

## **LIGHT EMITTING DIODE SPECIFICATION**

### **Robin**

**DESCRIPTION: XTR-5630CDBC-EN(0.4W)**

**REVISION : V1.2**

**ISSUE DATE : 2014/03/26**

## Revision Note

Date	Revision	Page	Vision
2013/4/22	Initiate Document	1~9	V1.0
2014/1/13	Modify Packing of Reel	1~9	V1.1
2014/3/26	1.Modify soldering patterns picture 2.Modify Junction Temperature	1~9	V1.2

## Lighting LED Specification

# Robin

## XTR-5630CDBC-EN(0.4W)

### BLUE LED Specification

#### Features

- ◆ Feature of the device: Small package with high efficiency
- ◆ Typical view angle: 150°×120°
- ◆ Soldering methods: SMT
- ◆ Grouping parameter: Brightness, Forward Voltage and Wavelength.
- ◆ The product itself will remain within RoHS compliant version.

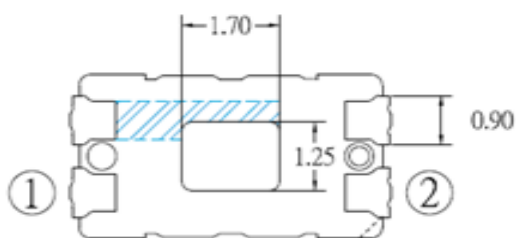
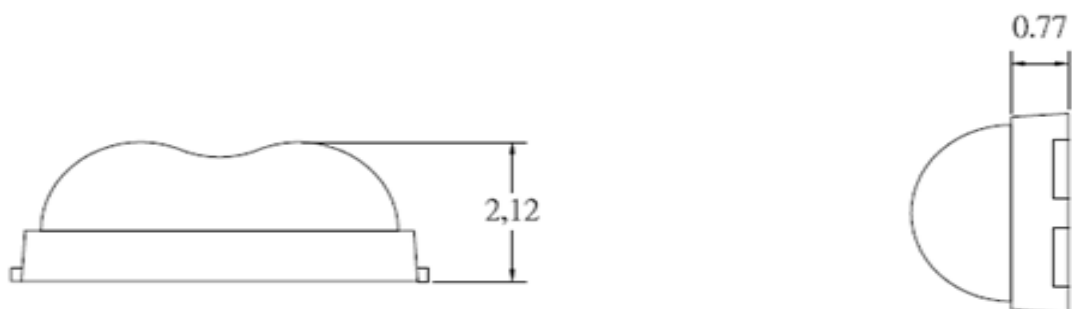
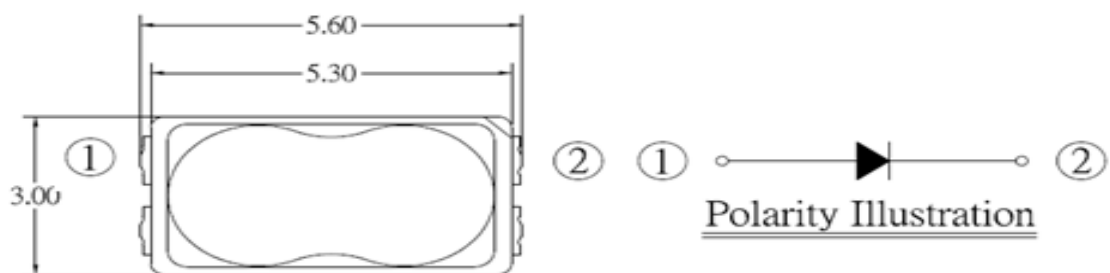
#### Applications

- ◆ Office Automation, Electrical Appliances
- ◆ Linear lighting source
- ◆ Plate lighting source
- ◆ Electric Signs and Signals

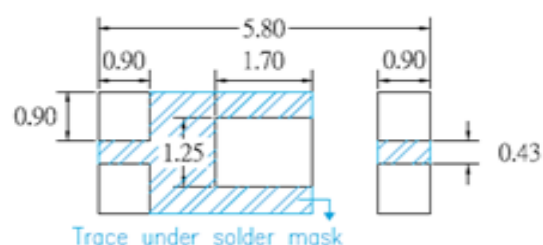
#### Materials

Items	Description
Substrate	PPA with Metal Heat Sink
Housing	Heat resistant polymer
Encapsulating Resin	Silicone resin
Electrodes	Ag plating copper alloy
Die attach	Die paste
Chip	InGaN

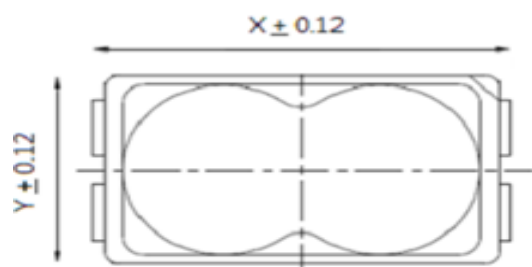
## Dimensions



Bot view



Soldering Petterns



Center offset tolerances

**Note.**

1. Dimensions are in millimeters.
2. Tolerances for fixed dimension are  $\pm 0.1$ .
3. Unit : mm

## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Rating	Unit
DC Forward Current	$I_F$	180	mA
Peak Pulse Current ( $t_p \leq 10\text{ms}$ , Duty cycle = 1/10)	$I_{PF}$	360	mA
Electrostatic Discharge(HBM)*	ESD	2000	V
Junction Temperature	$T_J$	125	$^{\circ}\text{C}$
Reverse Voltage	VR	5	V
Operating Temperature	$T_{op.}$	-40 ~ +80	$^{\circ}\text{C}$
Storage Temperature	$T_{stge.}$	-40 ~ +100	$^{\circ}\text{C}$
Peak Soldering Temperature	$T_{stge.}$	260	$^{\circ}\text{C}$

### Note:

- The solder pad temperature must be lower  $80^{\circ}\text{C}$  ( $T_s < 80^{\circ}\text{C}$ )

## Electrical-Optical Characteristics For Individual LED ( $T_A = 25^{\circ}\text{C}$ )

Parameter	Symbol	Bin	Min	Max	Unit	Condition
Brightness <sub>(1)</sub>	Φ <sub>v</sub>	1C	170	180	mW	I <sub>F</sub> =120mA
		1D	180	190		
		1E	190	200		
		1F	200	220		
		1G	220	240		
Forward Voltage <sub>(2)</sub>	V <sub>F</sub>	0	2.9	3.0	V	
		1	3.0	3.1		
		2	3.1	3.2		
		3	3.2	3.3		
		4	3.3	3.4		
		5	3.4	3.5		
Dominant wavelength <sub>(3)</sub>	WD	B3	450	452.5	nm	
		B4	452.5	455		
		B5	455	457.5		
		B6	457.5	460		

### Note.

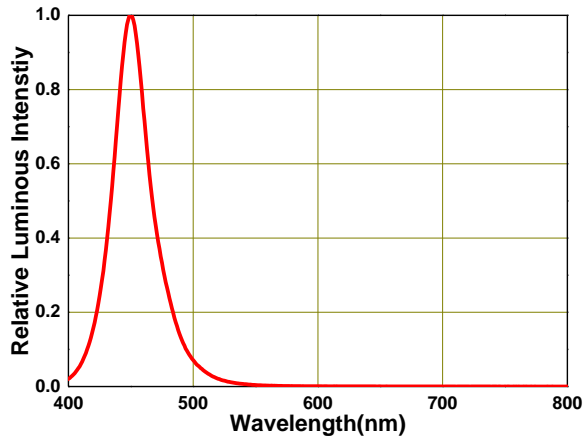
- Luminous flux is measured with an accuracy of  $\pm 10\%$ .
- Forward Voltage measurement tolerance:  $\pm 0.1\text{V}$ .
- Dominant wavelength measurement tolerance:  $\pm 1\text{nm}$ .

Contains trade secret information which is the property of LumenMax and shall not be made available to ,or copied or used by anyone outside LumenMax without its written authorization. Copyright@ LumenMax

## Typical Electro-Optical Characteristics Curves

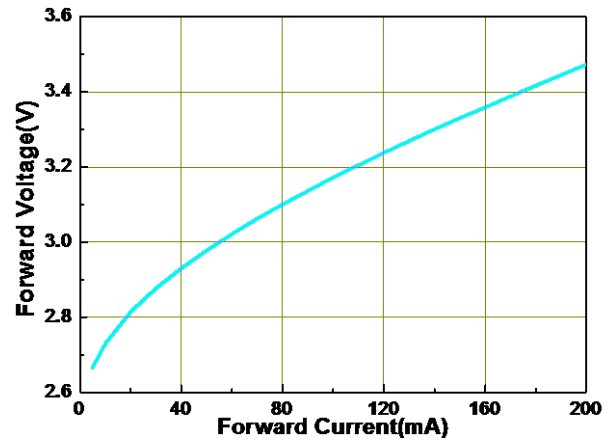
**Relative Spectrum Distribution**

$I_F = 120\text{mA}$ ,  $T_{\text{Ambient}} = 25^\circ\text{C}$

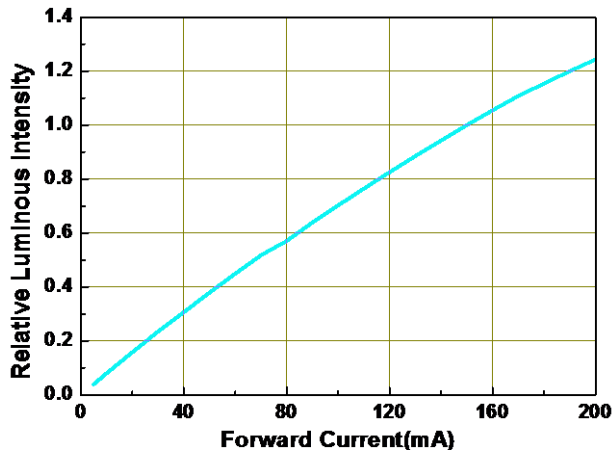


**Forward Voltage vs Forward Current**

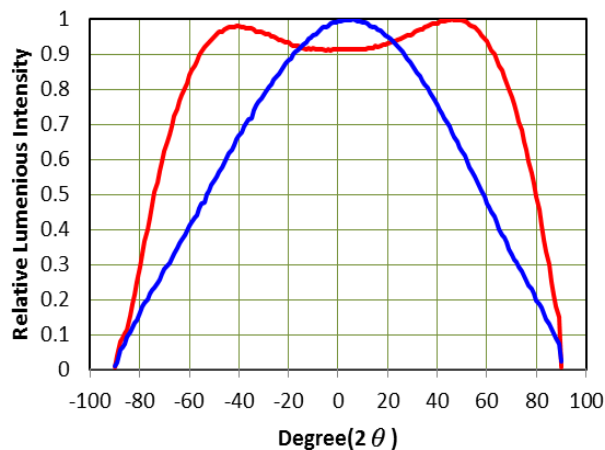
$T_{\text{Ambient}} = 25^\circ\text{C}$



**Relative Luminous Intensity vs Forward Current,  $T_{\text{Ambient}} = 25^\circ\text{C}$**



## Typical Representative Spatial Radiation Pattern



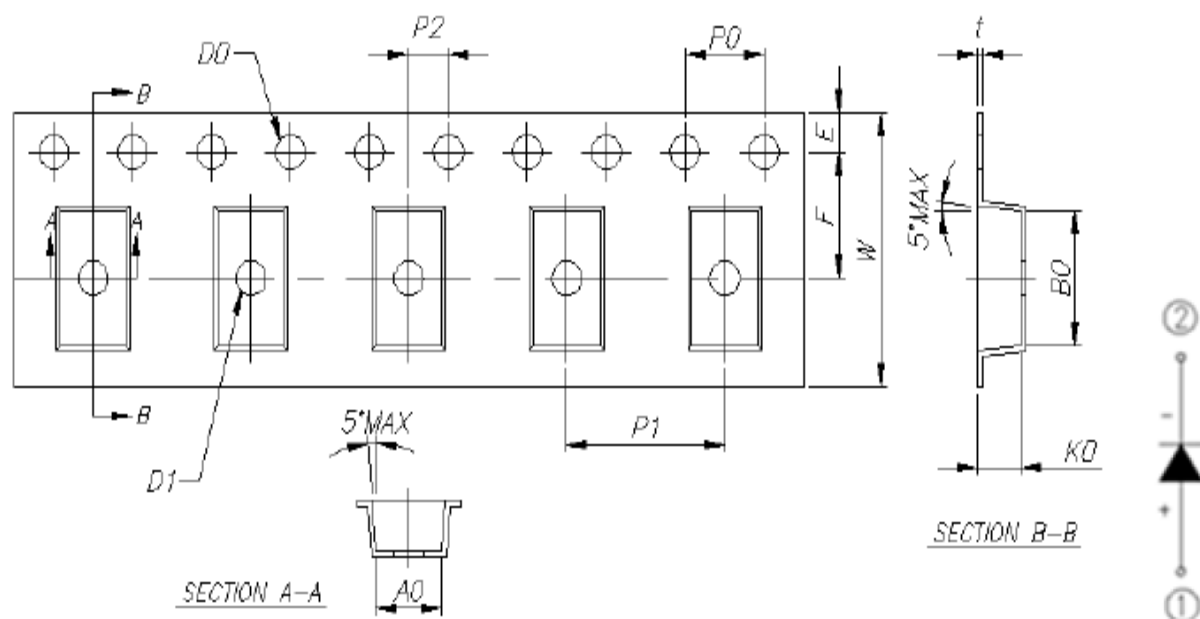
Note.

1.  $\theta_{1/2}$  is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

2. View angle tolerance is  $\pm 5^\circ$ .

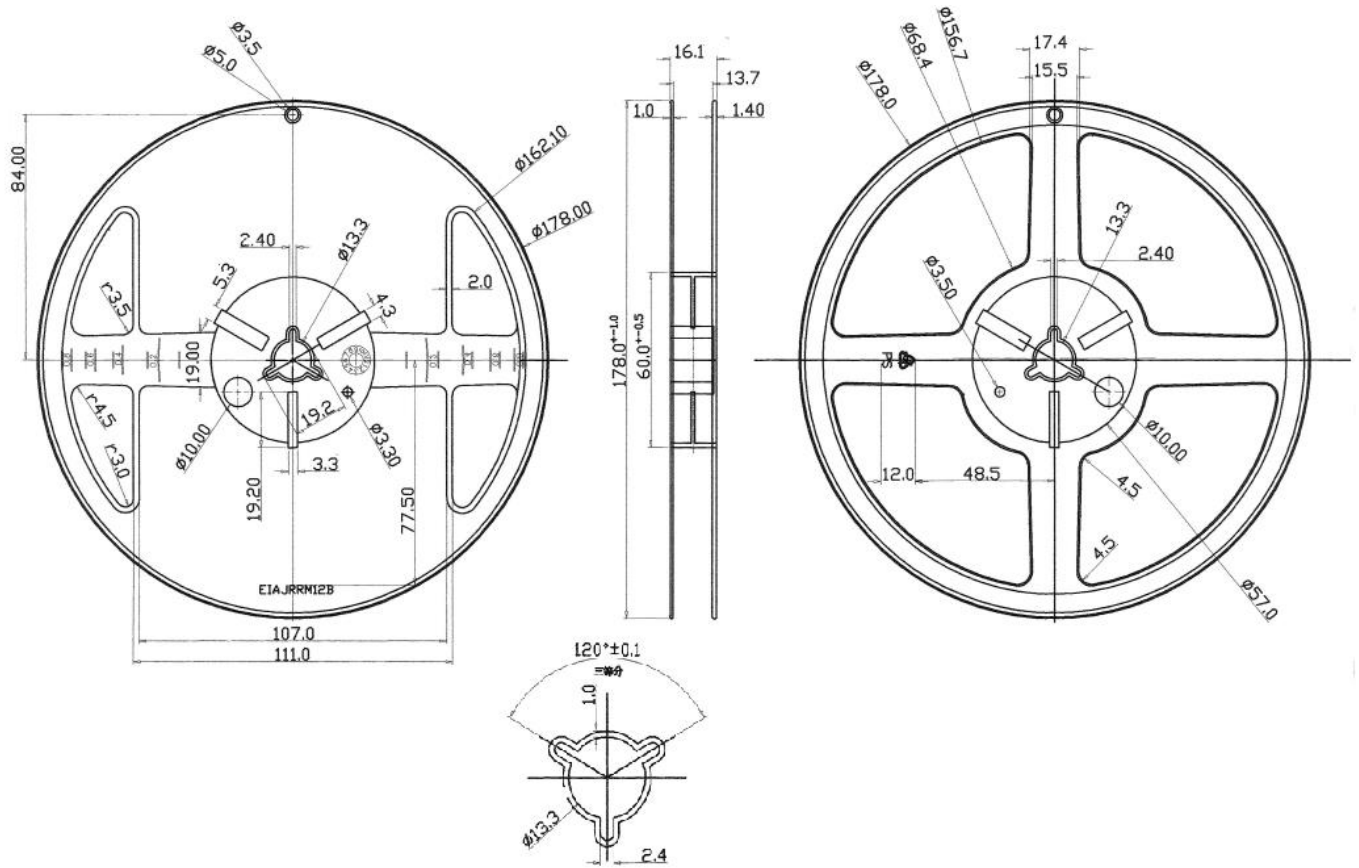
Contains trade secret information which is the property of LumenMax and shall not be made available to, or copied or used by anyone outside LumenMax without its written authorization. Copyright© LumenMax

## Carrier Tape Dimensions: Standard loaded quantity 600pcs per reel



Item	Specification(mm)
W	12.00
E	1.75
F	5.50
D0	1.50
D1	1.50
P0	4.00
P1	8.00
P2	2.00
t	0.25
A0	3.45
B0	5.90
K0	2.40

## Reel Specification



## Storage

- (1) Do not open moisture proof bag before the products are ready to use.
- (2) Before open the package. The LEDs should kept at 30°C and 90%RH or less
- (3) After open the package, the SMD LED should be kept at 28°C, 60%RH or less.
- (4) If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.  
Baking treatment: 60°C for 24 hours

## Soldering

Manual Soldering (We do not recommend this method strongly) Soldering tin material: tin 6/4 alloy or contained Ag. To prevent cracking, please bake before manual soldering.

Keep the temperature on the edge of iron at 300°C Max.(25W)and apply for 3 seconds. If the temperature becomes higher, apply in a shorter time (1sec).

In manual soldering, take care not to damage the package especially terminal or resin.(Do not give stress to the product when soldering)

Do not use again if you remove the soldered product. It is recommended using an iron with a temperature control.



## Reflow Soldering

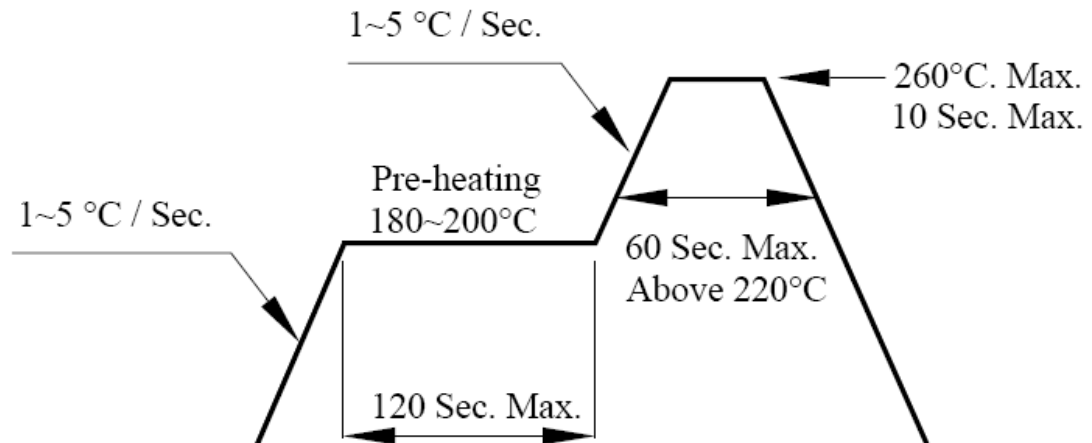
Recommend tin glue specifications:

Melting temperature: 150~260°C

Contains: Sn96.5%,Ag3.0%,Cu 0.5% JIS Z 3282 TEST

Never take next process until the component is cooled down to room temperature after reflow

The recommended reflow soldering profile (measuring on the surface of the LED resin) is following



## Cleaning

The conditions of cleaning after soldering:

An alcohol-based solvent such as Isopropyl Alcohol (IPA) is recommended.

Temperature Time : < 50°C 30sec, or <30°C 3min

Ultra sonic cleaning : < 15W/bath volume: 1 liter max

Curing: 100 max,<3min

## Cautions of Pick and Place

It should be avoided to load stress on the resin during high temperature.

Avoid rubbing or scraping the resin by any object.

Electric-static may cause damage to the component. Please confirm that the equipment is grounding well. Using an ionizer fan is recommended.

## Cautions of Design and Applications

It should be done to connect with a current-limiting serial resistor. Avoid to drive reverse voltage over the specifications on LED when ON/OFF

Any application should refer to the specifications of absolute maximum ratings.

The dimensions of the recommended soldering pattern may not meet every user. Please confirm and study first before designing the soldering pattern in order to obtain the best performance of soldering. Do not contact with any component on the assembly board.