



# PC35H11 V0

## Product Specification

## Approval Sheet

PC35H11 V0  
Product Specification

RoHS

<b>Product</b>	White SMD LED
<b>Part Number</b>	PC35H11 V0
<b>Issue Date</b>	2015/10/13



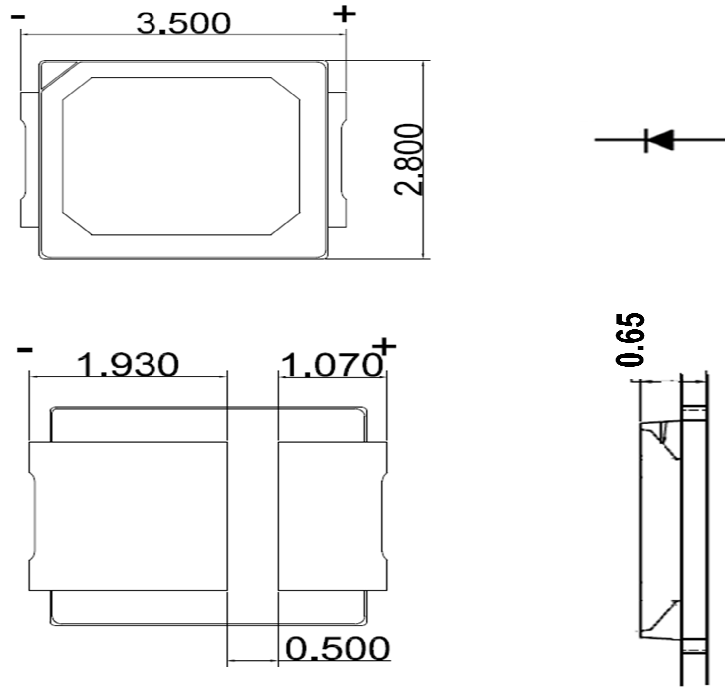
### ■ Feature

- ✓ White SMD LED (L x W x H) of 3.5x 2.8 x 0.7 mm
- ✓ Erp Ellipse Binning
- ✓ Dice Technology : InGaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 1000 or 4000 pcs/reel

### ■ Applications

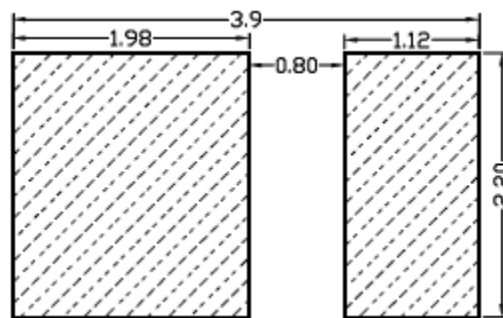
- ✓ Portable flashlight
- ✓ Reading lights
- ✓ Security / garden lighting
- ✓ General lighting
- ✓ Indoor and outdoor commercial lighting

tion



nit: mm, Tolerance:  $\pm 0.1\text{mm}$

■ **Recommended Soldering Pad**



## Performance

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### ■ Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage <sup>(1)</sup>	$V_F$	$I_F = 150 \text{ mA}$	2.9	-	3.4	V
Color Rendering Index <sup>(2)</sup>	Ra		80	-	-	-
View Angle	$\theta$		-	120	-	deg
Thermal Resistance <sup>(3)</sup>	$R_{th}$		-	25	-	°C/W

(1) The Forward Voltage tolerance is  $\pm 0.1V$

(2) The Color Rendering Index tolerance is  $\pm 2$

(3) Thermal resistance is calculated from junction to solder

### ■ Luminous Flux (Ta=25°C)

CCT	Condition	Rank
2600K~3700K	$I_F = 150 \text{ mA}$	VM, VN, VO
3700K~7000K		VN, VO, VP

\* The luminous flux tolerance is  $\pm 7\%$

### ■ Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current <sup>(1)</sup>	$I_F$	180	mA
Power Dissipation	$P_D$	0.65	W
Pulse Forward Current <sup>(2)</sup>	$I_{FP}$	360	mA
Storage Temperature	$T_{stg}$	-40 ~ 100	°C
Operating Temperature	$T_{opr}$	-40 ~ 85	°C
Junction Temperature	$T_J$	120	°C
Assembly Temperature		260 (5 sec)	°C

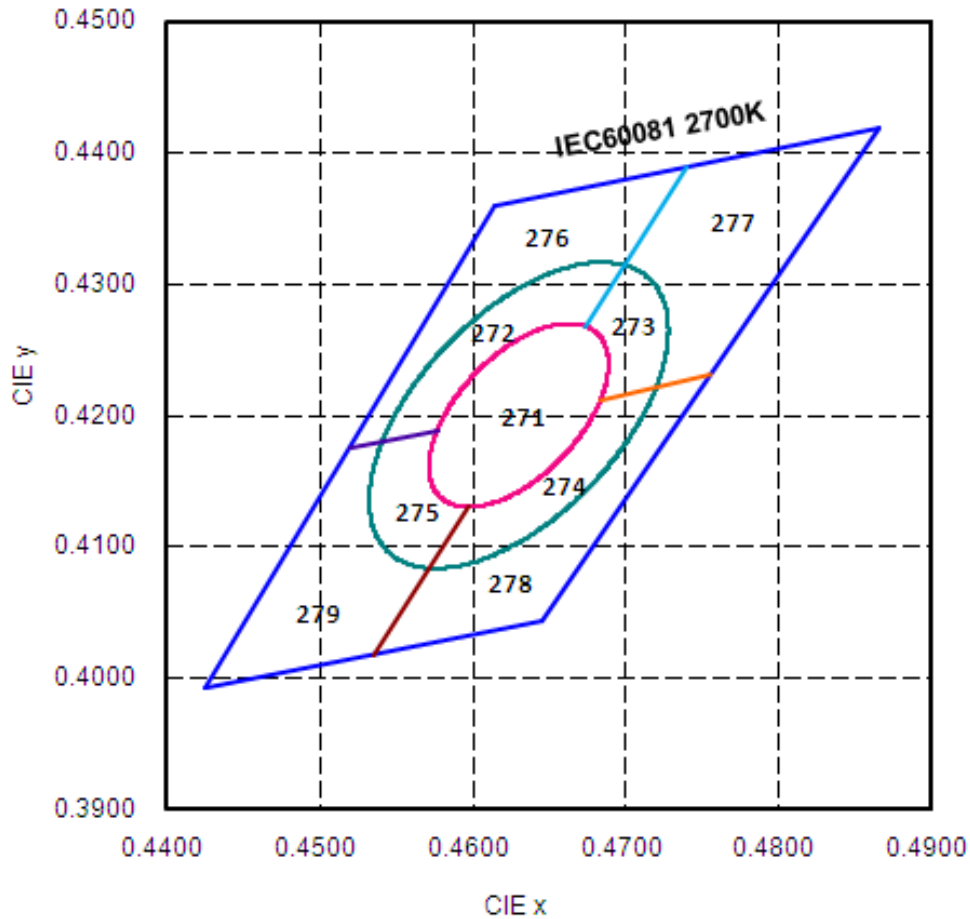
(1) Proper current rating must be observed to maintain junction temperature below maximum at all time

(2) IFP Condition: Duty 1/10, Pulse within 10msec

ERP Binning

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**F 2700K**



CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
2720K	Single 3-step MacAdam ellipse	(0.463, 0.420)	0.00810	0.00420	53.70°
2720K	Single 5-step MacAdam ellipse	(0.463, 0.420)	0.01350	0.00700	53.70°

■ **Bin code definition**

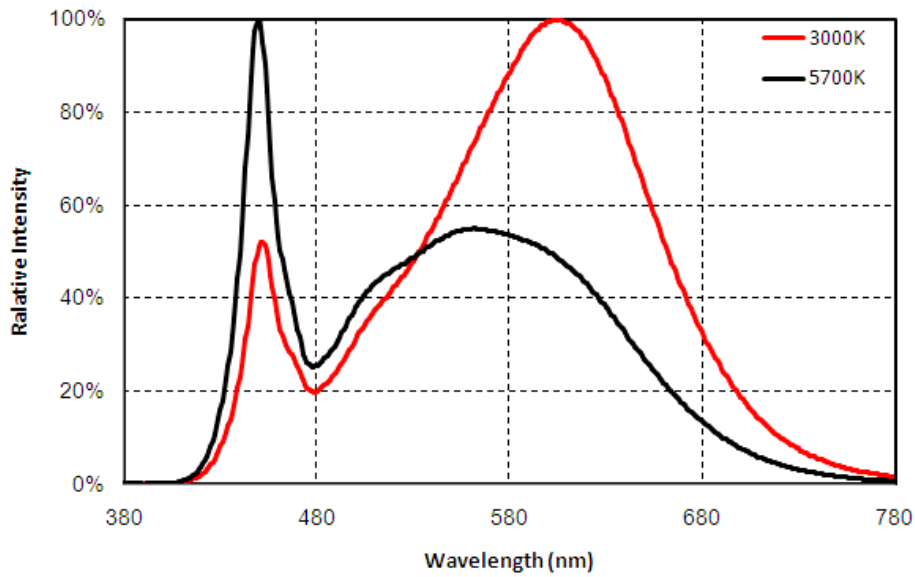
$V_F$ Rank	Luminous Flux Rank	CIE Rank
2	VO	275

$V_F$ Rank	Condition	Min.	Max.
1	$I_F = 150 \text{ mA}$	2.9	3.0
2		3.0	3.1
3		3.1	3.2
4		3.2	3.3
5		3.3	3.4
Luminous Flux Rank	Condition	Min.	Max.
VM	$I_F = 150 \text{ mA}$	55	60
VN		60	66
VO		66	72
VP		72	78

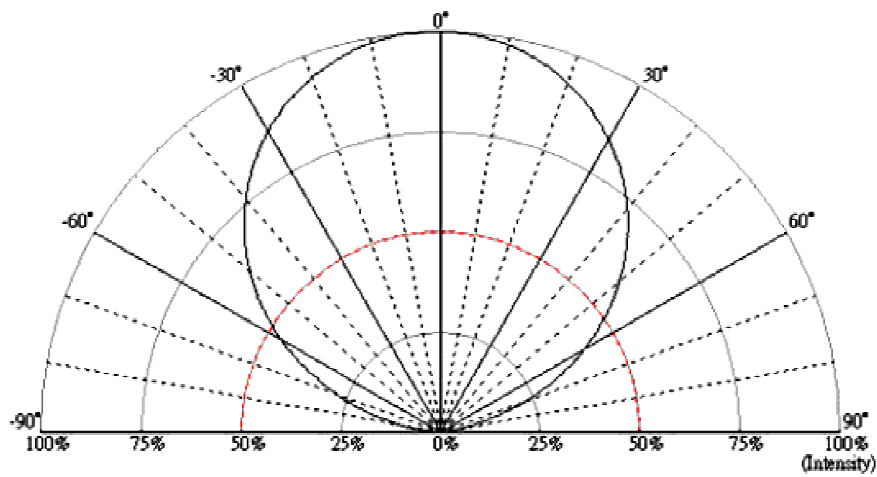
Note:

- (1) The luminous flux tolerance is  $\pm 7\%$
- (2) The Forward Voltage tolerance is  $\pm 0.1\text{V}$

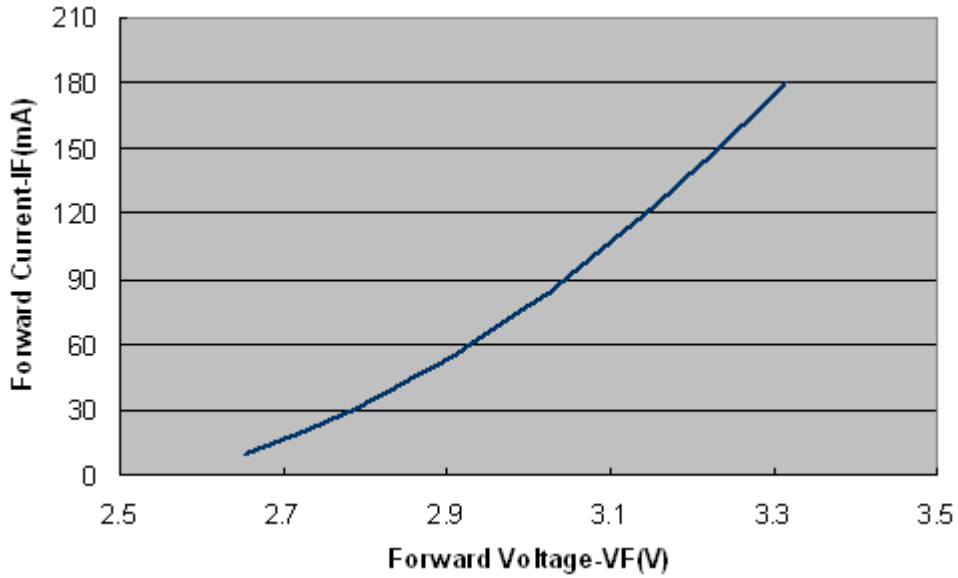
### ■ Spectrum



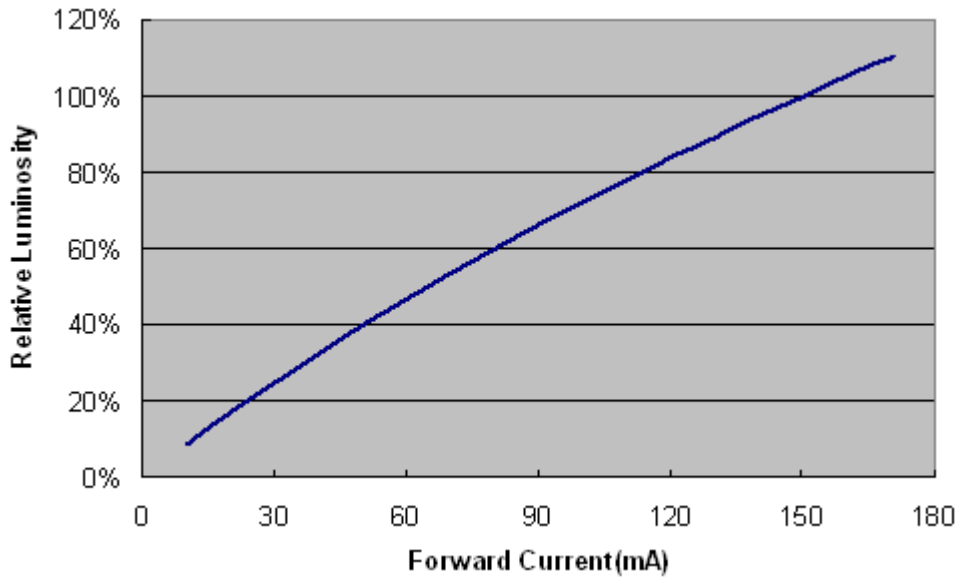
### ■ Radiation Pattern



### ■ Forward Voltage vs. Forward Current

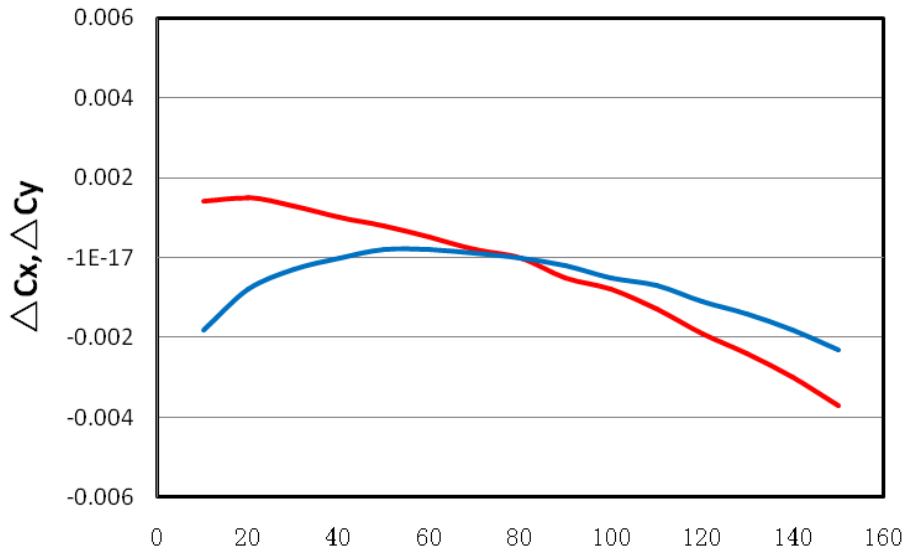


### ■ Forward Current vs. Relative Luminosity



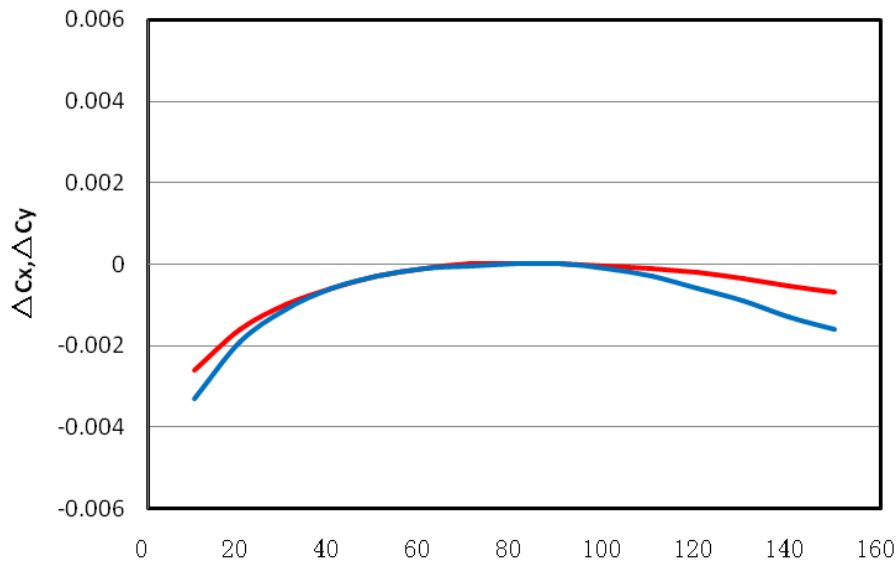


■ **Forward Current vs. Chromaticity Coordinate**



**3000K**

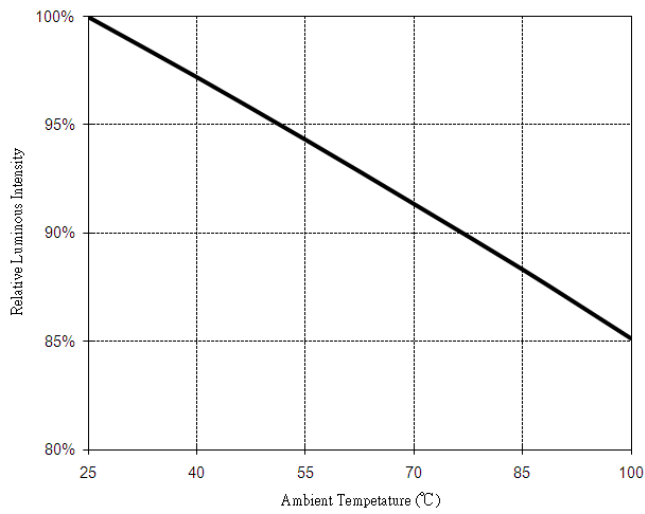
**Forward Current-IF(mA)** — Cx — Cy



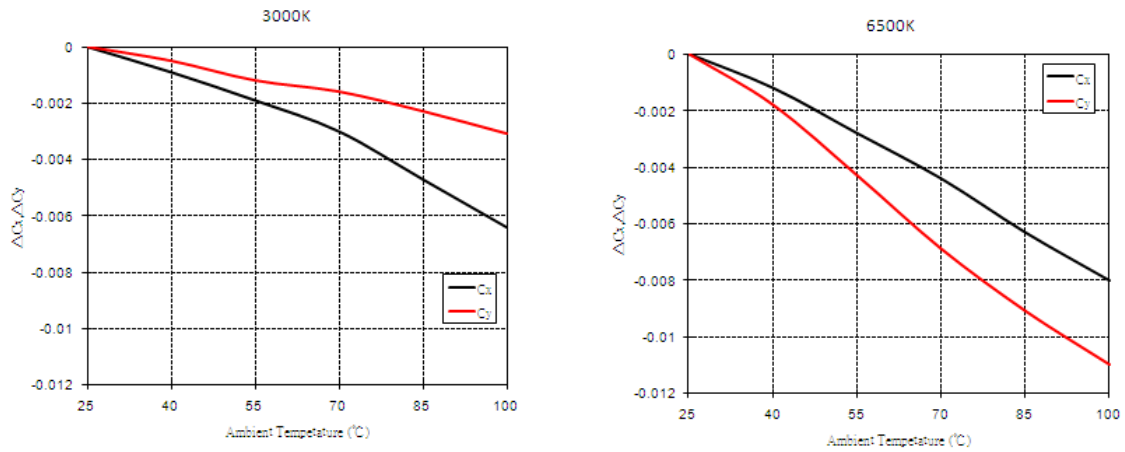
**6500K**

**Forward Current-IF(mA)** — Cx — Cy

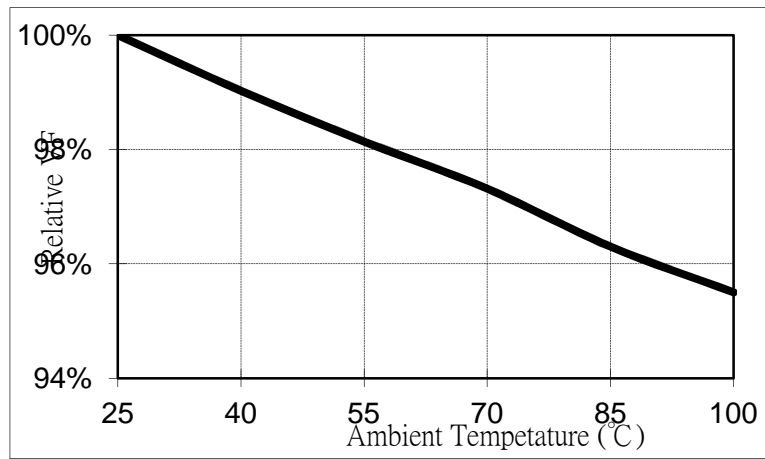
■ **Relative Luminous Intensity vs. Ambient Temperature**



■ **Chromaticity vs. Ambient Temperature**



■ **Relative VF vs. Ambient Temperature**



**Reliability**

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**Reliability test**

Item	Condition	Time/Cycle
Steady State Operating Life of Low Temperature -40°C	-40°C Operating	1000 Hrs
Steady State Operating Life of High Temperature 60°C	60°C Operating	1000 Hrs
Steady State Operating Life of High Temperature Ts105°C	Ts 105 °C Operating	1000 Hrs
Low temperature storage -40°C	-40°C Storage	1000 Hrs
High temperature storage 100°C	100°C Storage	1000 Hrs
Steady State Operating Life of High Humidity Heat 60°C/90%	60°C/90% Operating	1000 Hrs
Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store @60°C, 60%RH for 52hrs T <sub>sld</sub> max.=260°C 10sec	1 cycle 3 Times
Thermal shock	-40°C/20minr ~5minr ~ 100°C/20min	100 Cycles

**Judgment Criteria**

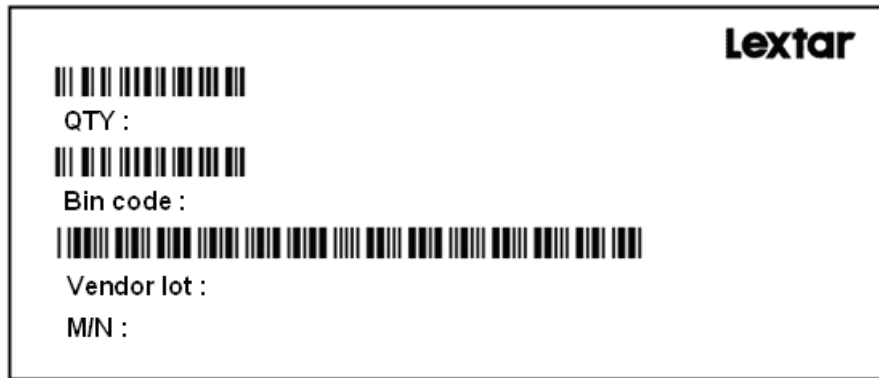
Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	V <sub>f</sub>	150mA	$\Delta V_f < 10 \%$
Luminous Flux	I <sub>v</sub>	150mA	$\Delta I_v < 30 \%$

## Packing

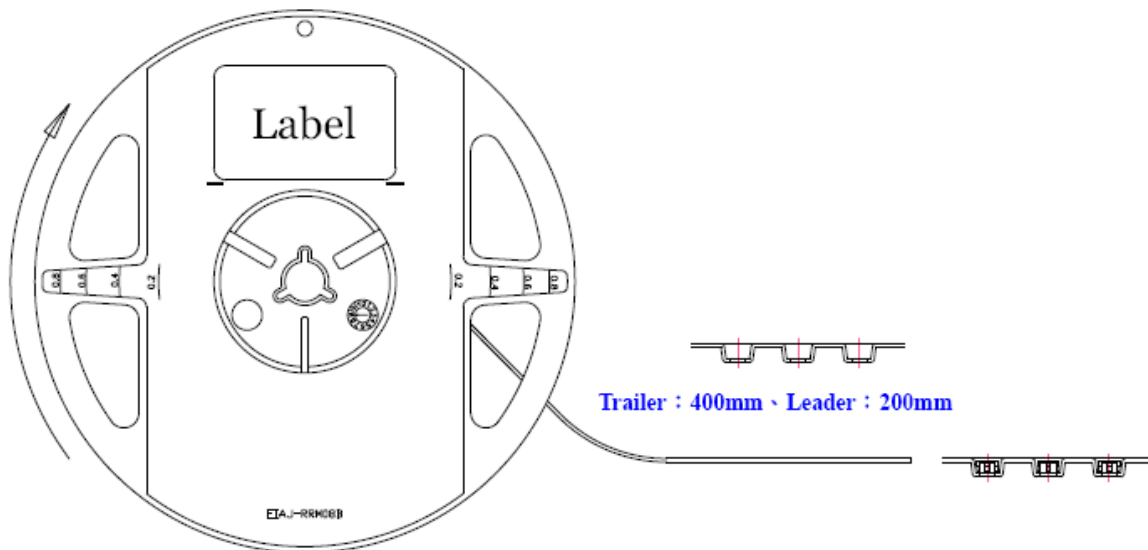
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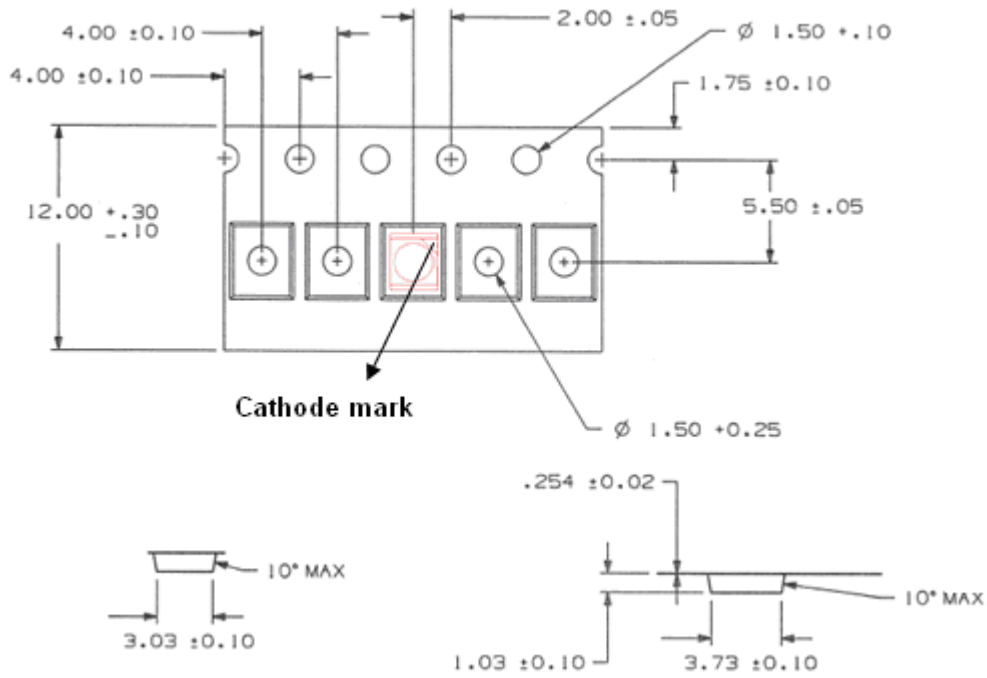
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### Label

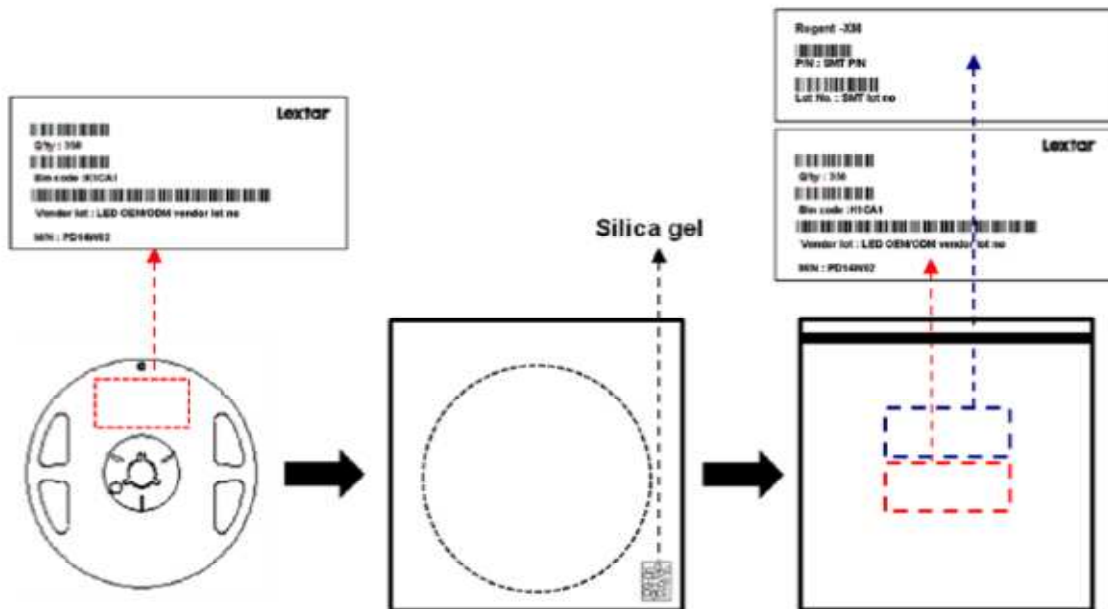


### Carrier Taping





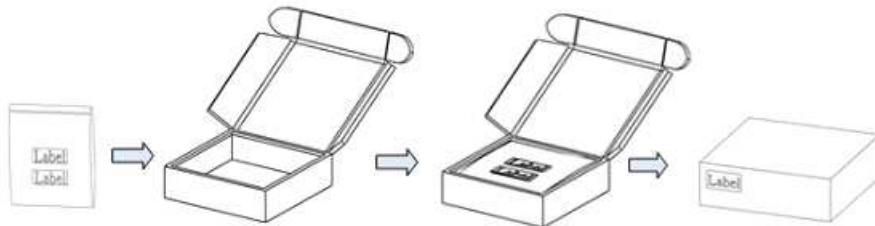
■ Shield Bag Taping



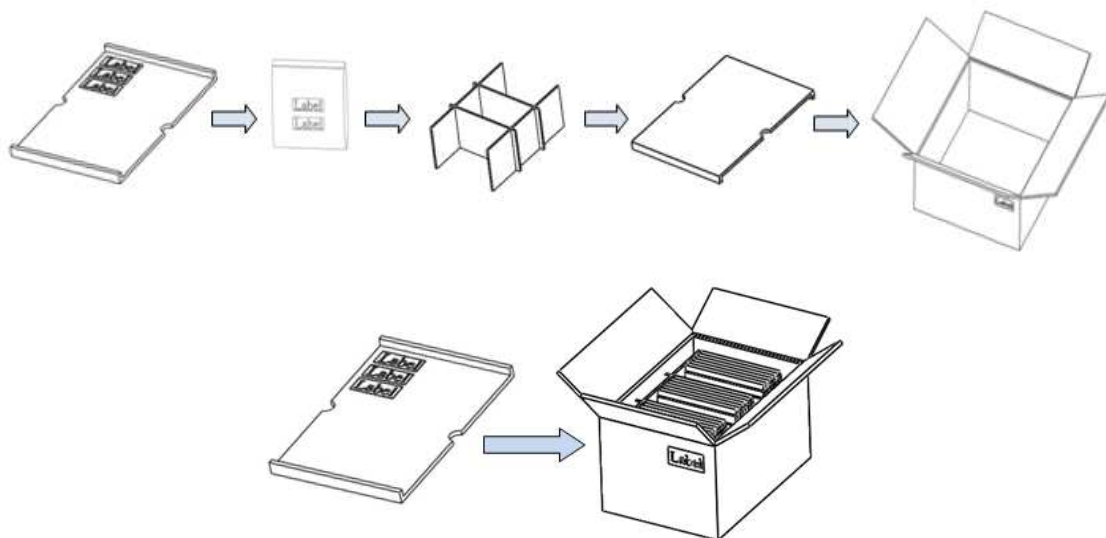
■ **Packing Box**

Type	Large Box		Medium Box		Small Box	
Dimension	541X511X276mm		385X303X260mm		283X235x70mm	
Maximum Reels	7"X12mm Reel	64/R	7"X12mm Reel	21/R	7"X12mm Reel	4/R
Minimum Reels	7"X12mm Reel	32/R	7"X12mm Reel	9/R	7"X12mm Reel	1/R

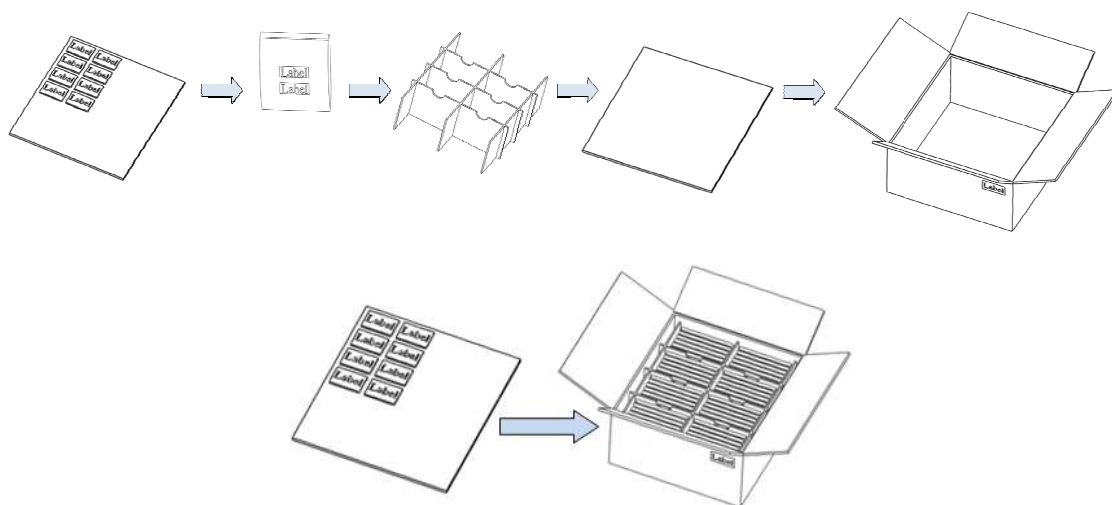
■ **Small Box**



■ **Medium Box**



■ **Large Box**



## Precautions

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### ■ Safety Precautions

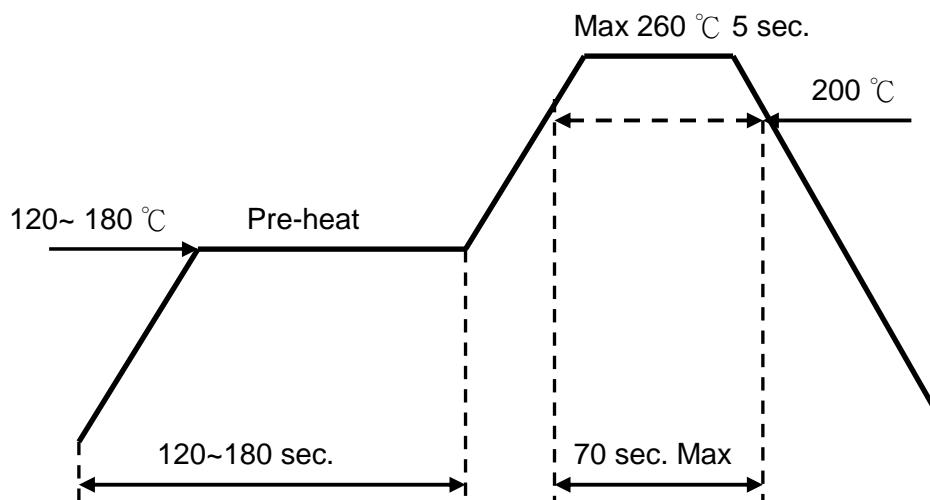
- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

### ■ Storage

- Before opening the package, the LEDs should storage under 30°C, 60% RH.
- After opening the package bag, the LEDs should be keep under 30°C, 60% RH. Recommend to use within 168hrs. If unused LEDs remain, suggest to store into moisture proof bag or original package bag with moisture absorbent material such as silica gel. Reseal well is necessary.
- If the product exceeded the storage period or the moisture absorbent material faded away, baking treatment should be done by following conditions.  
Bake condition: 60°C, 12hours (One time only).

### ■ Soldering Notice and Conditions

- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:  
Hand soldering: 350 °C max , 3 sec. max.  
Reflow soldering: Pre-heat 180 °C max , 180 sec. max.  
Peak 260 °C max , 5 sec. max.
- Reflow temperature profile as below: (lead-free solder)



- When soldering, don't put stress on the LEDs
- After LEDs have been soldered, strongly recommend not to repair to keep the LEDs performance.

### ■ Static Electricity

- LED package is extremely sensitive to static electricity. It's recommended that anti-electrostatic glove and wrist band is necessary when handling the LEDs. All devices are also be grounded properly as well.
- Protection devices design should be considered in the LED driving circuit.

### ■ Cleaning

- If washing is required, recommend to use alcohol as a solvent.
- Recommend to avoid cleaning the LEDs by ultrasonic. If necessary, pre-test the LED is necessary to confirm whether any damage occur after the process.



## Revision History

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Date	Contents	Writer	Approved
2014.12.22	New version	Rock Yen	Berris Huang
2015.02.12	5step CIE modify	Rock Yen	Berris Huang
2015.04.10	3step CIE modify	Rock Yen	Berris Huang
2015.10.13	Tolunce modify	Rock Yen	Berris Huang
2016.6.1	Reel size modification	Louis Chou	Berris Huang
2016.9.5	ERP binning updated	Louis Chou	Berris Huang

## *Smart Lighting* *Amazing Life*

Lextar Electronics Corp. is the leading LED (Light Emitting Diode) maker integrating upper stream epitaxial, middle stream chip, and downstream package, SMT and LED lighting applications. Founded in May, 2008, Lextar is a subsidiary of AU Optronics, the leading TFT-LCD and solar PV manufacturer. Lextar's product applications include lighting and LCD backlight. Lextar's manufacturing sites include Hsinchu and Chunan in Taiwan, and Suzhou in China.

The company turnover in 2012 is 340 million USD.