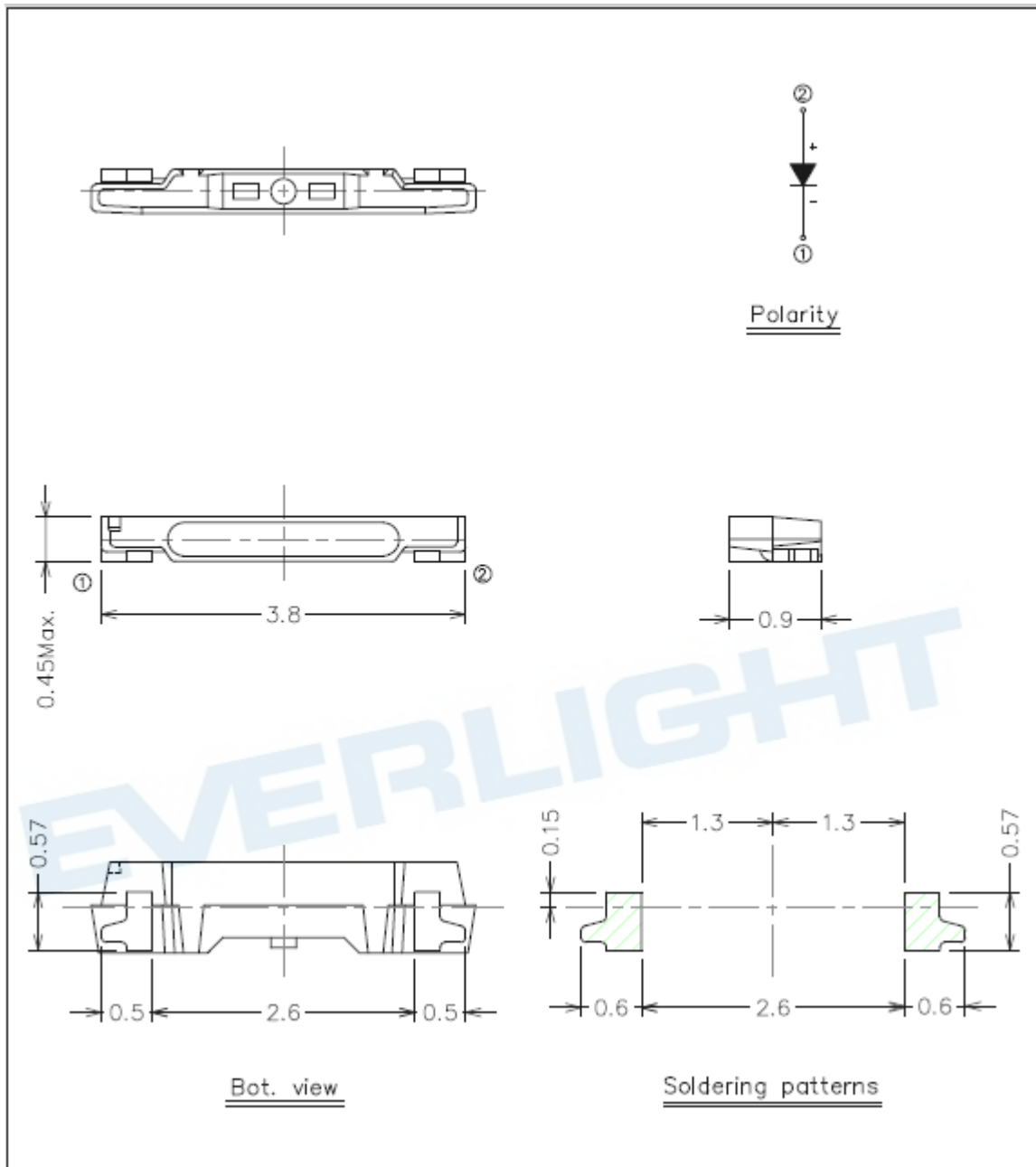
Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
B6-3a-1	0.3070	0.3150	B6-3a-2	0.3110	0.3220
	0.3048	0.3198		0.3088	0.3268
	0.3088	0.3268		0.3128	0.3338
	0.3110	0.3220		0.3150	0.3290
NB6-3-1	0.3095	0.3095	NB6-3-2	0.3135	0.3165
	0.3070	0.3150		0.3110	0.3220
	0.3110	0.3220		0.3150	0.3290
	0.3135	0.3165		0.3175	0.3235
NB6-3-3	0.3120	0.3040	NB6-3-4	0.3160	0.3110
	0.3095	0.3095		0.3135	0.3165
	0.3135	0.3165		0.3175	0.3235
	0.3160	0.3110		0.3200	0.3180
B6-3b-1	0.3142	0.2993	B6-3b-2	0.3182	0.3063
	0.3120	0.3040		0.3160	0.3110
	0.3160	0.3110		0.3200	0.3180
	0.3182	0.3063		0.3222	0.3133

Notes: Tolerance of Chromaticity Coordinates: ± 0.005

The C.I.E. 1931 Chromaticity Diagram



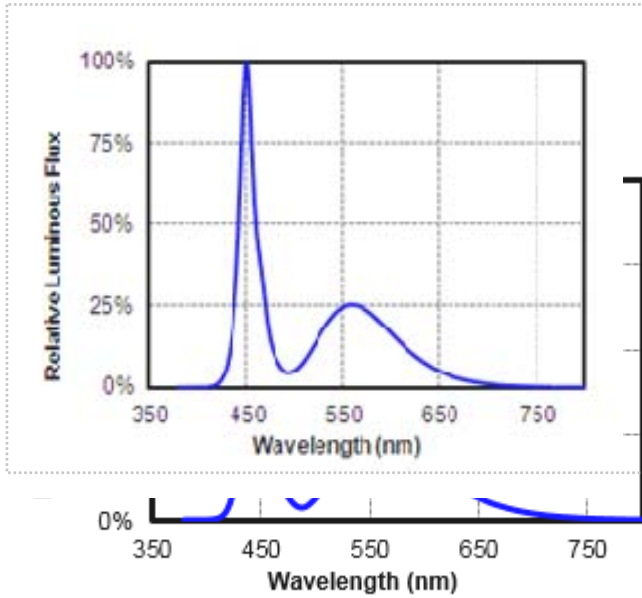
Package Outline Dimensions



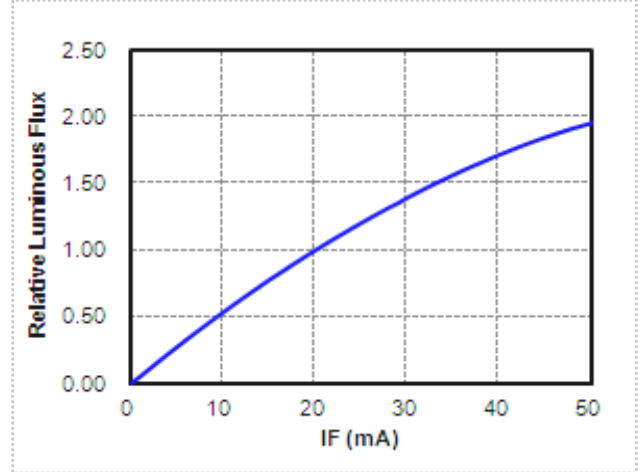
Note: The tolerances unless dimensions are ± 0.1 mm.

Typical Electro-Optical-Thermal Characteristics Curves

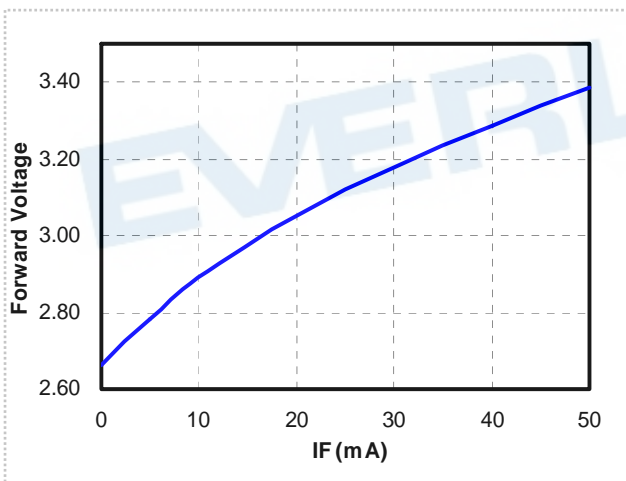
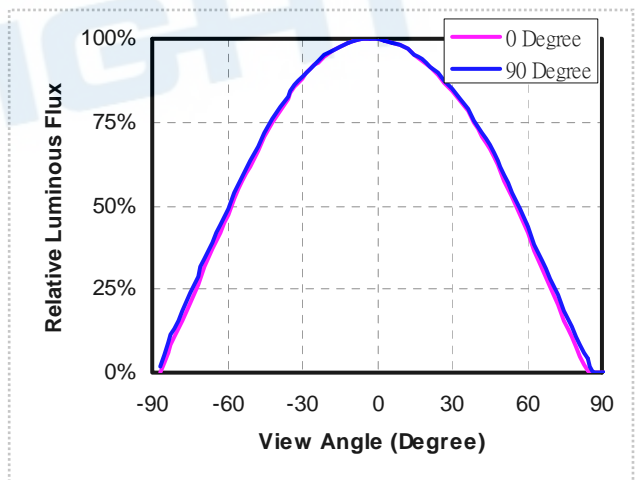
1. Spectrum Distribution Current
 ($T_A=25^\circ\text{C}$, $I_F=20\text{mA}$)



2. Relative Luminous Intensity vs. Forward
 ($T_A=25^\circ\text{C}$)

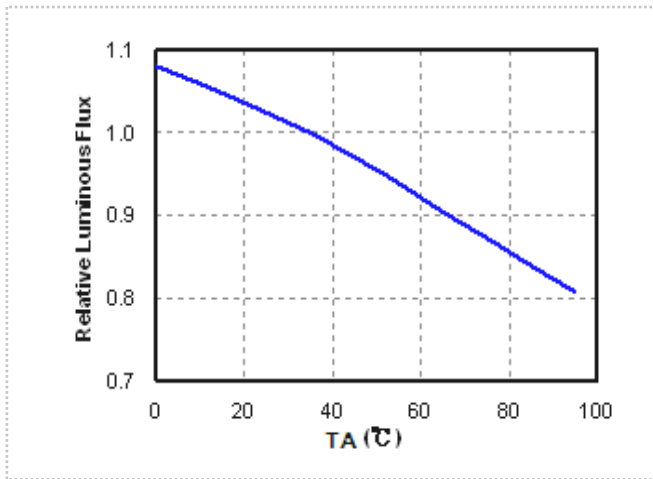


4. Radiation Diagram
 ($T_A=25^\circ\text{C}$, $I_F=20\text{mA}$)

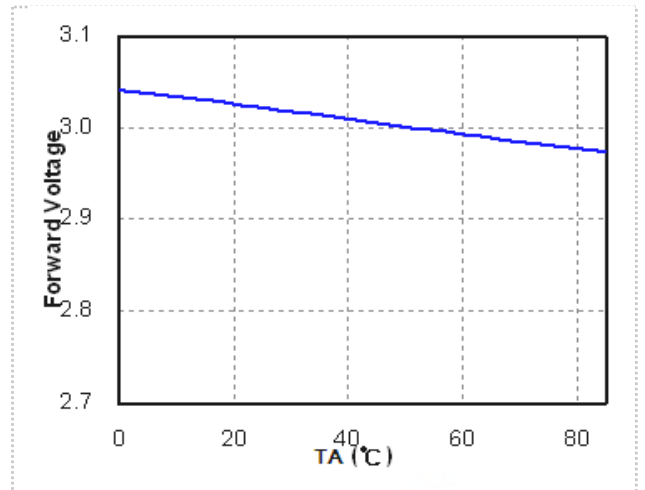


Typical Electro-Optical-Thermal Characteristics Curves

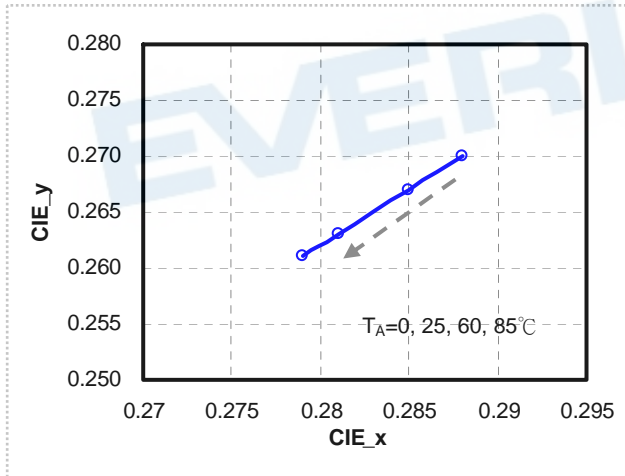
5. Relative Luminous Flux vs. Ambient Temperature
 (IF=20mA)



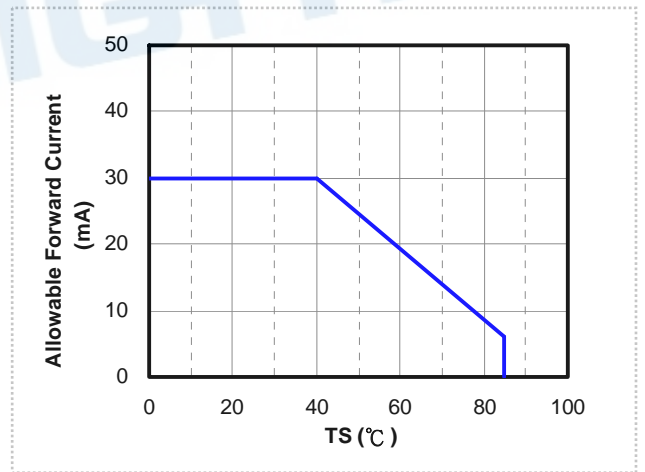
6. Forward Voltage vs. Ambient Temperature
 (IF=20mA)



7. Chromaticity Coordinates vs. Ambient Temperature
 (IF=20mA)



8. Forward Current De-rating Curve

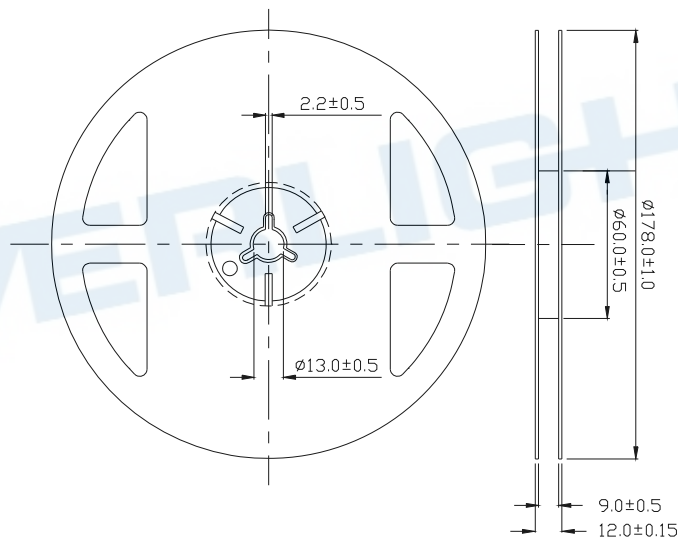


Label Explanation

- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: C.I.E Range Code Of Group
- REF: Forward Voltage Rank
- LOT No: Lot Number



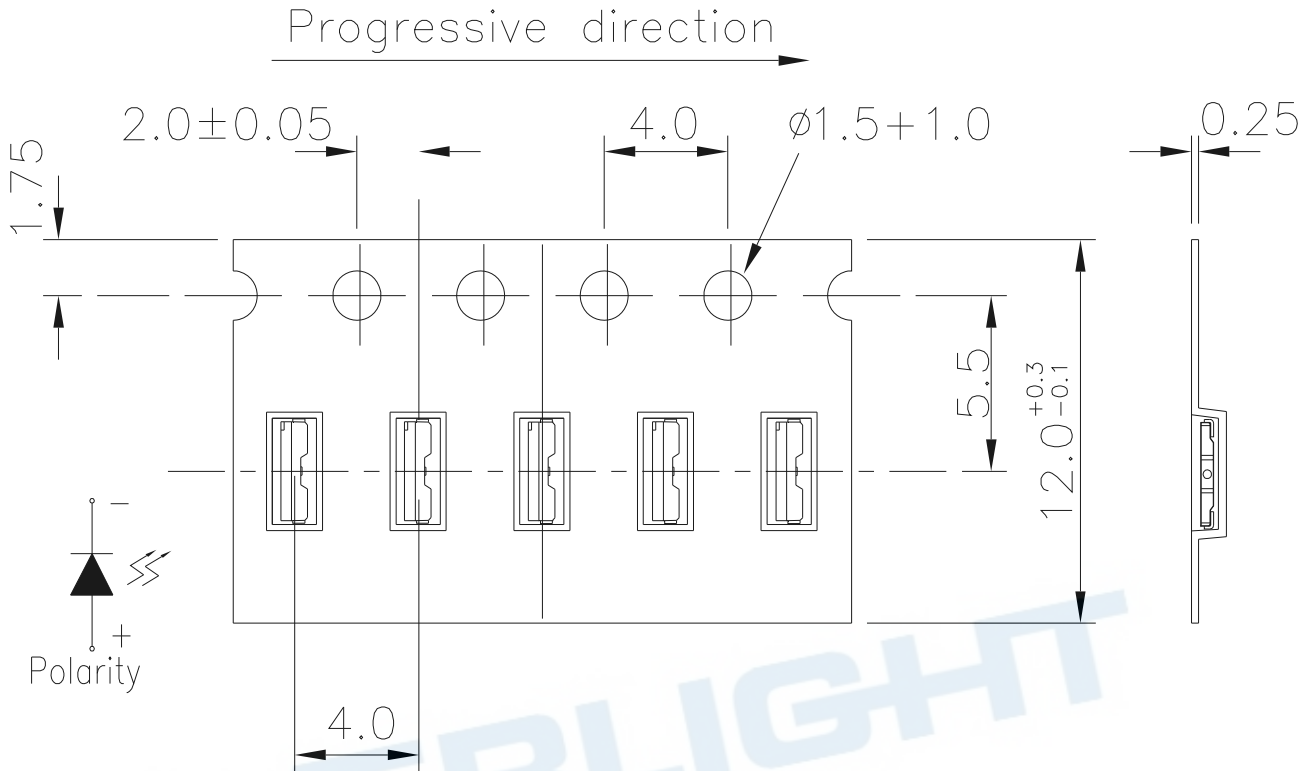
Reel Dimensions



Note: The tolerances unless dimension are ± 0.1 mm.

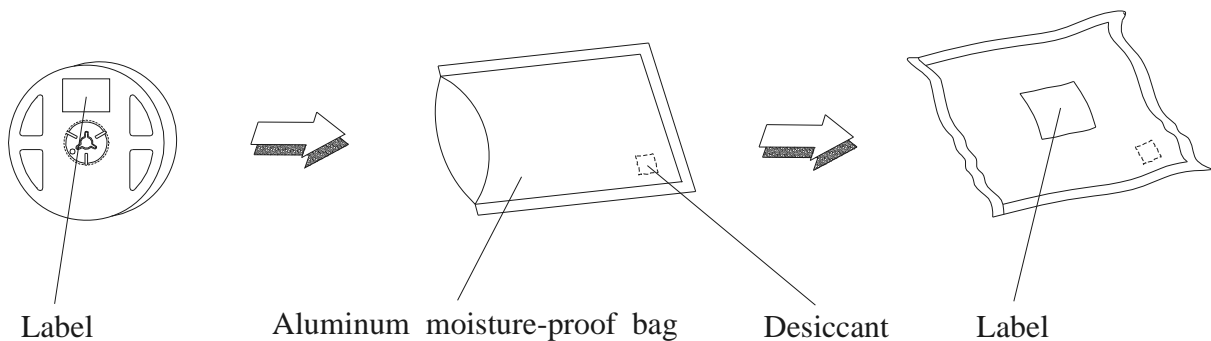
Carrier Tape Dimensions:

Loaded Quantity 250 up/500/1000/2000 pcs. Per Reel



Note: The tolerances unless mentioned is ±0.1mm, Unit = mm.

Moisture Resistant Packaging



Note: Actual photo of standard packing bag

Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

NO	Item	Test Condition		Test Hours / Times	Criteria	
		Temp./ Humidity	I _F (mA)		I _v @ 20mA	V _F @ 20mA
1	Reflow Soldering	T _S I _d = 260°C, Max. 10sec.		2 times	<±10%	<±10%
2	Temperature cycle	-40°C 30min.	~ (5min.)	100°C 30min.	200 cycles	
3	Thermal Shock	-10°C 20min.	~ (<15sec.)	100°C 20min.	200 cycles	
4	Low Temp. Storage	T _a = -40°C	--	1000 hrs		
5	High Temp. Storage	T _a = 100°C	--	1000 hrs		
6	Temp. Humidity Storage	T _a = 60°C/ 90%RH	--	1000 hrs		
7	Steady State Operating Life of Low Temp.	T _a = -40°C	20	1000 hrs		I _v > 70%, V _F < 110%,
8	Steady State Operating Life Condition 1	T _a = 25°C/ Room Humidity	20	1000 hrs		
9	Steady State Operating Life Condition 2	T _a = 60°C	20	1000 hrs		
10	Steady State Operating Life of High Temp.	T _a = 85°C	5	1000 hrs		
11	Steady State Operating Life of High Humidity Heat	T _a = 60°C/ 90%RH	20	1000 hrs		

Notes:

1. Sampling for each test item: 22 (pcs.)
2. Measurements are performed after allowing the LEDs to return to room temperature.

Precautions for Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

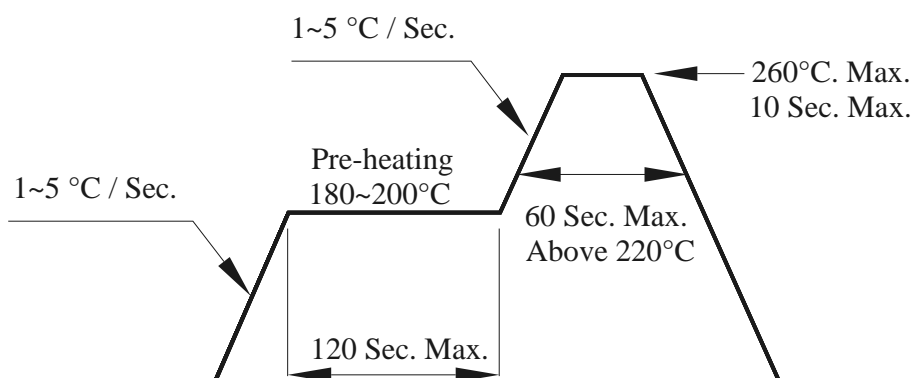
2.2 Before opening the package: The LEDs should be used within one year and kept at 30°C or less and 70%RH or less.

2.3 After opening the package: We recommend that the LED should be soldered quickly (within 3 days). The soldering condition is 30°C or less and 60%RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5°C for 24 hours. (One time only)

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

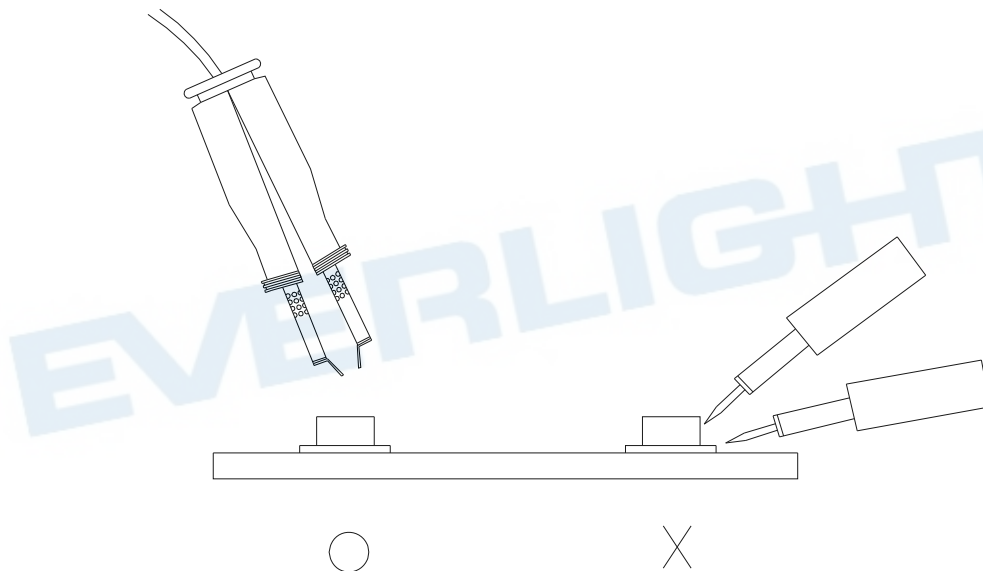
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



6. Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.