

0.62mm Height Top View  
1W High Power White LED  
Technical Data Sheet

Part No.: DL-TOP3030WxxA-1W

# Double Light

## ◆ Features:

1. Low profile.
2. Colorless clear window.
3. Super luminosity LED.
4. Several colors available.
5. Wide viewing angle.
6. High performance.
7. Small size (L×W×H: 3.0mm×3.0mm×0.52mm).
8. Industry standard footprint.
9. Computable with automatic placement equipment.
10. Soldering methods: Reflow Soldering.
11. The product itself will remain within RoHS compliant Version.

## ◆ Descriptions:

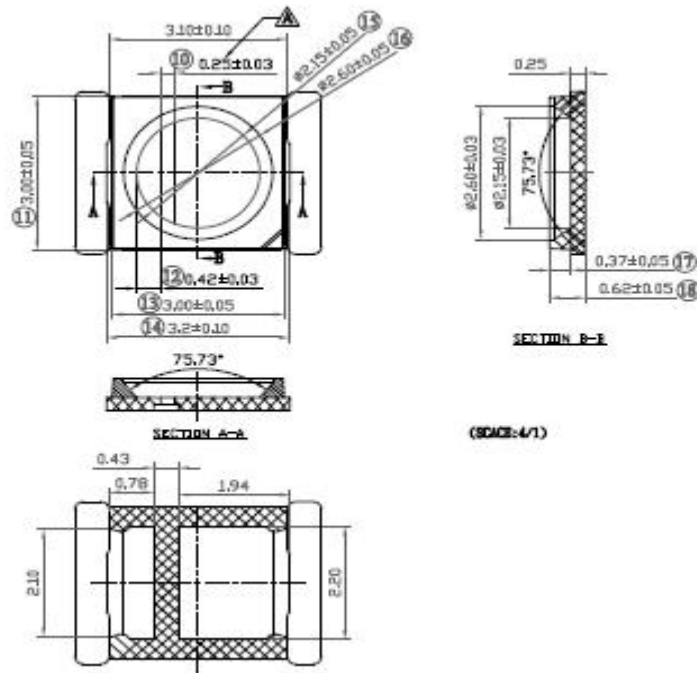
1. The TOP 3030 is available in soft red, orange, yellow, green, blue and white. Due to the Package design, the LED has wide viewing angle and optimized light coupling by inter reflector, this feature makes the SMT TOP LED ideal for light pipe Application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

## ◆ Applications:

1. Reading lights (car, bus, aircraft).
2. Portable (flashlight, bicycle).
3. Mini-accent / Up lighters / Down lighters / Orientation.
4. Bollards / Security / Garden.
5. Cove / Under shelf / Task.
6. Automotive rear combination lamps.
7. Traffic signaling / Beacons / Rail crossing and Wayside.
8. Indoor / Outdoor Commercial and Residential Architectural.
9. Edge-lit signs (Exit, point of sale).
10. LCD Backlights / Light Guides.

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## ◆ Package Dimension:



Part No.	Chip Material	Lens Color	Source Color
DL-TOP3030WxxA-1W	InGaN	Yellow Diffused	White

### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25\text{mm}$  (.010") unless otherwise specified.
3. Specifications are subject to change without notice.

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## ◆ Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max.	Unit
Power Dissipation	PD	1000	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	250	mA
Forward Current	IF	150	mA
Reverse Voltage	VR	10	V
Junction Temperature	T <sub>J</sub>	125	°C
Junction To Heat-Sink Thermal Resistance	R <sub>TH</sub>	50	K/W
Operating Temperature Range	Topr	-40°C to +85°C	
Storage Temperature Range	Tstg	-40°C to +100°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

## Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Color Temperature	CCT	2580	---	6530	K	IF=150mA
Luminous Flux *	Φ <sub>v</sub>	80	---	110	lm	IF=150mA (Note 1)
Forward Voltage	VF	5.80	6.30	6.80	V	IF=150mA
CRI	Ra	80	---	---		IF=150mA
Viewing Angle	2θ <sub>1/2</sub>	---	120	---	Deg	IF=150mA (Note 2)
Reverse Current	IR	---	---	50	μA	V <sub>R</sub> =5V

### Notes:

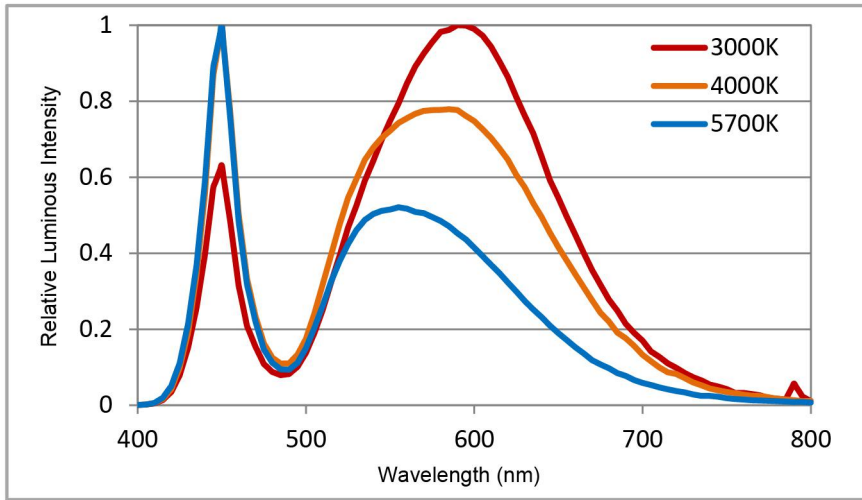
1. Luminous Intensity (Flux) Measurement allowance is ± 10%.
2. θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

## ◆ Typical Electrical / Optical Characteristics Curves

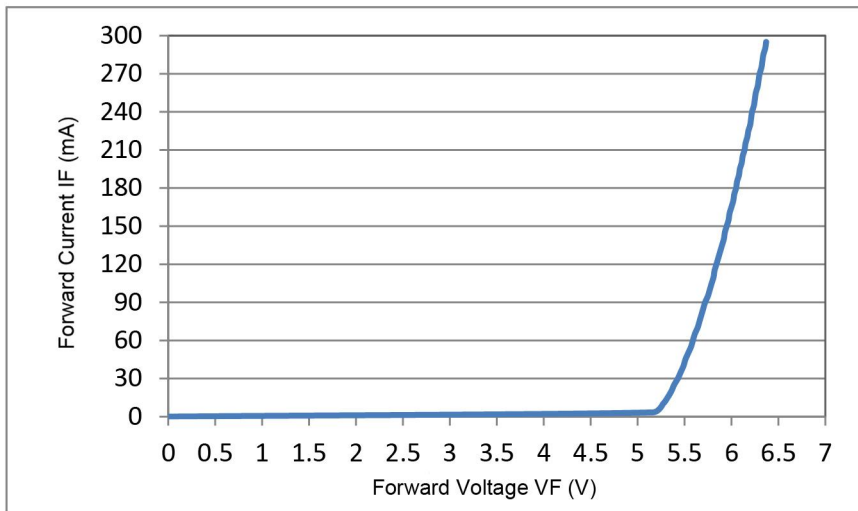
# Double Light

(25°C Ambient Temperature Unless Otherwise Noted)

## 1) Spectrum Distribution

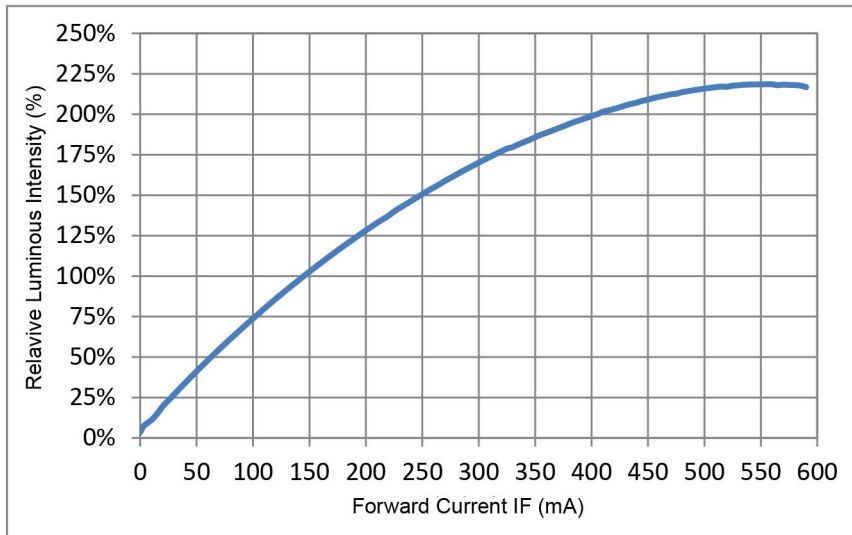


## 2) Forward Current & Forward Voltage

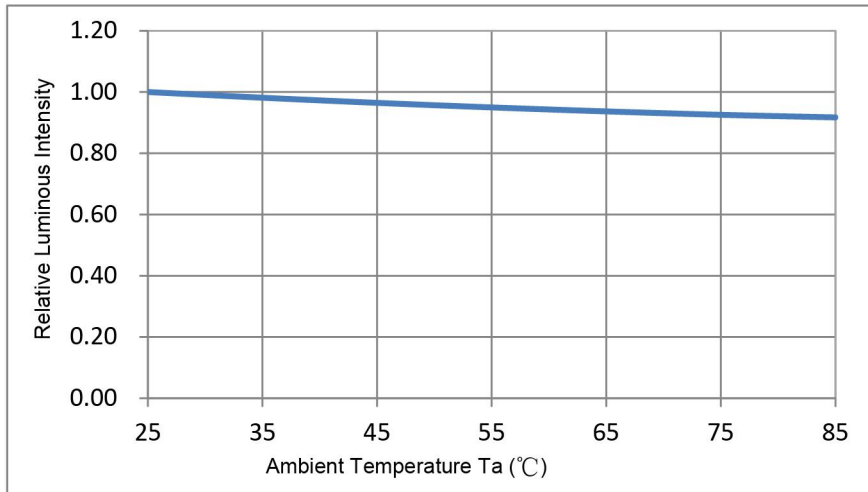


## 3) Luminous Intensity & Forward Current

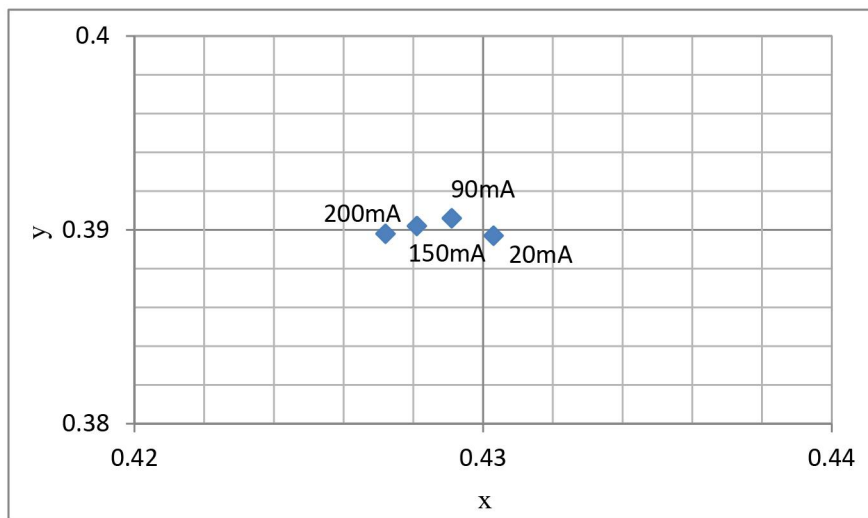
# Double Light



## 4) Luminous Intensity & Ambient Temperature

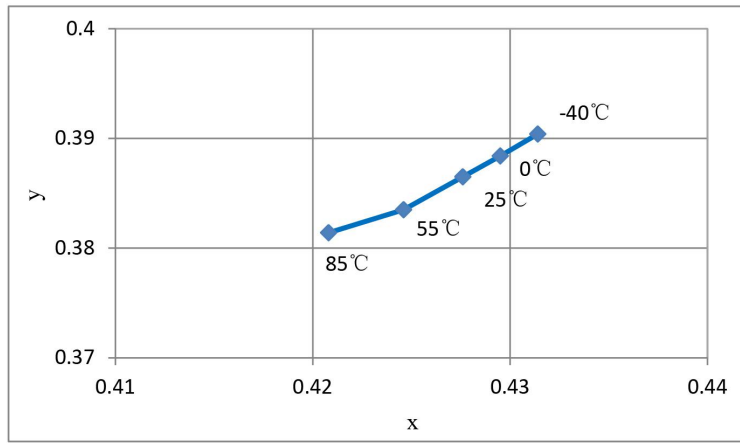


## 5) Forward Current & Chromaticity

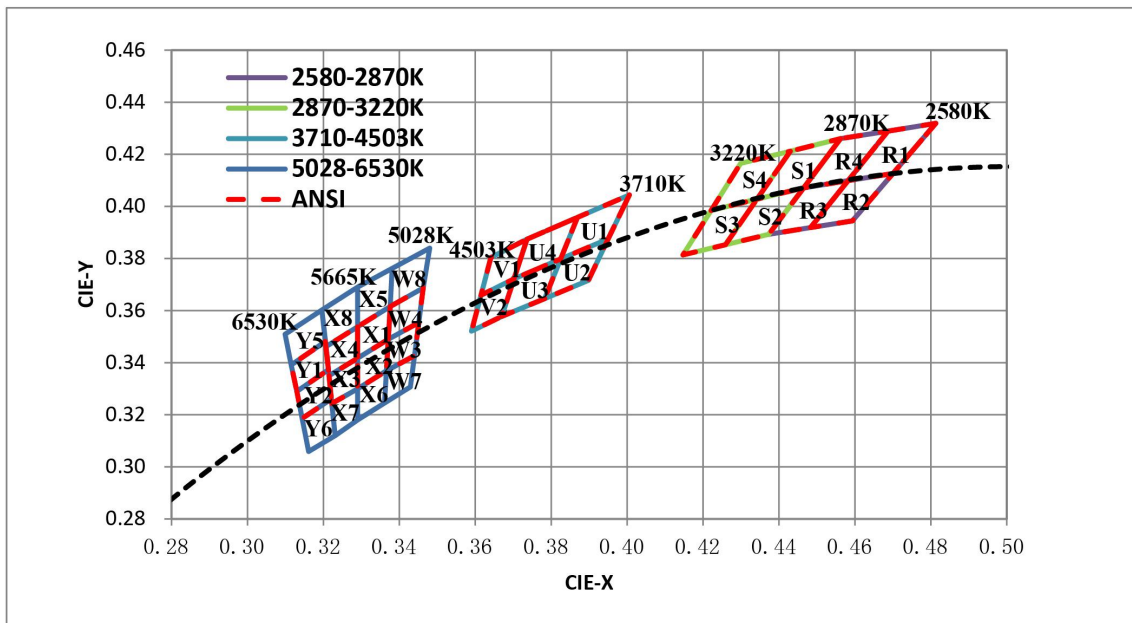
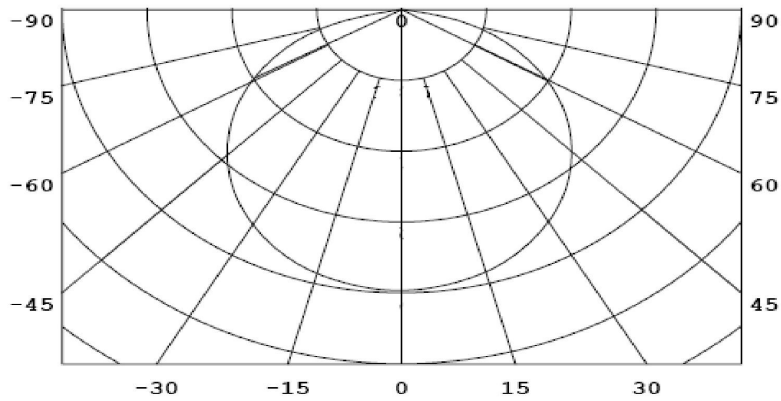


## 6) Ambient Temperature & Chromaticity

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## 7) Radiation Diagram



Code
R
S

# Double Light

U	3710~4260	1	2	3	4
		0.4006 0.4004	0.3950 0.3875	0.3783 0.3646	0.3825 0.3798
		0.3950 0.3875	0.3898 0.3716	0.3670 0.3578	0.3825 0.3798
		0.3825 0.3798	0.3783 0.3646	0.3702 0.3722	0.3702 0.3722
V	4260~4503	1	2		
		0.3736 0.3874	0.3702 0.3722		
		0.3702 0.3722	0.3670 0.3578		
		0.3615 0.3659	0.3590 0.3521		
W	5028~5310	3	4	7	8
		0.3451 0.3554	0.3463 0.3687	0.3440 0.3428	0.3480 0.3840
		0.3440 0.3427	0.3451 0.3554	0.3429 0.3307	0.3463 0.3687
		0.3366 0.3369	0.3371 0.3490	0.3361 0.3245	0.3376 0.3616
X	5310~5665	1	2	5	6
		0.3376 0.3616	0.3371 0.3490	0.3381 0.3762	0.3366 0.3369
		0.3371 0.3490	0.3366 0.3369	0.3376 0.3616	0.3361 0.3245
		0.3290 0.3417	0.3290 0.3300	0.3290 0.3538	0.3290 0.3180
	5665~6020	3	4	7	8
		0.3290 0.3417	0.3290 0.3538	0.3300 0.3440	0.3690 0.3480
		0.3290 0.3300	0.3290 0.3417	0.3180 0.3429	0.3538 0.3463
		0.3222 0.3243	0.3215 0.3350	0.3120 0.3361	0.3462 0.3376
Y	6020~6530	1	2	5	6
		0.3205 0.3481	0.3213 0.3373	0.3196 0.3602	0.3221 0.3261
		0.3213 0.3373	0.3221 0.3261	0.3205 0.3481	0.3231 0.3120
		0.3130 0.3290	0.3144 0.3186	0.3115 0.3391	0.3161 0.3059
		0.3115 0.3391	0.3130 0.3290	0.3099 0.3509	0.3144 0.3186

## ◆ Reliability Test Items and Conditions:

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

Confidence level: 90%.

LTPD: 10%.

### 1) Test Items and Results:

No.	Test Item	Test Hours/Cycles	Test Conditions	Sample Size	Ac/Re
1	Resistance to Soldering Heat	6 Min	Tsld=260±5℃, Min. 5sec	25pcs	0/1
2	Thermal Shock	300 Cycles	H: +100℃ 5min J 10 sec L: -10℃ 5min	25pcs	0/1



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3	Temperature Cycle	300 Cycles	H: +100°C 15min L: -40°C 15min	25pcs	0/1
4	High Temperature Storage	1000Hrs.	Temp: 100°C	25pcs	0/1
5	DC Operating Life	1000Hrs.	IF=150mA	25pcs	0/1
6	Low Temperature Storage	1000Hrs.	Temp: -40°C	25pcs	0/1
7	High Temperature/ High Humidity	1000Hrs.	85°C/85%RH	25pcs	0/1

### 2) Criteria for Judging the Damage:

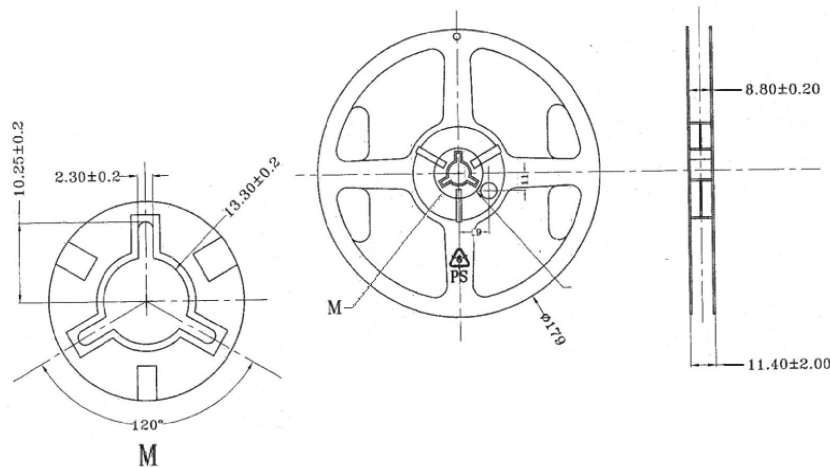
Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF=150mA	---	F.V.*)×1.1
Reverse Current	IR	VR=10V	---	F.V.*)×2.0
Luminous Intensity	IV	IF=150mA	F.V.*)×0.7	---

\*) F.V.: First Value.

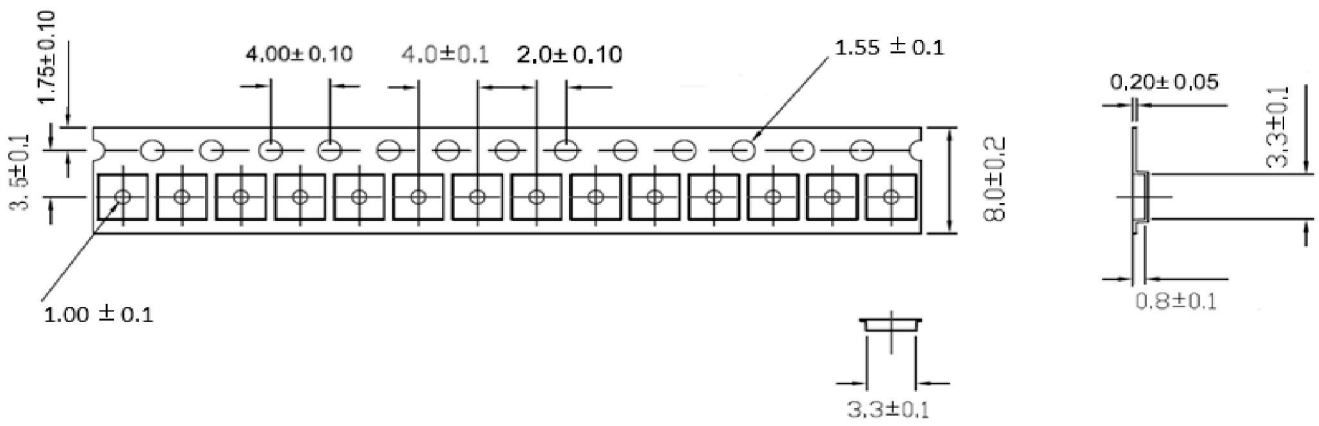
### ◆ Reel Dimensions

Carrier Tape Dimensions: Loaded quantity 3000 PCS Per reel.

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Carrier Tape Dimensions: Loaded quantity 3000 PCS Per reel.



## ◆ Please read the following notes before using the product:

### 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 kept at  $30^\circ\text{C}$  or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at  $30^\circ\text{C}$  or less and 70%RH or less.

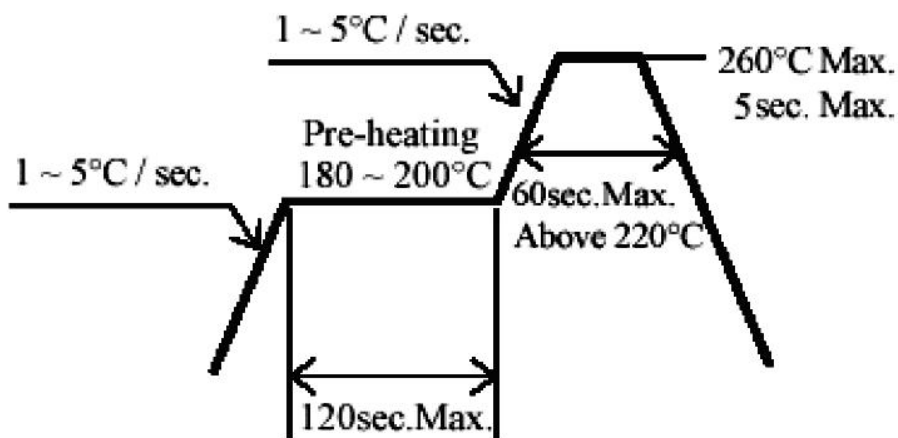
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture adsorbent material (silica gel) has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment:  $60 \pm 5^\circ\text{C}$  for 24 hours.

### 3. Soldering Condition

3.1 Pb-free solder temperature profile.

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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.

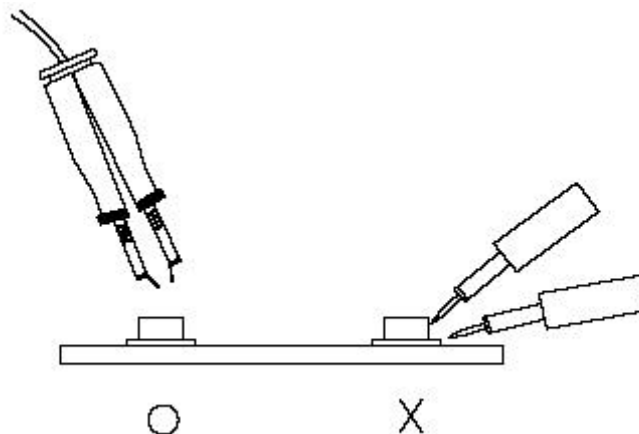
3.4 After soldering, do not warp the circuit board.

## 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260°C for 5 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. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.