

0.8mm Height PLCC-2 Package Top View  
0.5W High Power White LED  
Technical Data Sheet

Part No.: DL-TOP5730WXX-05W

# Double Light

## ◆ Features:

1. PLCC-2 package.
2. High power LED type.
3. White package.
4. Optical indicator.
5. Colorless clear window.
6. Ideal for backlight and light pipe application.
7. Inter reflector.
8. Wide viewing angle.
9. Very long operating life.
10. Instant light (less than 100 ns).
11. Reading lights (car, bus, aircraft).
12. Mini\_ accent/Up lighters/Down lighters/Orientation.
13. Bollards/Security/Garden.
14. Cove/Under shelf/Task.
15. Automotive rear combination lamps.
16. Indoor/Outdoor Commercial and Residential Architectural.
17. Edge\_ lit signs (Exit, point of sale).
18. LCD Backlights/Light Guides.
19. Designed for high current operation.
20. Low thermal resistance.
21. Suitable for automatic placement equipment.
22. Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
23. The product itself will remain within RoHS compliant Version.

## ◆ Descriptions:

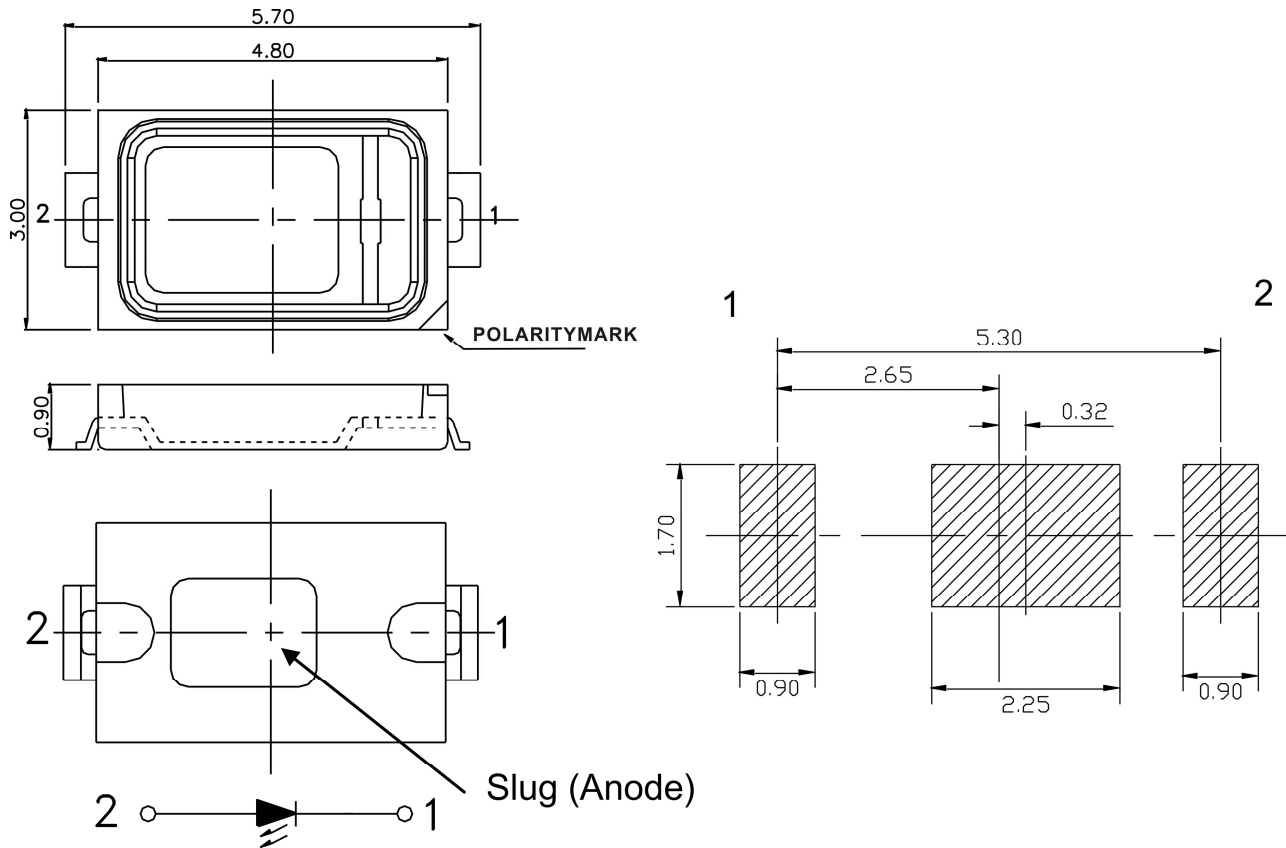
1. The TOP 5730 series is available in soft red, orange, yellow, green, blue and white. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the SMT TOP LED ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

## ◆ Applications:

1. Reading lights (car, bus, aircraft).
2. Mini\_ accent/Up lighters/Down lighters/Orientation.
3. Bollards/Security/Garden.
4. Cove/Under shelf/Task.
5. Automotive rear combination lamps.
6. Indoor/Outdoor Commercial and Residential Architectural.
7. Edge\_ lit signs (Exit, point of sale).
8. LCD Backlights/Light Guides.

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## ◆ Package Dimension:



Part No.	Chip Material	Lens Color	Source Color
DL-TOP5730W40-05W	InGaN	Yellow Diffused	Neutral White
DL-TOP5730W60-05W		Yellow Diffused	White

### Notes:

1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.10\text{mm}$  (.004") unless otherwise noted.
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	600	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	250	mA
Forward Current	IF	150	mA
Electrostatic Discharge (HBM)	ESD	1000	V
Operating Temperature Range	Topr	-40°C to +80°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

## ◆ Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Flux	$\Phi_v$	65	---	75	lm	IF=150mA (Note 1)
Viewing Angle	$2\theta_{1/2}$	---	120	---	Deg	IF=150mA (Note 2)
ColorTemperature	Tc	3750	---	7500	K	IF=150mA (Note 3)
Forward Voltage	VF	2.80	3.20	---	V	IF=150mA
CRI	Ra	80				IF=150mA
	R9	0				IF=150mA
Reverse Current	IR	---	---	10	$\mu$ A	VR=5V

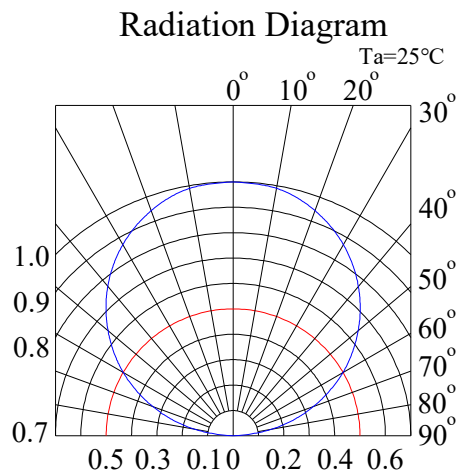
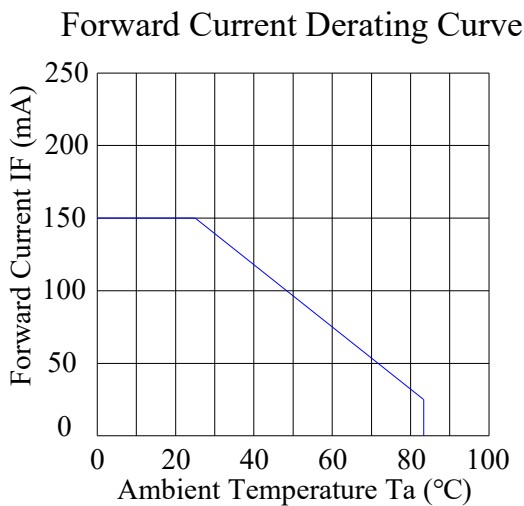
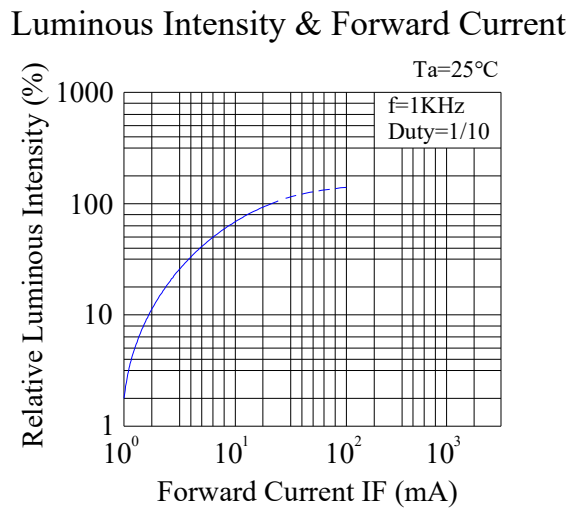
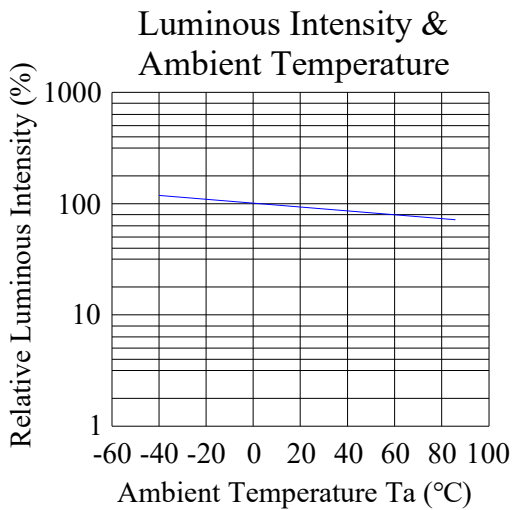
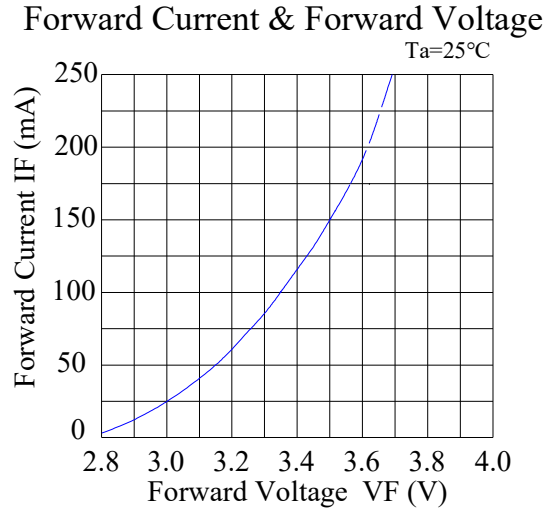
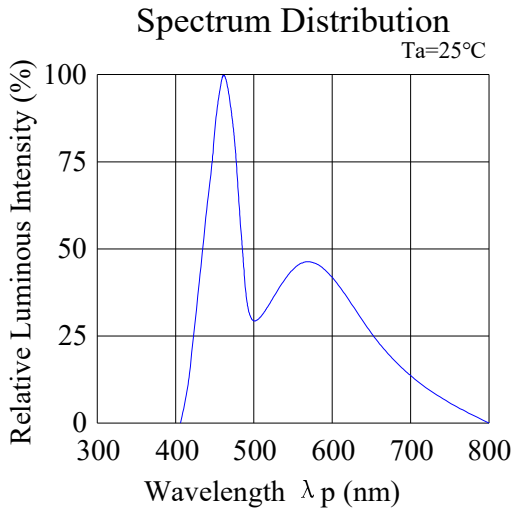
### Notes:

1. Luminous Intensity (Flux) Measurement allowance is  $\pm 10\%$ .
2.  $\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. It use many parameters that correspond to the CIE 1931 2°. X, Y, and Z are CIE 1931 2° values of Red, Green and Blue content of the measurement.

# Double Light

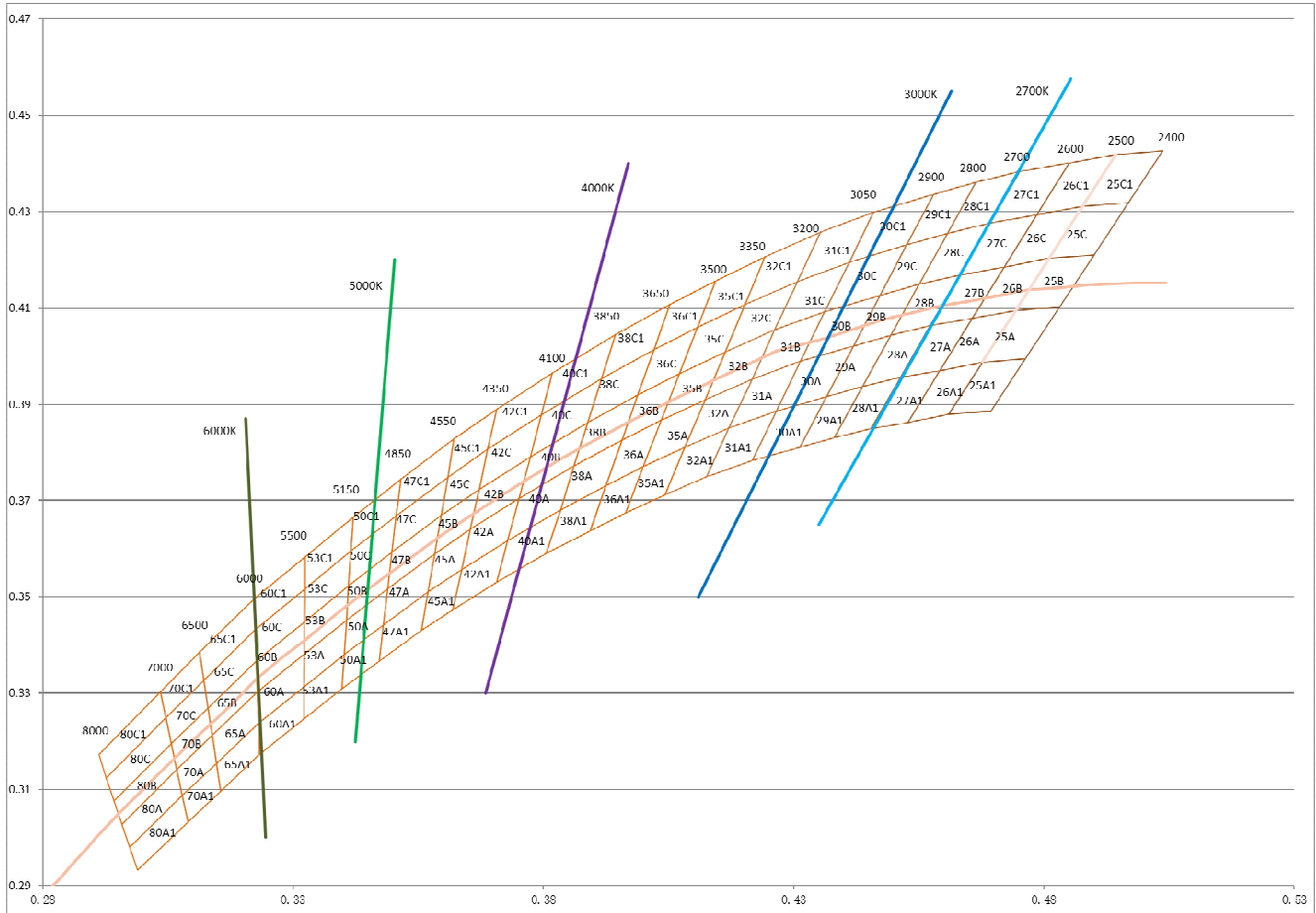
## ◆ Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)



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## ◆ CIE Chromaticity Diagram:



# Double Light

## ◆ Color Bin Limit (IF =150 mA)

3850-4100K		x1	y1	x2	y2	x3	y3	x4	y4
	40C1	0.3818	0.3965	0.3796	0.3878	0.3916	0.3953	0.3944	0.4044
	40C1	0.3796	0.3878	0.3774	0.3791	0.3889	0.3862	0.3916	0.3953
	40B	0.3774	0.3791	0.3751	0.3704	0.3861	0.3772	0.3889	0.3862
	40A	0.3751	0.3704	0.3729	0.3617	0.3834	0.3681	0.3861	0.3772
	40A1	0.3729	0.3617	0.3707	0.3530	0.3806	0.3590	0.3834	0.3681
4100-4350K		x1	y1	x2	y2	x3	y3	x4	y4
	42C1	0.3707	0.3890	0.3689	0.3807	0.3796	0.3878	0.3818	0.3965
	42C1	0.3689	0.3807	0.3672	0.3723	0.3774	0.3791	0.3796	0.3878
	42B	0.3672	0.3723	0.3654	0.3640	0.3751	0.3704	0.3774	0.3791
	42A	0.3654	0.3640	0.3637	0.3556	0.3729	0.3617	0.3751	0.3704
	42A1	0.3637	0.3556	0.3619	0.3473	0.3707	0.3530	0.3729	0.3617
4350-4550K		x1	y1	x2	y2	x3	y3	x4	y4
	45C1	0.3622	0.3828	0.3609	0.3748	0.3689	0.3807	0.3707	0.3890
	45C1	0.3609	0.3748	0.3596	0.3669	0.3672	0.3723	0.3689	0.3807
	45B	0.3596	0.3669	0.3583	0.3589	0.3654	0.3640	0.3672	0.3723
	45A	0.3583	0.3589	0.3570	0.3510	0.3637	0.3556	0.3654	0.3640
	45A1	0.3570	0.3510	0.3557	0.3430	0.3619	0.3473	0.3637	0.3556
5500-6000K		x1	y1	x2	y2	x3	y3	x4	y4
	60C1	0.3222	0.3495	0.3224	0.3431	0.3324	0.3516	0.3324	0.3583
	60C1	0.3224	0.3431	0.3226	0.3366	0.3323	0.3448	0.3324	0.3516
	60B	0.3226	0.3366	0.3229	0.3302	0.3323	0.3381	0.3323	0.3448
	60A	0.3229	0.3302	0.3231	0.3237	0.3322	0.3313	0.3323	0.3381
	60A1	0.3231	0.3237	0.3233	0.3173	0.3322	0.3246	0.3322	0.3313
6000-6500K		x1	y1	x2	y2	x3	y3	x4	y4
	65C1	0.3114	0.3385	0.3122	0.3327	0.3224	0.3431	0.3222	0.3495
	65C1	0.3122	0.3327	0.3130	0.3269	0.3226	0.3366	0.3224	0.3431
	65B	0.3130	0.3269	0.3139	0.3212	0.3229	0.3302	0.3226	0.3366
	65A	0.3139	0.3212	0.3147	0.3154	0.3231	0.3237	0.3229	0.3302
	65A1	0.3147	0.3154	0.3155	0.3096	0.3233	0.3173	0.3231	0.3237

### Notes:

1. Color coordinates measurement allowance is  $\pm 0.01$ .
2. One delivery will include up to two consecutive color ranks and three luminous intensity ranks of the products the quantity-ratio of the ranks is decided by **Doublelight**.

# Double Light

## ◆ 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 f 10 sec L: -10℃ 5min	25pcs	0/1
3	Temperature Cycle	300 Cycles	H: +100℃ 15min f 5min L: -40℃ 15min	25pcs	0/1
4	High Temperature Storage	1000Hrs.	Temp: 100℃	25pcs	0/1
5	DC Operating Life	1000Hrs.	IF=150mA	25pcs	0/1
6	Low Temperature Storage	1000Hrs.	Temp: -40℃	25pcs	0/1
7	High Temperature/ High Humidity	1000Hrs.	85℃/85%RH	25pcs	0/1

### 2) Criteria for Judging the Damage:

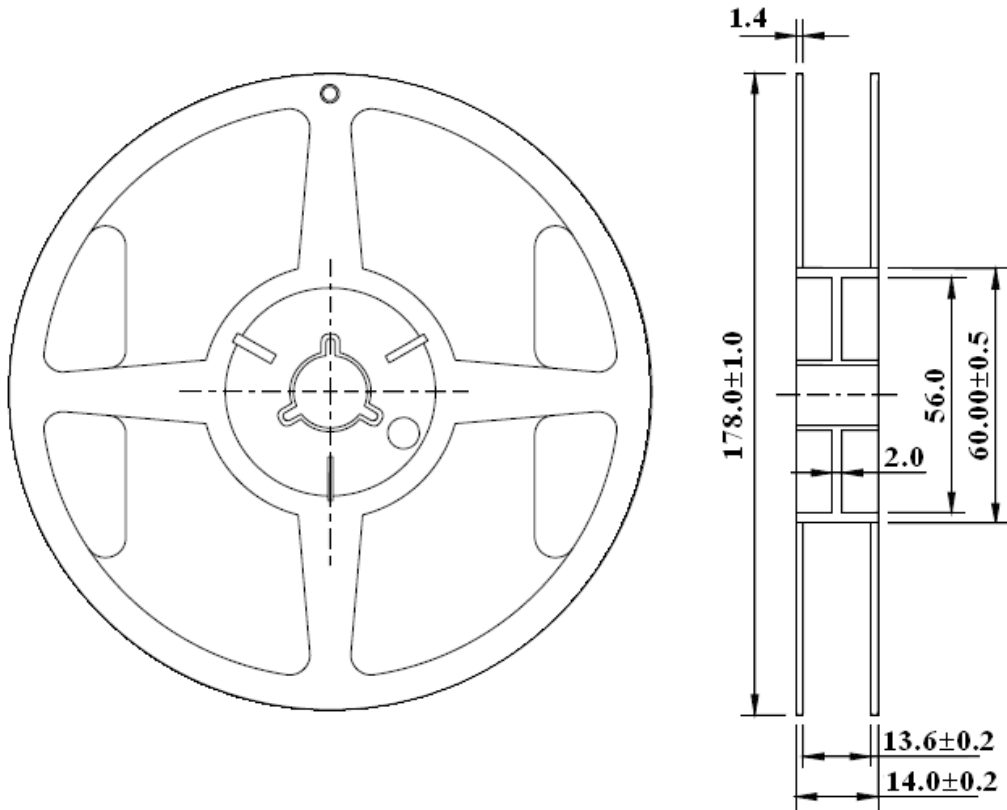
Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF=150mA	---	F.V.*)×1.1
Reverse Current	IR	VR=5V	---	F.V.*)×2.0
Luminous Intensity	IV	IF=150mA	F.V.*)×0.7	---

\*) F.V.: First Value.



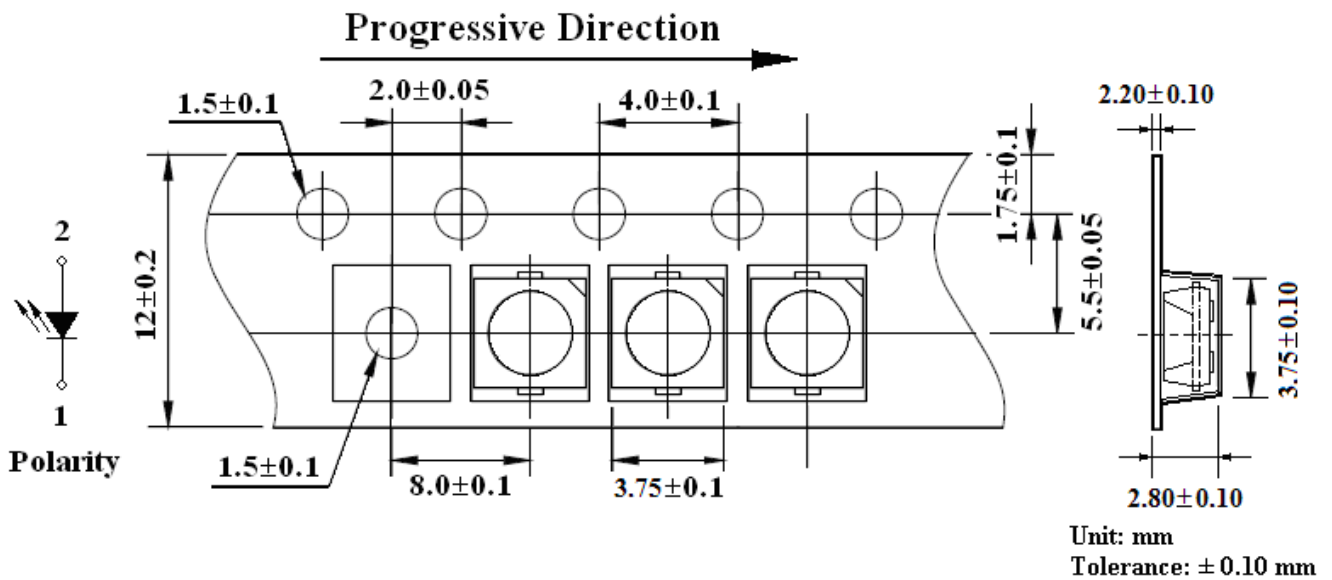
# Double Light

## ◆ Reel Dimensions:



## Carrier Tape Dimensions:

Loaded quantity 1000 PCS per reel.



# Double Light

## ◆ 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°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

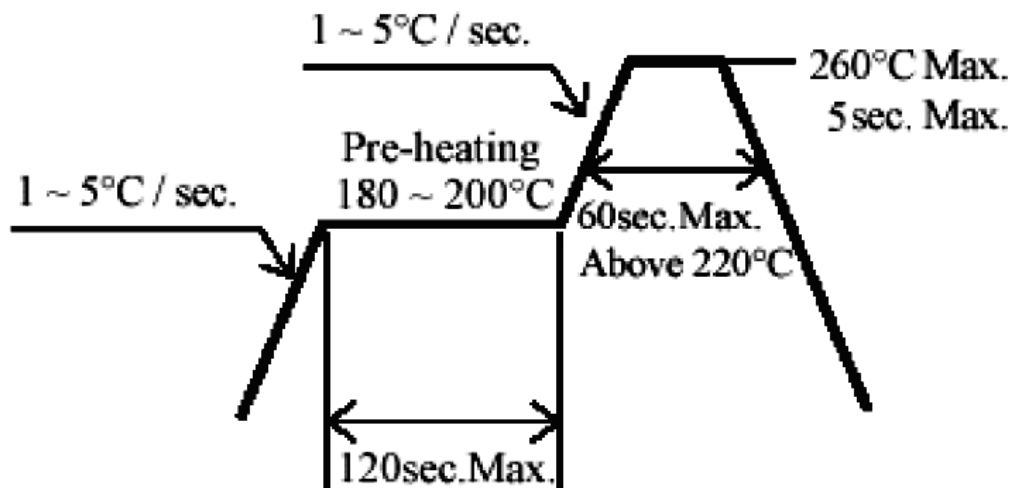
2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

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±5°C for 24 hours.

### 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.

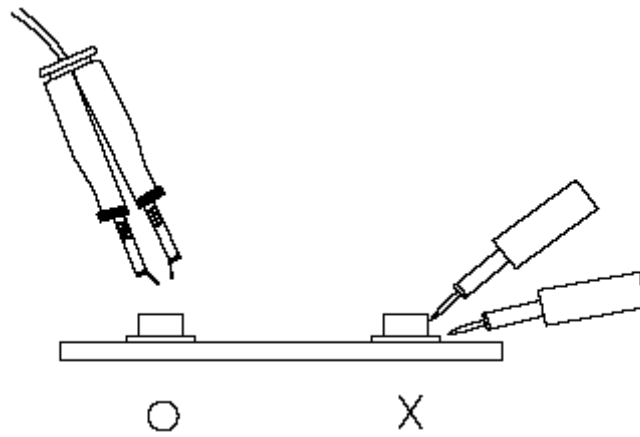
### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 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.

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### 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.