

Customer :

# Specification for Approval

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Part Name : WD38MKF-5065B

**(Preliminary)**

Customer : \_\_\_\_\_ 2013. \_\_\_\_ . \_\_\_\_ .

Checked	Checked	Approved	Remark
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WOOREE E & L Co., Ltd.      2013. 11 . 26.

Designed	Checked	Checked	Approved
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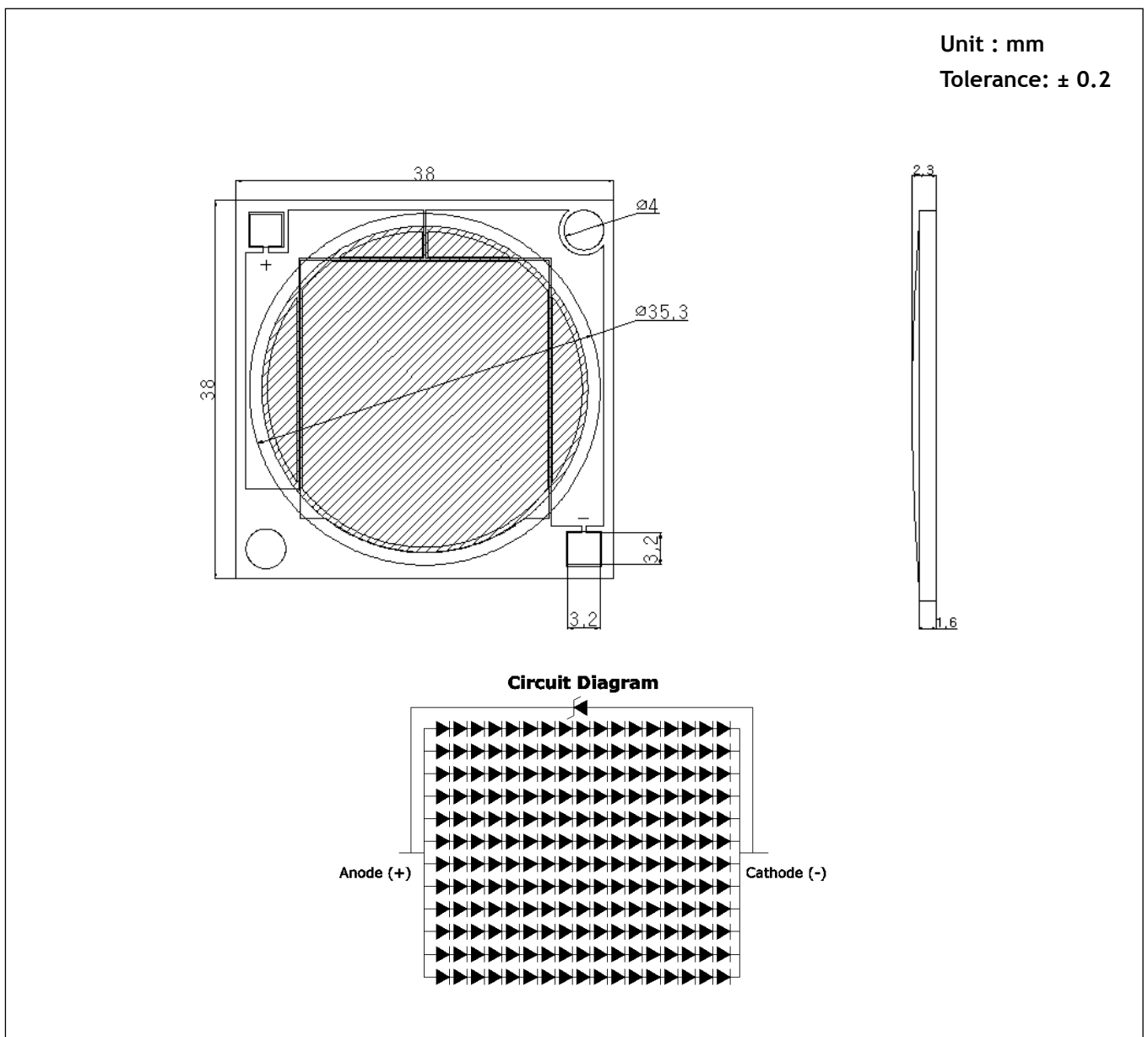
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## 1. Features

- Package size is 38.0 \* 38.0 \* 2.3t (mm)
- Lead (Pd) free product - RoHS compliant
- View angle ( $\Delta\theta : 120^\circ \times 120^\circ$ ) for uniform illuminance
- Low thermal resistance  $R_{th,j-s} < 1 \text{ }^\circ\text{C/W}$
- High-power LED in COB technology
- Application : Street lamp / Highbay lamp / Security lamp / Down Light  
Other applications

## 2. Outline Dimension



\* This LED has built-in ESD protection device(s) connected in parallel to LED chip(s).

### 3. Absolute maximum ratings

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	$I_F$	2200	mA
Pulse Forward Current	$I_{FP*1}$	2750	mA
Operating Temperature	$T_{opr}$	-30 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Junction Temperature	$T_J$	130	°C

\*1. Pulse Width  $\leq$  10msec, Duty  $\leq$  10%

### 4. Electrical/Optical characteristics

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

Item	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Luminous Flux*1-1)	$I_v$	$I_F=1500\text{mA}$   5000K	10500	12000	15000	lm
Forward Voltage *1-2)	$V_F$	$I_F=1500\text{mA}$	50	54	57	V
Color Temperature *1-3) [CIE 1931 Coordinates]	CCT	$I_F=1500\text{mA}$	-	5000	-	K
Viewing Angle	$2\theta_{1/2}$	$I_F=1500\text{mA}$	-	120	-	Deg.
Color Rendering Index	$R_a$	$I_F=1500\text{mA}$	-	65	-	-
Thermal Resistance	$R_{th,j-s*2}$			1		°C/W

\*1. Equipment measured tolerance

- 1) Luminous Flux is  $\pm 5\%$
- 2) Forward voltage is  $\pm 5\%$ , Reverse Voltage is  $\pm 5\%$ ,
- 3) Color Temperature is  $5028 \pm 283\text{K}$  (5000K )

\*2.  $R_{thj-s}$  is Thermal Resistance (Junction - Slug)

## 5. Ranks

### (1) Forward Voltage

(Ta=25℃)

Rank	Condition	Min.	Max.	Unit
0	I <sub>F</sub> = 1500mA	50.0	53.5	V
1		53.6	57.0	

### (2) Luminous Flux

(Ta=25℃)

Rank	Condition	5000K
105	IF=1500mA Unit : lm	10500 - 12000
120		12000 - 13500
135		13500 - 15000

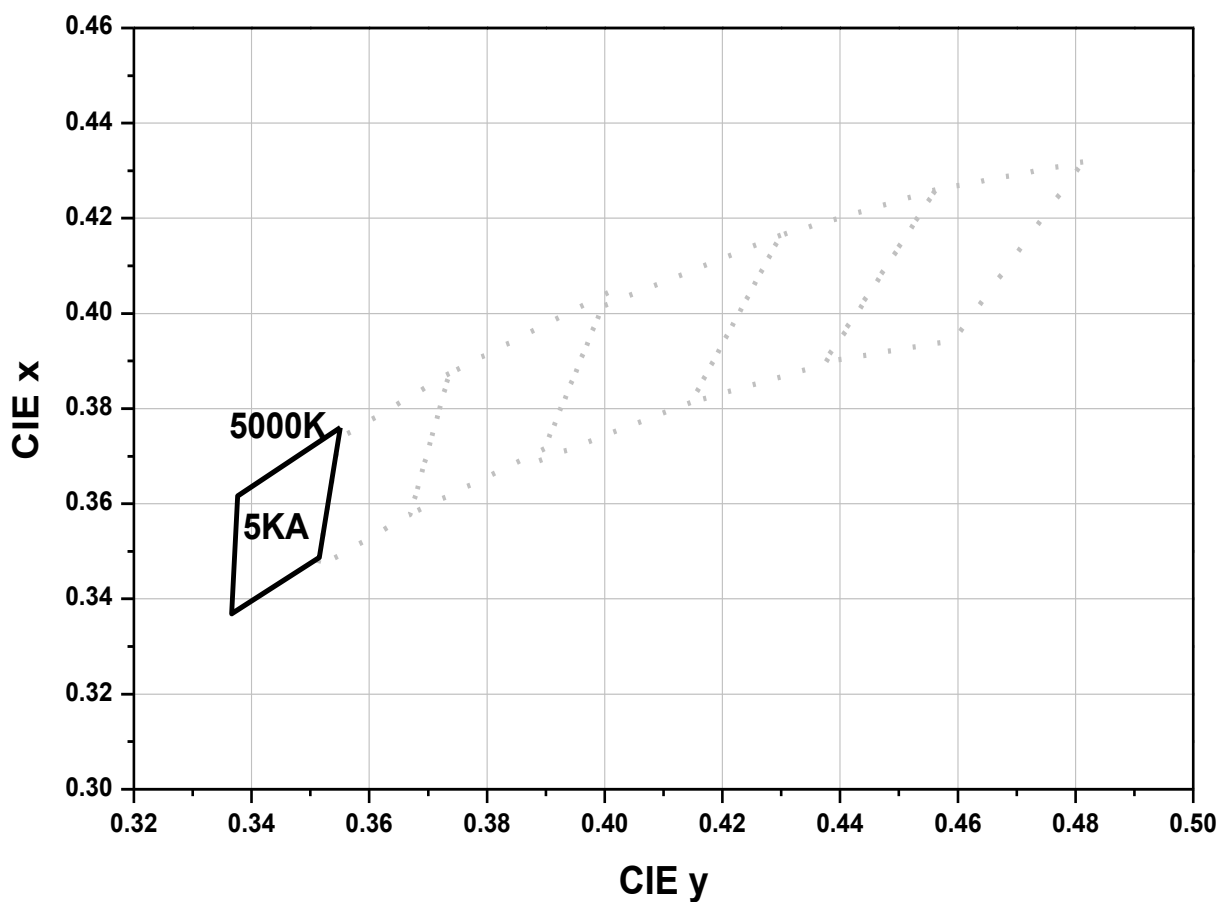
### (3) Chromaticity coordinates

( $I_F = 1500\text{mA}$ ,  $T_a = 25^\circ\text{C}$ )

5000K	
5KA	
Cx	Cy
0.3551	0.3760
0.3376	0.3616
0.3366	0.3369
0.3515	0.3487
0.3551	0.3760

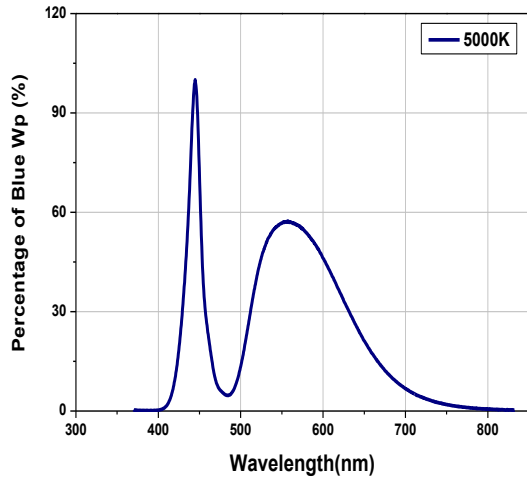
### (4) Chromaticity Coordinates Diagram

( $I_F = 1500\text{mA}$ ,  $T_a = 25^\circ\text{C}$ )



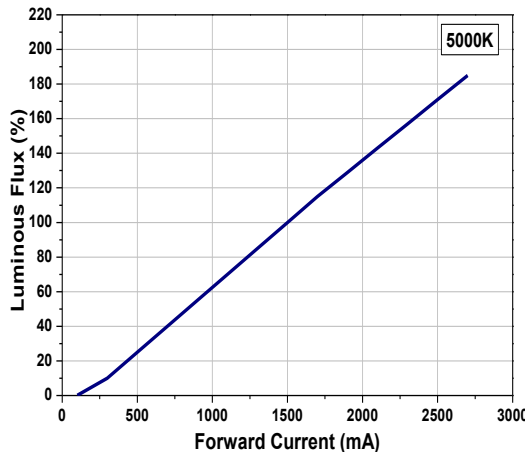
## 6. Color Spectrum

( $I_F=1500\text{mA}$ ,  $T_a = 25^\circ\text{C}$ )



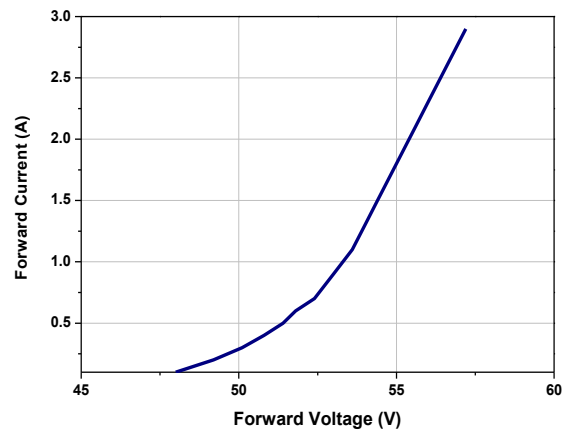
## 7. Characteristic Diagrams

(1) Luminous Flux vs. Forward Current

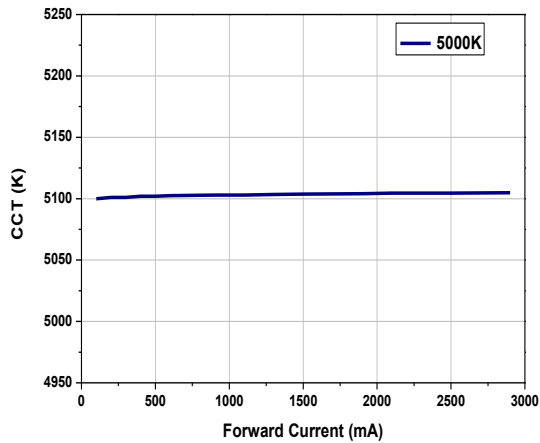


(2) Forward Current vs. Forward Voltage

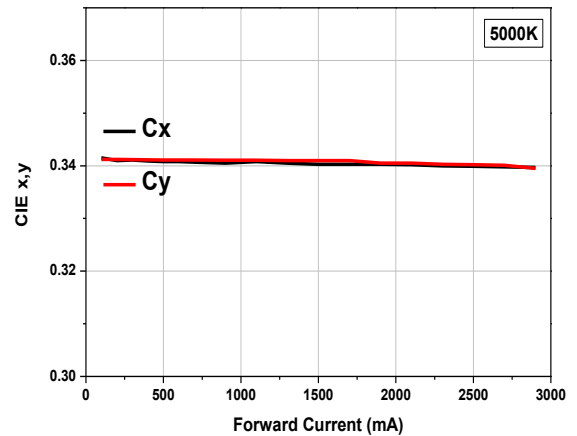
( $T_a=25^\circ\text{C}$ )



(3) CCT vs. Forward Current

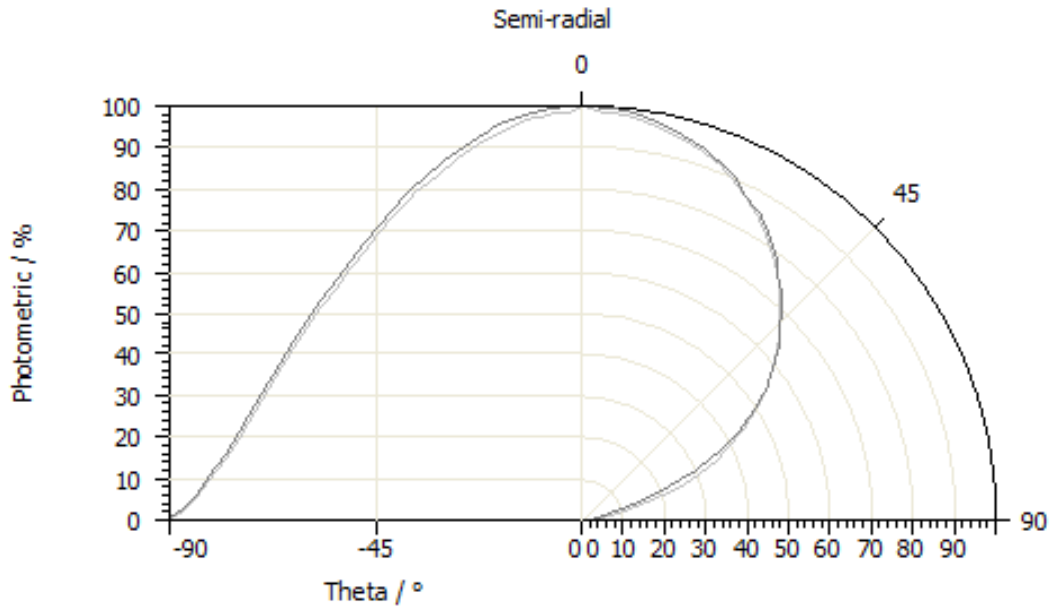


(4) CIE x,y vs. Forward Current

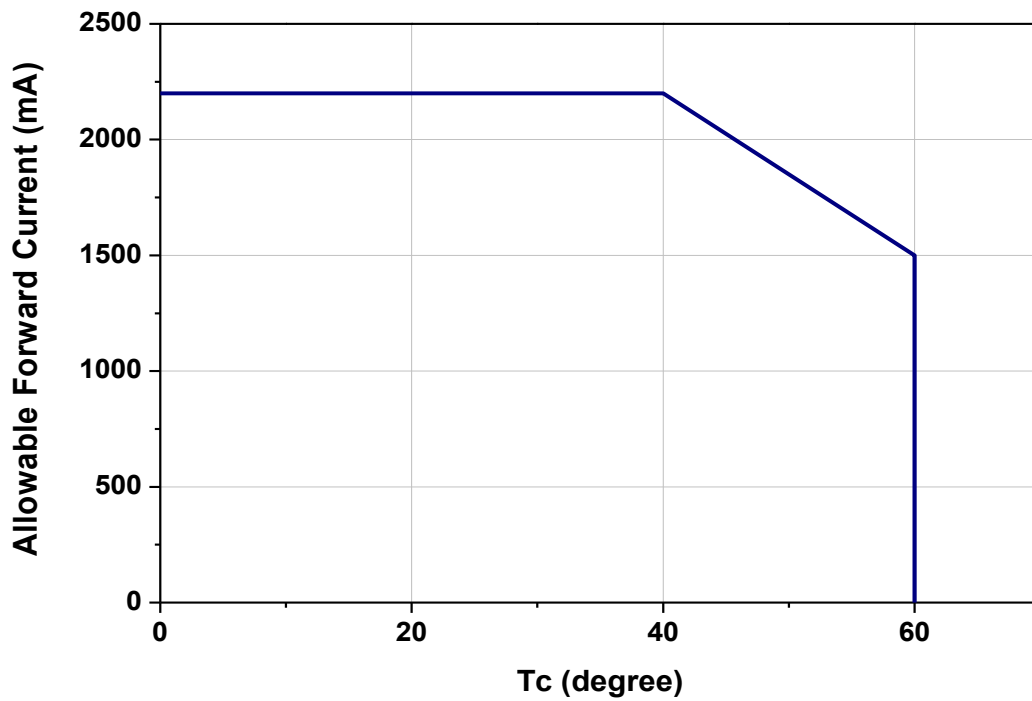


(5) Radiation Pattern

( $I_F=1500\text{mA}$ ,  $T_a=25^\circ\text{C}$ )



(6) Derating curve



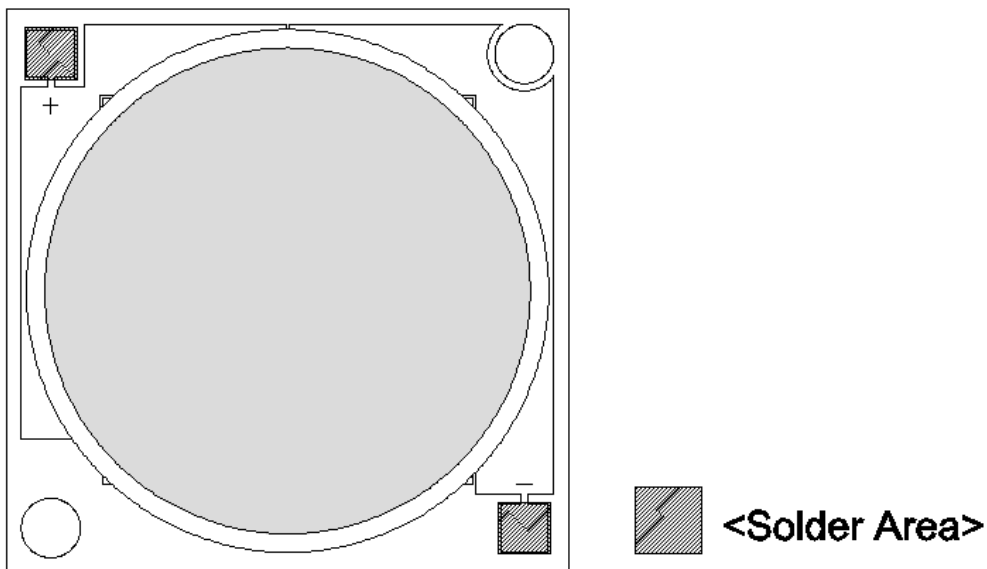


## 8. Precautions to taken

### (1) Recommend soldering conditions

Hand Soldering	
Temperature Soldering Time	Max. 340℃ Max. 3sec (at 1time)

### <Recommended soldering pad design>



### (2) Moisture Proof Package

When moisture is absorbed into the COB package it may vaporize and expand during soldering. There is a possibility that this can cause exfoliation of the contacts and damage to the optical characteristics of the LEDs. For this reason, the moisture proof package is used to keep moisture to a minimum in the package. A package of a moisture absorbent material (silica gel) is inserted into the Antistatic bag. The silica gel changes its color from blue to pink as it absorbs moisture.

### (3) Storage

[Storage conditions]

Before opening the package

The LEDs should be kept at 30℃ or less and 90% RH or less. The LEDs should be used within a year. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

After opening the package

The LEDs should be kept at 30°C or less and 70% RH or less. The LEDs should be soldered within 168 hours(7days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with package of moisture absorbent material(silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

WOOREE E&L part's electrodes and PCBs are silver plated copper alloy.

The silver surface may be affected by environments which contain corrosive substances.

Please avoid conditions which may cause the LED to corrode, tarnish or discolor.

The corrosion or discoloration might lower solderability or might affect on optical Characteristics.

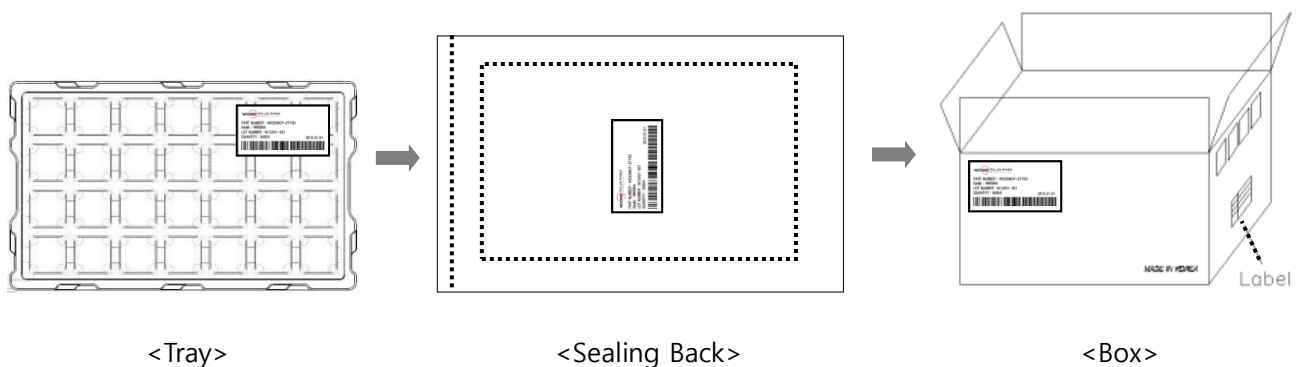
Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

#### (4)Heat Generation

Thermal design of the end product is of paramount importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board, as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in the specification.

The operating current should be decided after considering the ambient maximum temperature of LEDs.

## 9. Packing



## 10. Revision History

Spec NO.			
Title	Specification for Approval		
Times	Date	Summary of revision	Remarks
1		INITIAL ISSUE	R(0)