No. 3, Gongye E. 3rd Road, Hsinchu Science Park, Hsinchu 30075, Taiwan
TEL：886-3-565-8800

Lextar

PC50XA1 VY

Product Specification

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Approval Sheet

PC50XA1 VY
Product Specification

RoHS

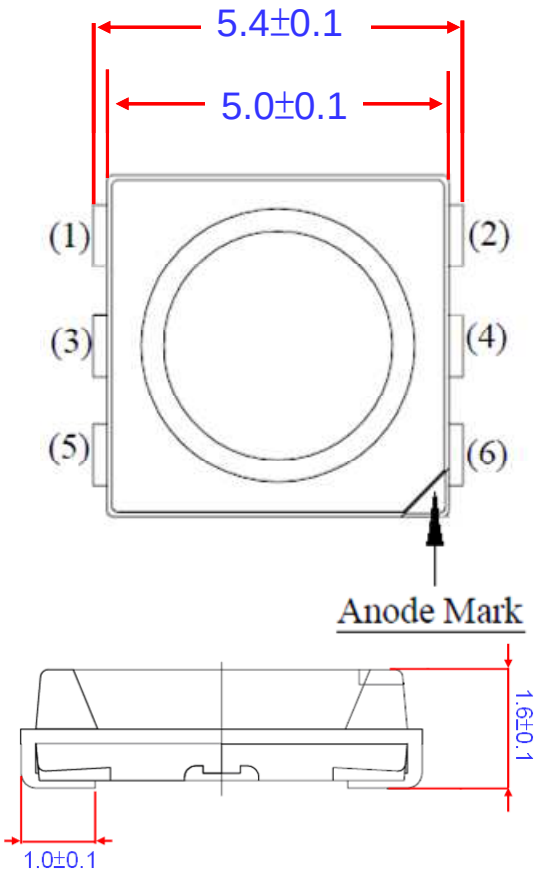
Product	White SMD LED
Part Number	PC50XA1 VY
Issue Date	2013/12/20

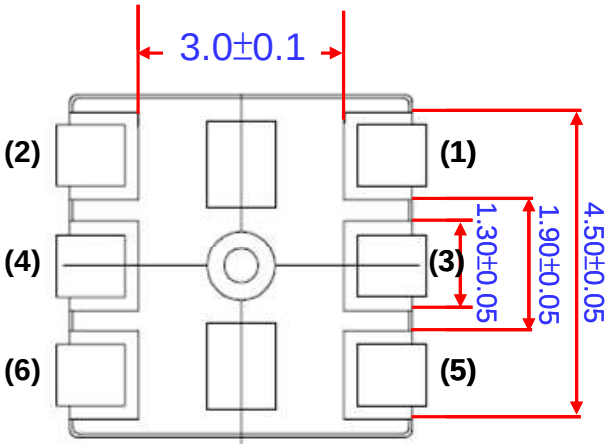
Feature

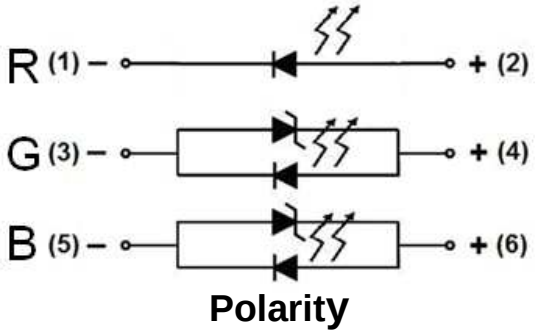
- ✓ Top view SMD LED (5.4 x 5.0 x 1.6 mm)
- ✓ GaN-based LEDs (Blue/Green), AlGaInP LED (Red)
- ✓ Lead frame package with individual 6 pins
- ✓ Wide view angle (X : 120°/ Y : 120°)
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 200 / 500 or 1,000 pcs/reel

Applications

- ✓ General lighting
- ✓ Decoration lighting
- ✓ Indicator



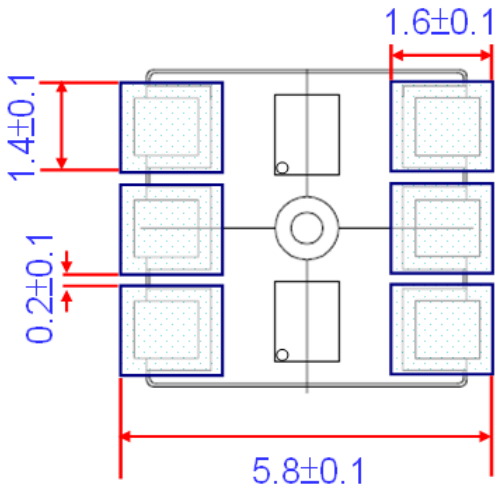




Polarity

Unit: mm, Tolerance: ±0.1mm

Recommended Soldering Pad



Absolute Maximum Ratings

Parameter	Symbol	value	Unit
Forward Current	IF	30	mA/1chip
Pulse Forward Current*	IFP	100	mA/1chip
Reverse Voltage	VR	5	V/1chip
Power Dissipation	PD	280	mW
Operating Temperature	Topr	-30~ +85	oC
Storage Temperature	Tstg	-40~ +100	oC
Soldering Temperature	Tsld	Reflow Soldering : 260℃ for 10secs Hand Soldering : 350℃ for 3secs	

(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

（**Zener Diodes**）　　（**Ta=25°C**）

Parameter	Symbol	Condition	Min.	Typ.	Max	Unit
Reverse leakage current	Ir	Vr=5V			0.5	μA
Zener voltage	Vz	Iz=5mA	5.8		6.8	V
Forward voltage	Vf	IF=20mA			1.2	V

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Bin code definition

R			G			B		
WD Rank	Iv Rank	VF Rank	WD Rank	Iv Rank	VF Rank	WD Rank	Iv Rank	VF Rank
R1	M0	B5	G3	P0	E7	B2	L0	E9

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol			Condition	Min.	Max.	Unit
Forward Voltage*	A7	Vf	R	IF = 20mA	1.7	1.9	V
	B5				1.9	2.1	
	B7				2.1	2.3	
	D5		G		2.8	3.0	
	E7				3.0	3.2	
	E9				3.2	3.4	
	D5		B		2.8	3.0	
	E7				3.0	3.2	
	E9				3.2	3.4	
Luminous Intensity**	M0	Iv	R	IF = 20mA	300	400	mcd
	N0				400	530	
	O0				530	700	
	P0				700	930	
	P0		G		700	930	
	Q0				930	1200	
	R0				1200	1500	
	S0				1500	2000	
	L0		B		230	300	
	M0				300	400	
	N0				400	530	
Dominant Wavelength***	R1	Wd	R	IF = 20mA	615	620	nm
	R2				620	625	
	R3				625	630	
	G3		G		515	520	
	G4				520	525	
	G5				525	530	
	B2		B		455	460	
	B3				460	465	
	B4				465	470	

* Forward voltage is measured with an accuracy of ±0.1V.

** Luminous intensity is measured with an accuracy of ±10%

*** Dominant wavelength is measured with an accuracy of ±2nm.

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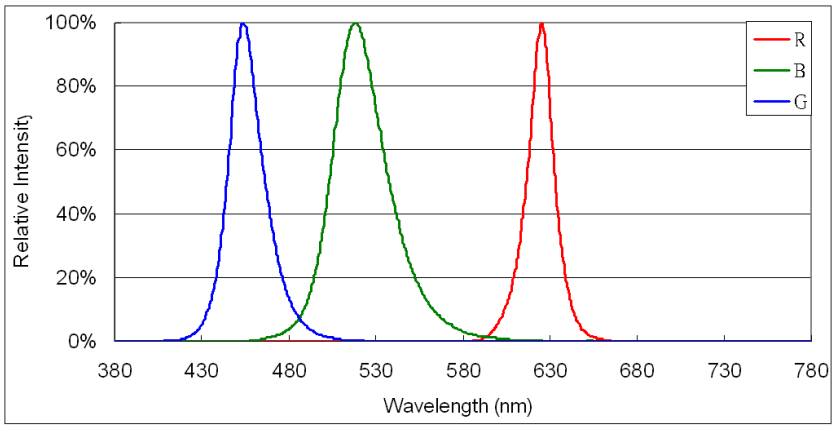
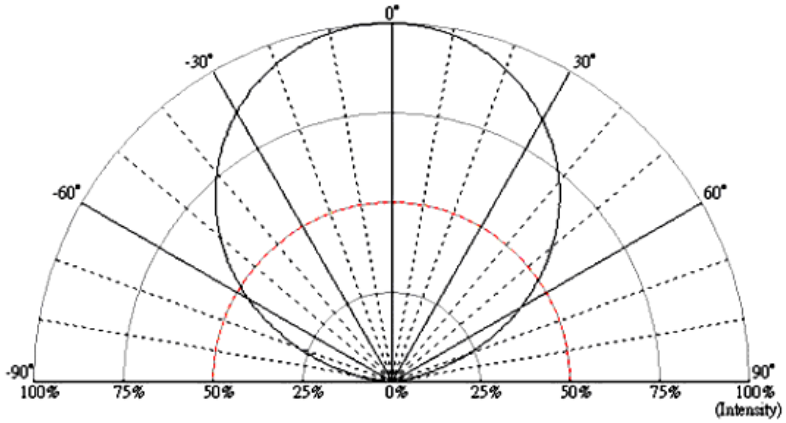
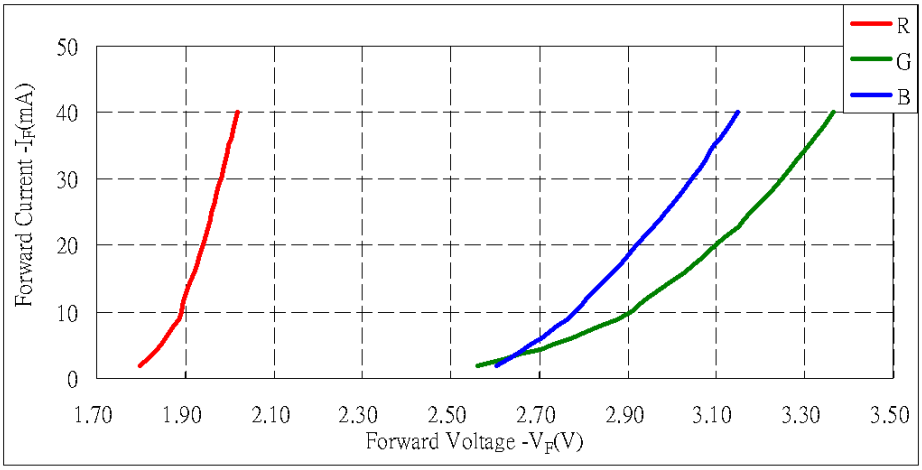
Spectrum



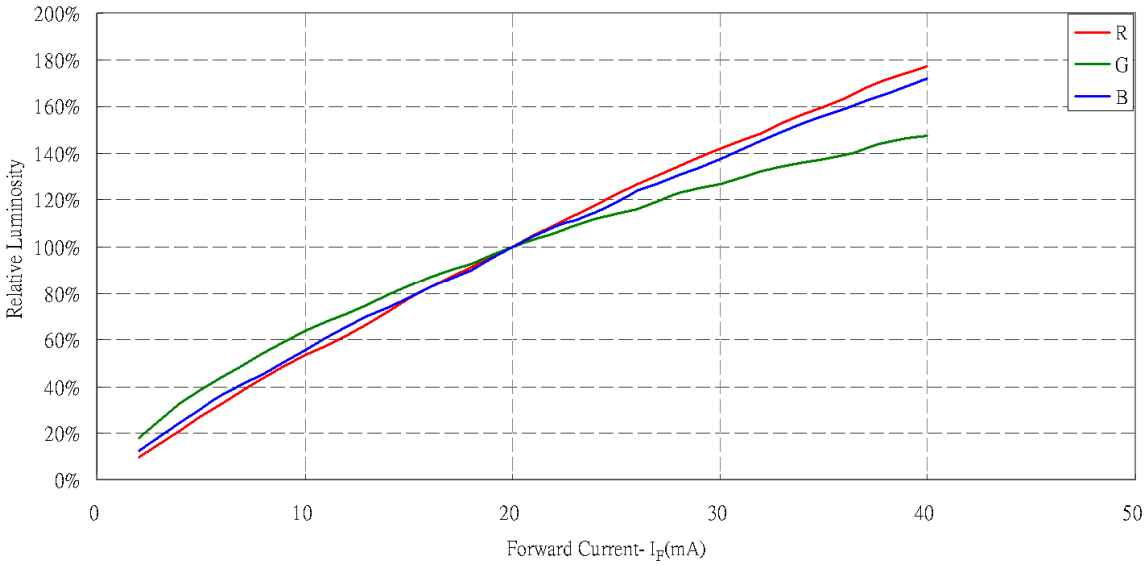
Radiation Pattern



Forward Voltage vs. Forward Current



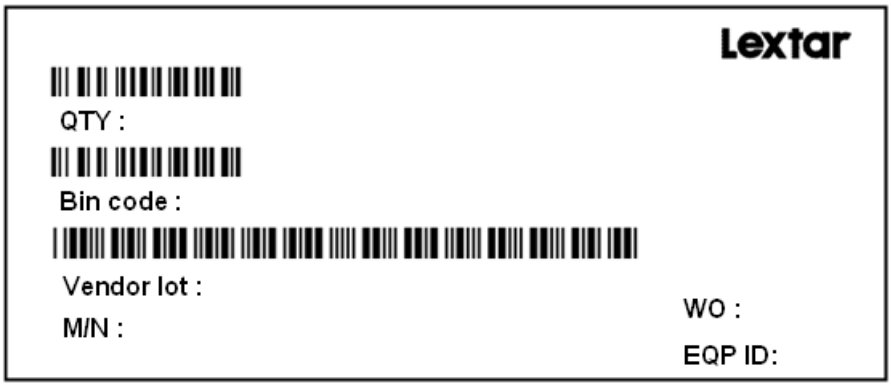
Forward Current vs. Relative Luminosity



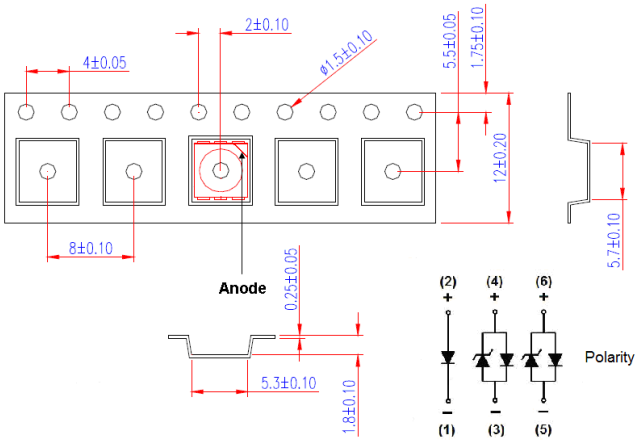
Reliability test

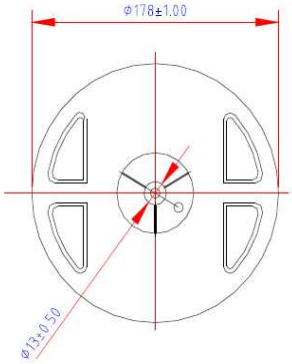
Test item	Test condition	Notes	Equipment	# of damaged
Resistance to soldering heat	Tsld=260℃ ,10sec	2 times	Reflow	0/18
Thermal shock	0℃~100℃	20 cycles	T/S chamber	0/18
	15 sec~15 sec			
Temperature cycle	-40℃~25℃~100℃~25℃	200 cycles	T/C chamber	0/18
	20min~5min~20min~5min			
High temperature storage	Ta=100℃	1000 hrs	Oven	0/18
Steady state operating life condition 1	Ta=25℃,IF=60mA	1000 hrs	Burn in sys.	0/18
Steady state operating life condition 2	Ta=25℃,IF=80mA	1000 hrs	Burn in sys.	0/18
Steady state operating life of high temperature	Ta=85℃,IF=60mA	1000 hrs	Oven	0/18
Steady state operating life of high humidity heat	Ta=60℃,RH=90%,IF=60mA	1000 hrs	T/H chamber	0/18

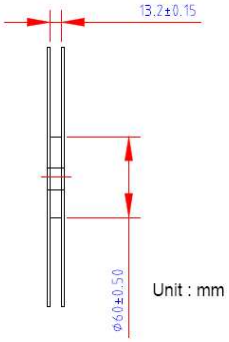
Label

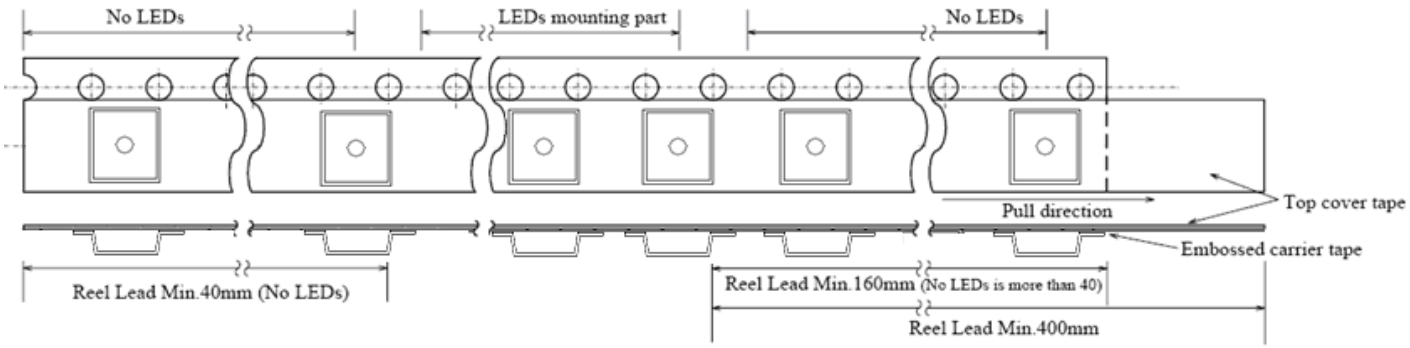


Carrier Taping









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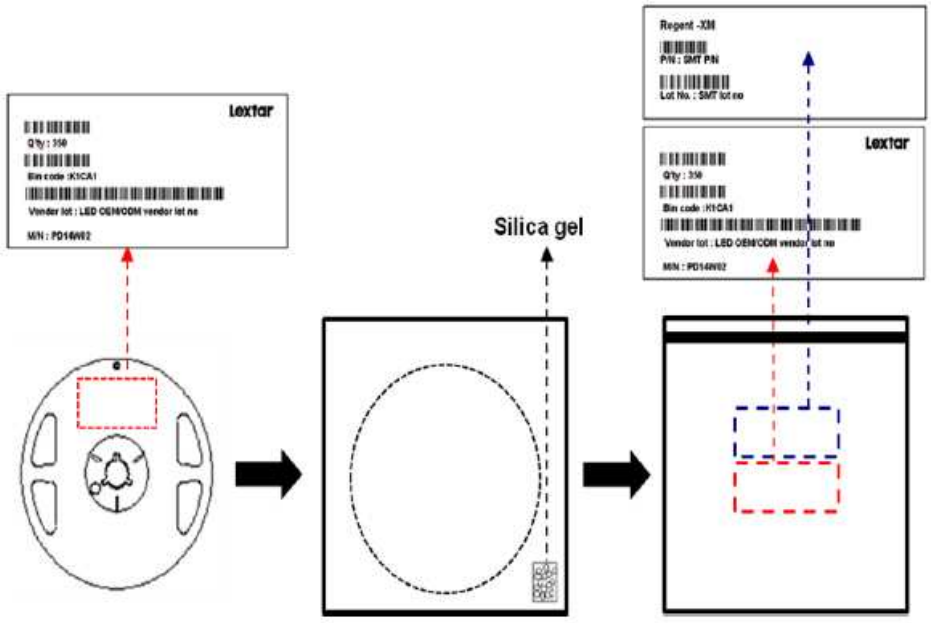
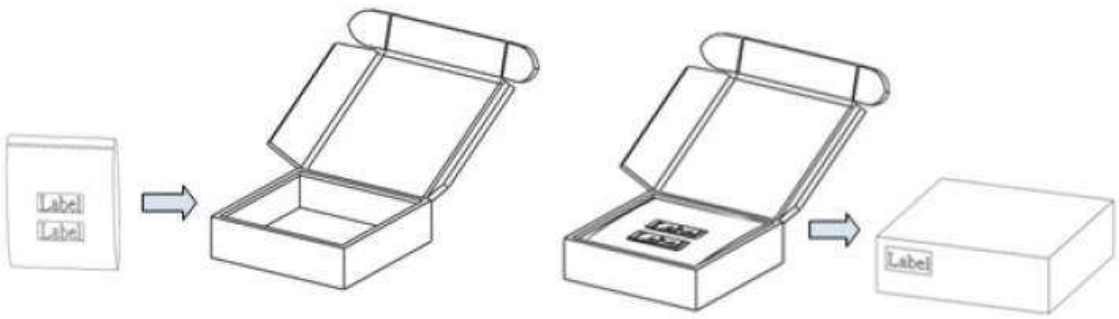
Shield Bag Taping



Packing Box

Type	Large Box		Medium Box		Small Box	
Dimension	541X511X276mm		385X303X260mm		283X235x70mm	
Maximum Reels	7"X12mm Reel	80/R	7"X12mm Reel	30/R	7"X12mm Reel	6/R
Minimum Reels	7"X12mm Reel	40/R	7"X12mm Reel	21/R	7"X12mm Reel	1/R

Small Box



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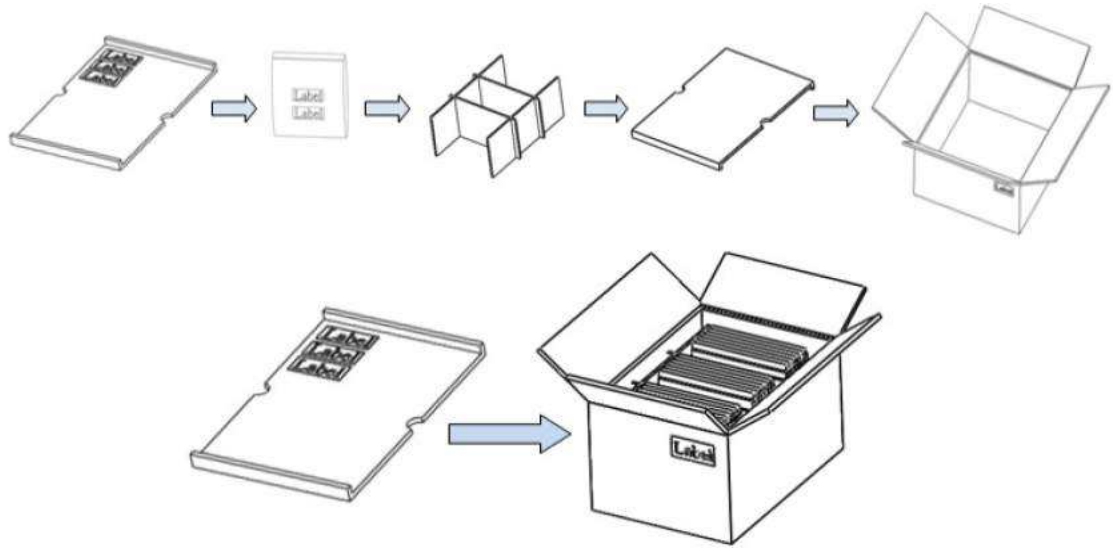
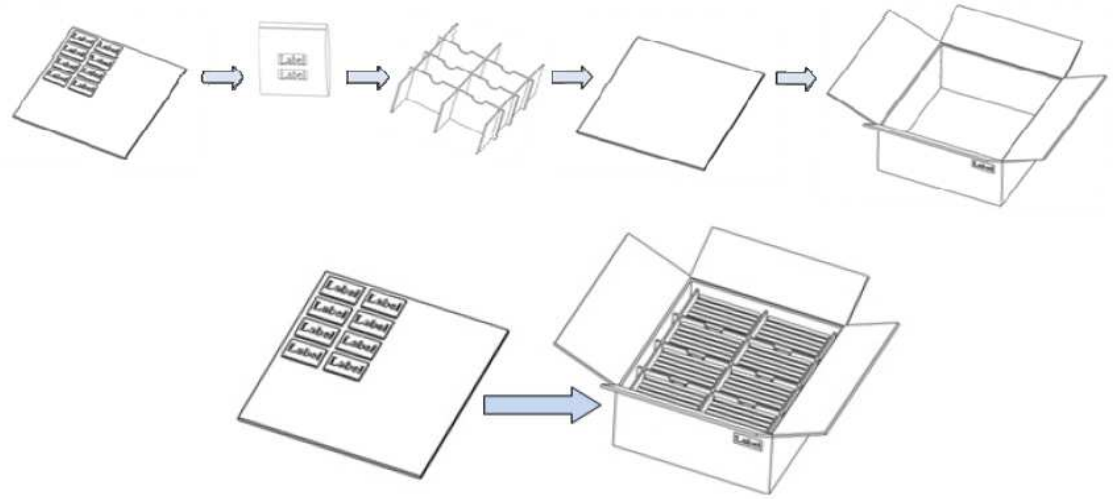
Medium Box



Large Box



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℃, 60% RH. Recommend to use within one year.
- After opening the package bag, the LEDs should be keep under 30℃, 60% RH. Recommend to use within 2days. 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℃, 12hours (One time only).

Soldering Notice and Conditions

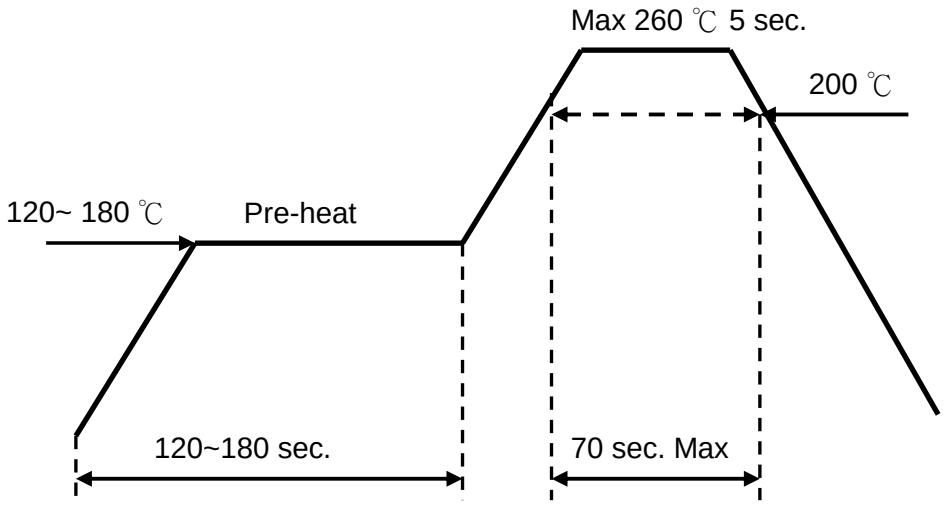
- When soldering LEDs,
- Do not solder/reflow the same LED over two times.
- Recommend soldering conditions:

Hand soldering: 350 ℃ max , 3 sec. max.

Reflow soldering: Pre-heat 180 ℃ max , 180 sec. max.

Peak 260 ℃ 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.

Date	Contents	Writer	Approved
2013.12.20	New version	Blanc Tung	

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 2010 is 266 million USD.