

SMD ■ Side View LEDs

BL-4206SN2TM2C-XXXXXXXXXXXXXX



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

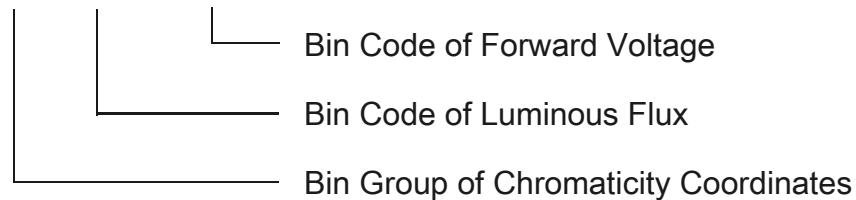
- .Due to the package design, 99-826 has wide viewing angle, low power consumption and white LEDs are devices which are materialized by combing blue chip and special phosphor. This feature makes the LED ideal for light guide application.

Applications

- .LCD Back Light
- .Mobile phones
- .Indicators
- .Illuminations
- .Switch Lights

Coding

BL-4206SN2TM2C-XX XXXXX XXXXX



Group of Chromaticity Coordinates

Group Name	CIE Bin Code
S7	NA0-3, NA0-4 subdivided into four
SG	NA0-4, NB5-3 subdivided into four
S9	NB5-3, NB5-4 subdivided into four
F4	NB5-4, NB6-3 subdivided into four

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Pure White	Water Clear

Absolute Maximum Ratings ($T_{\text{Soldering}}=25^{\circ}\text{C}$)

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	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40 ~ +90	$^{\circ}\text{C}$
Soldering Temperature	T_{sol}	Reflow Soldering : 260 $^{\circ}\text{C}$ for 10 sec. Hand Soldering : 350 $^{\circ}\text{C}$ for 3 sec.	

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

Electro-Optical Characteristics (T_a=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux	Φ	12.5	-----	19.0	lm	I _F =20mA
Viewing Angle	2θ1/2	-----	120	-----	deg	
Forward Voltage	V _F	5.4	-----	6.0	V	
Reverse Current	I _R	-----	-----	1	μA	V _R =5V

Notes:

1. Tolerance of Luminous Flux: ± 5%
2. Tolerance of Forward Voltage: ± 0.05V

Bin Range of Luminous Flux

Bin Code	Min.	Max.	Unit	Condition
C25	12.5	13.0	lm	I _F =20mA
C30	13.0	13.5		
C35	13.5	14.0		
C40	14.0	14.5		
C45	14.5	15.0		
C50	15.0	15.5		
C55	15.5	16.0		
C60	16.0	16.5		
C65	16.5	17.0		
C70	17.0	17.5		
C75	17.5	18.0		
C80	18.0	18.5		
C85	18.5	19.0		
C90	19.0	19.5		

Note: Tolerance of Luminous flux Flux: ± 5%

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
E54	5.4	5.6	V	I _F =20mA
E56	5.6	5.8		
E58	5.8	6.0		

Note: Tolerance of Forward Voltage: ± 0.05V

Chromaticity Coordinates of Bin Code

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
	0.2805	0.2600		0.2850	0.2670
NA0-3-3	0.2805	0.2600	NA0-3-4	0.2850	0.2670
	0.2760	0.2530		0.2805	0.2600
	0.2800	0.2480		0.2840	0.2550
	0.2840	0.2550		0.2880	0.2620
NA0-4-1	0.2850	0.2670	NA0-4-2	0.2893	0.2743
	0.2820	0.2720		0.2865	0.2795
	0.2865	0.2795		0.2910	0.2870
	0.2893	0.2743		0.2935	0.2815
NA0-4-3	0.2893	0.2743	NA0-4-4	0.2935	0.2815
	0.2850	0.2670		0.2893	0.2743
	0.2880	0.2620		0.2920	0.2690
	0.2920	0.2690		0.2960	0.2760

Note: Tolerance of Chromaticity Coordinates: ±0.005

Chromaticity Coordinates of Bin Code

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
NB5-3-1	0.2935	0.2815	NB5-3-2	0.2975	0.2885
	0.2910	0.2870		0.2950	0.2940
	0.2950	0.2940		0.2990	0.3010
	0.2975	0.2885		0.3015	0.2955
NB5-3-3	0.2975	0.2885	NB5-3-4	0.3015	0.2955
	0.2935	0.2815		0.2975	0.2885
	0.2960	0.2760		0.3000	0.2830
	0.3000	0.2830		0.3040	0.2900
NB5-4-1	0.3015	0.2955	NB5-4-2	0.3055	0.3025
	0.2990	0.3010		0.3030	0.3080
	0.3030	0.3080		0.3070	0.3150
	0.3055	0.3025		0.3095	0.3095
NB5-4-3	0.3055	0.3025	NB5-4-4	0.3095	0.3095
	0.3015	0.2955		0.3055	0.3025
	0.3040	0.2900		0.3080	0.2970
	0.3080	0.2970		0.3120	0.3040
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	0.3135	0.3165	NB6-3-4	0.3175	0.3235
	0.3095	0.3095		0.3135	0.3165
	0.3120	0.3040		0.3160	0.3110
	0.3160	0.3110		0.3200	0.3180

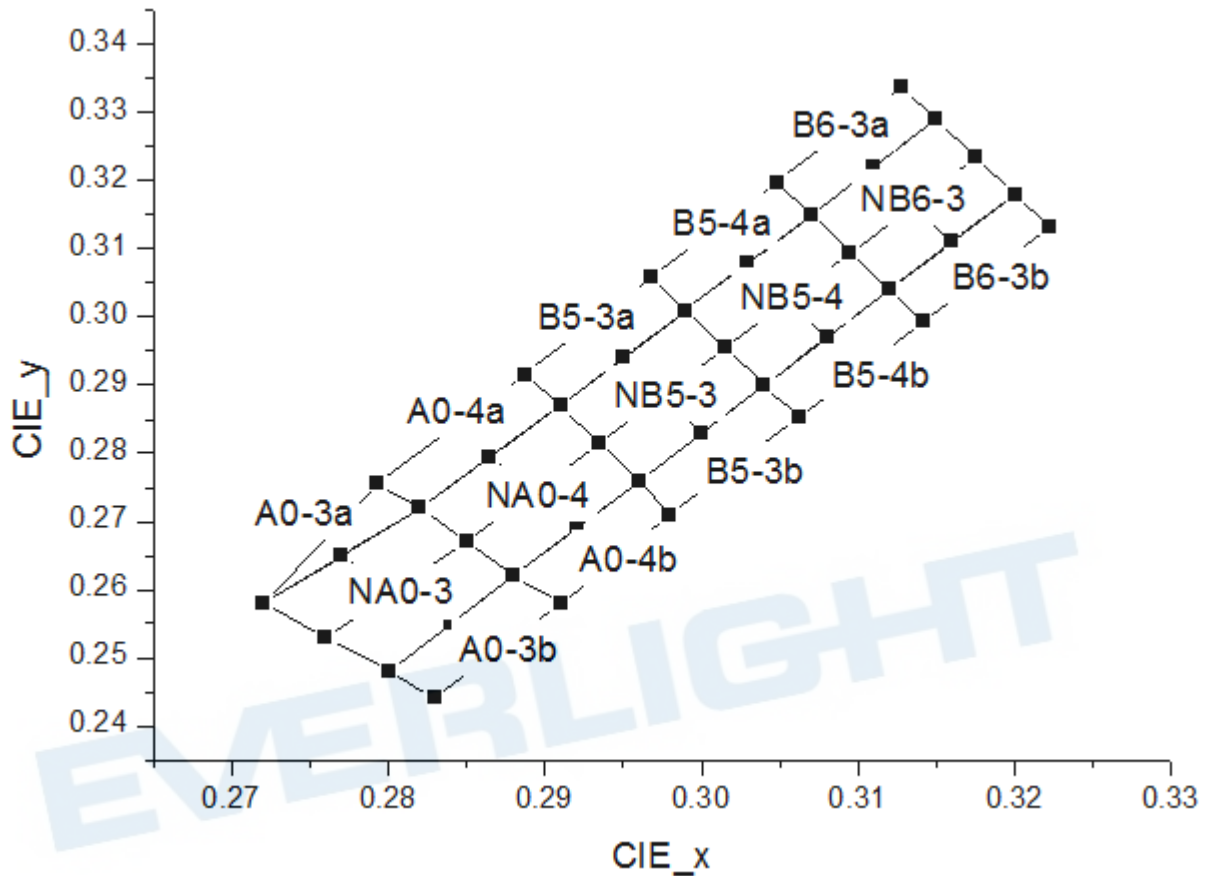
Note: Tolerance of Chromaticity Coordinates: ± 0.005

Chromaticity Coordinates of Bin Code

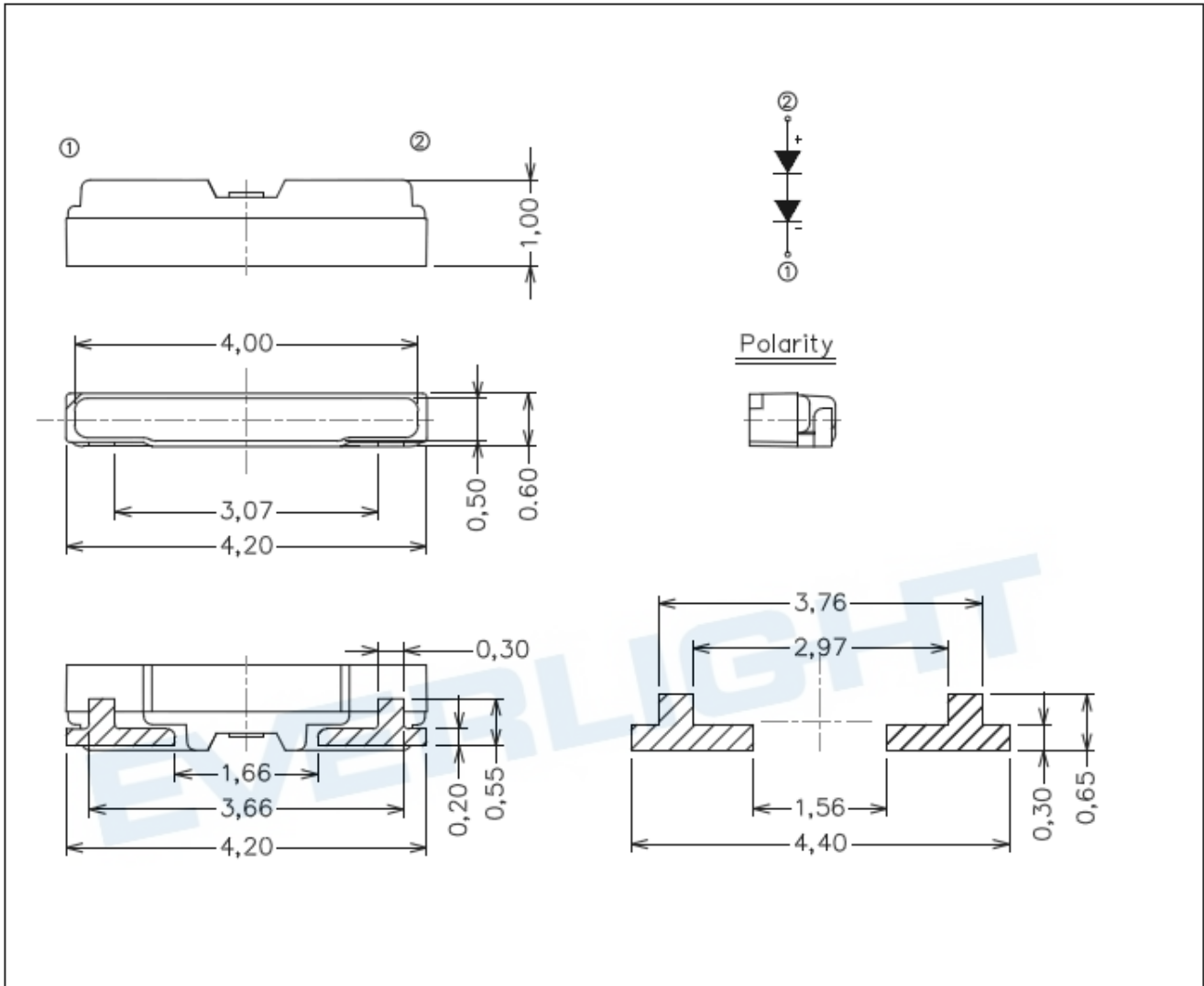
Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
A0-3a	0.2720	0.2580	A0-3b	0.2800	0.2480
	0.2793	0.2755		0.2880	0.2620
	0.2820	0.2720		0.2910	0.2580
	0.2720	0.2580		0.2830	0.2440
A0-4a	0.2820	0.2720	A0-4b	0.2880	0.2620
	0.2793	0.2755		0.2960	0.2760
	0.2887	0.2916		0.2980	0.2710
	0.2910	0.2870		0.2910	0.2580
B5-3a	0.2910	0.2870	B5-3b	0.2960	0.2760
	0.2887	0.2916		0.3040	0.2900
	0.2968	0.3058		0.3062	0.2853
	0.2990	0.3010		0.2980	0.2710
B5-4a	0.2990	0.3010	B5-4b	0.3040	0.2900
	0.2968	0.3058		0.3120	0.3040
	0.3048	0.3198		0.3142	0.2993
	0.3070	0.3150		0.3062	0.2853
B6-3a	0.3070	0.3150	B6-3b	0.3142	0.2993
	0.3048	0.3198		0.3120	0.3040
	0.3128	0.3338		0.3200	0.3180
	0.3150	0.3290		0.3222	0.3133

Note: Tolerance of Chromaticity Coordinates: ± 0.005

The C.I.E. 1931 Chromaticity Diagram



Package Outline Dimensions

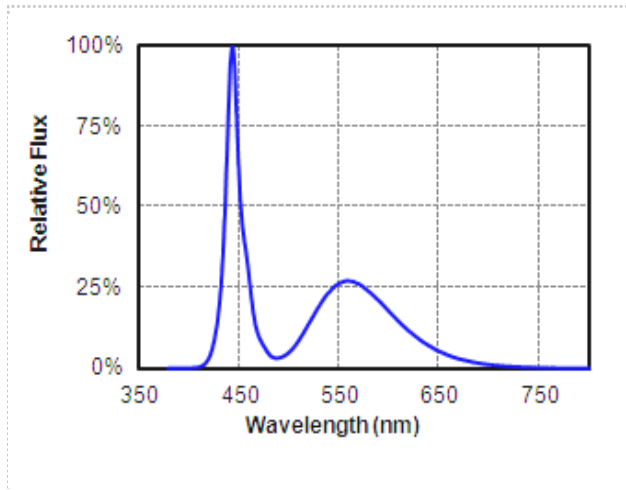


Note: The tolerances unless mentioned are ± 0.1 mm, unit = mm.

Typical Electro-Optical Characteristics Curves

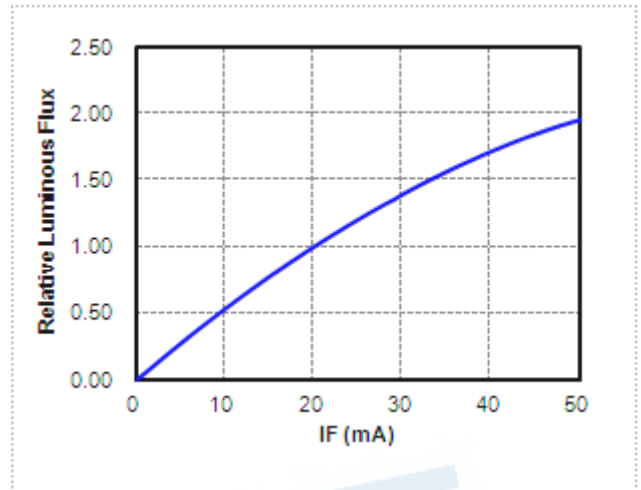
1. Spectrum Distribution

($T_a=25^\circ\text{C}$, $I_F=20\text{mA}$)



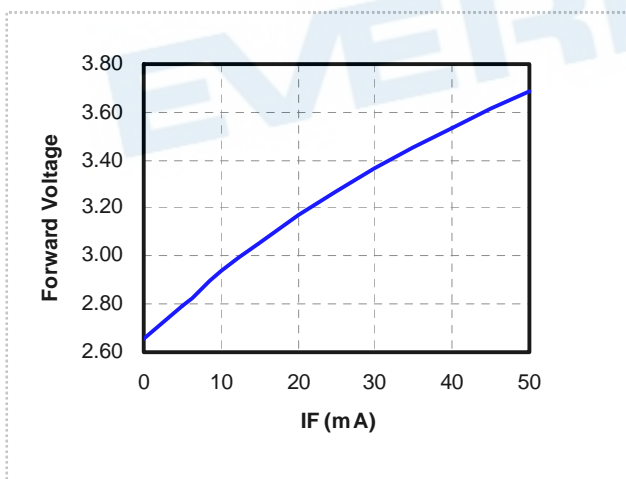
2. Relative Luminous Flux vs. Forward Current

($T_a=25^\circ\text{C}$)



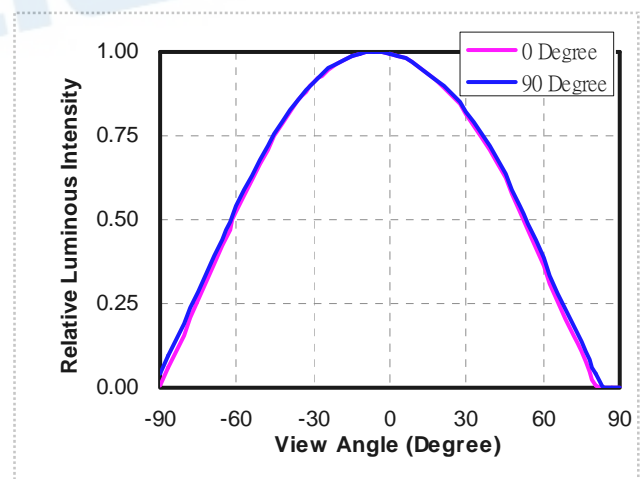
3. Relative Forward Voltage vs. Forward Current

($T_a=25^\circ\text{C}$)



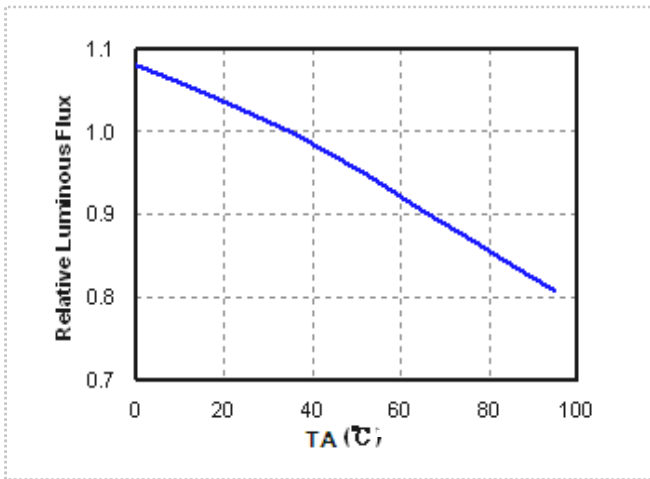
4. Radiation Diagram

($T_a=25^\circ\text{C}$, $I_F=20\text{mA}$)

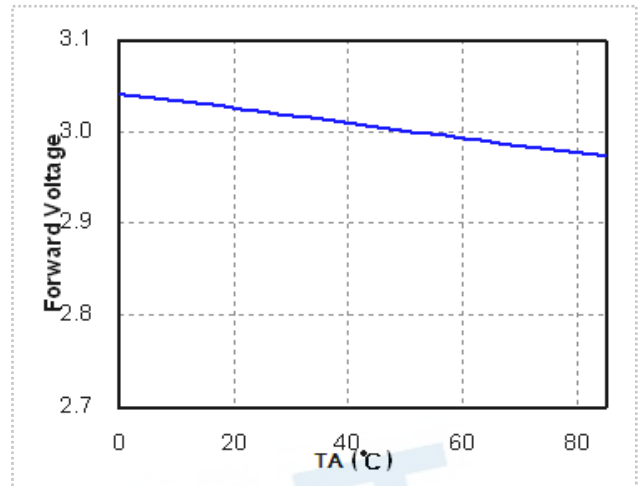


Typical Electro-Optical Characteristics Curves

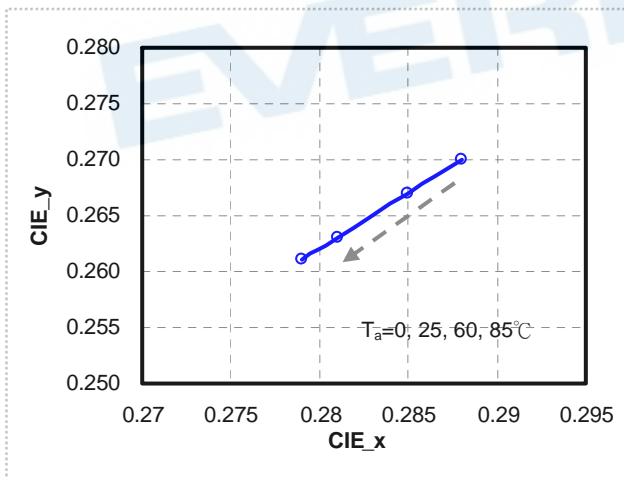
5. Relative Luminous Flux vs. Ambient Temperature
 ($I_F=20\text{mA}$)



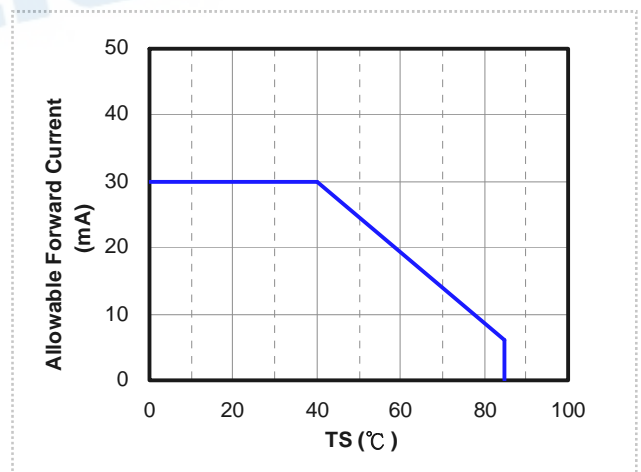
6. Forward Voltage vs. Ambient Temperature
 ($I_F=20\text{mA}$)



7. Chromaticity Coordinates vs. Ambient Temperature
 ($I_F=20\text{mA}$)



8. Forward Current De-rating Curve

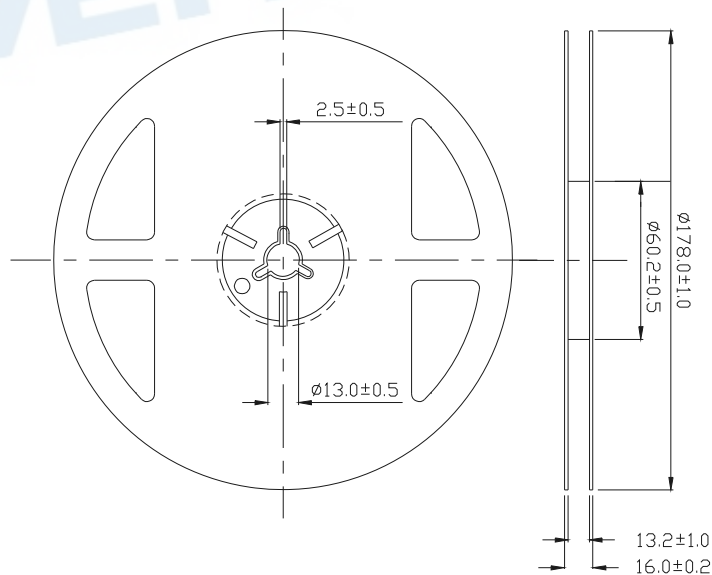


Label Explanation

- 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



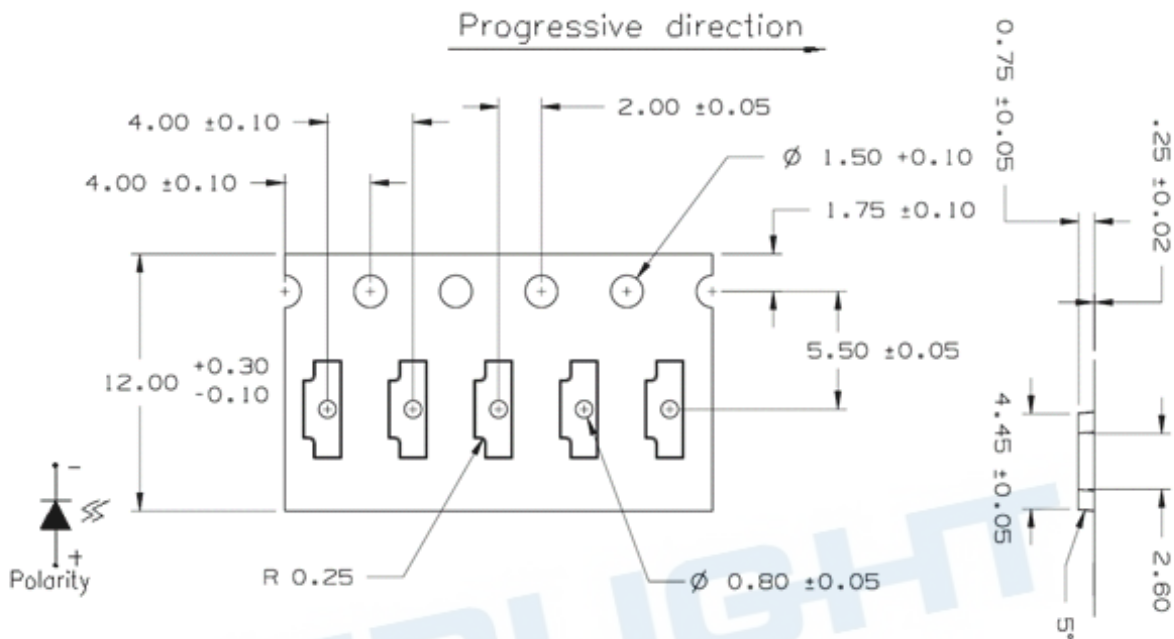
Reel Dimensions



Note: The tolerance unless mentioned is ± 0.1 mm, unit = mm.

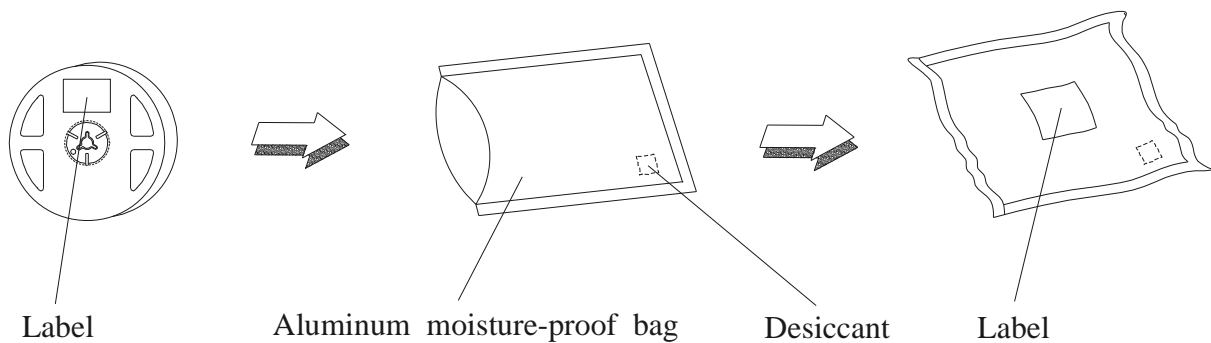
Carrier Tape Dimensions:

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



Note: The tolerance unless mentioned is ± 0.1 mm, unit = mm.

Moisture Resistant Packaging



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 _{Sld} = 260°C, Max. 10sec.		2 times	<±10%	<±10%
2	Thermal Cycle	-40°C ~ 100°C 30min. (5min.) 30min.		200 cycles	I _v > 70%, V _F < 110%,	
3	Thermal Shock	-10°C ~ 100°C 20min. (<15sec.) 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		
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		

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.

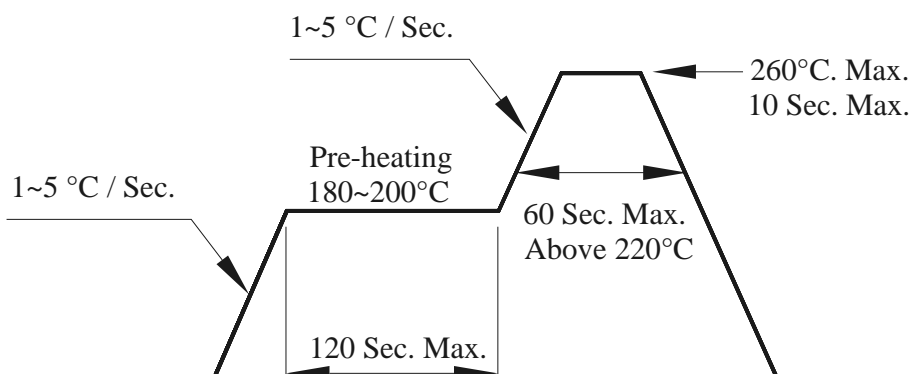
2.2 Before opening the package: The LEDs should be used within one year and kept at 30°C or less and 70%RH or less.

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.

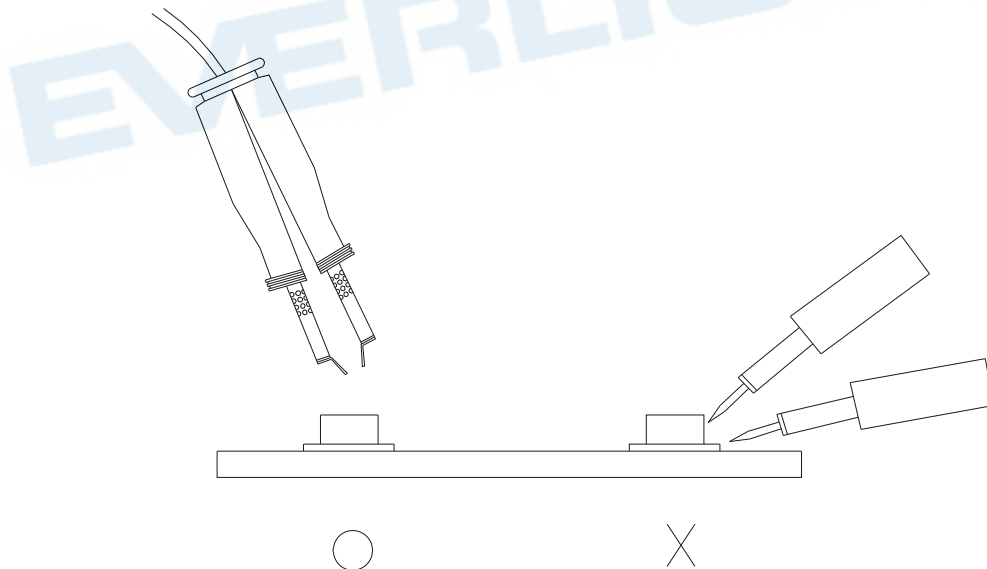
3.4 After soldering, do not warp the circuit board.

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.