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

Lextar

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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

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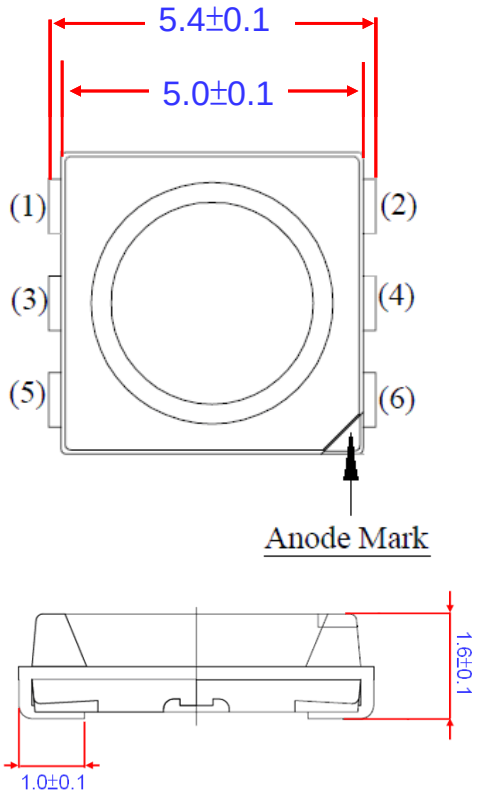
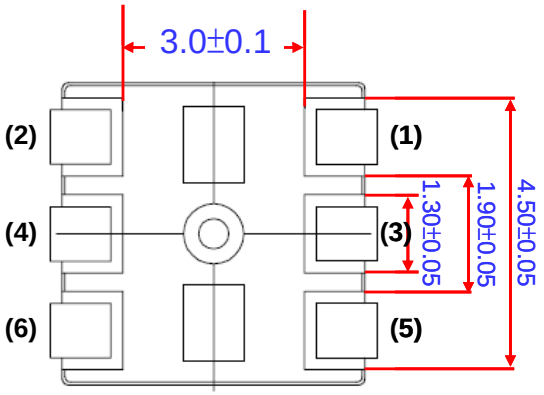
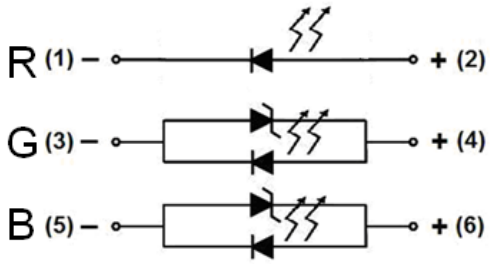
Outline Dimension

PC50XA1 VY
Product Specification



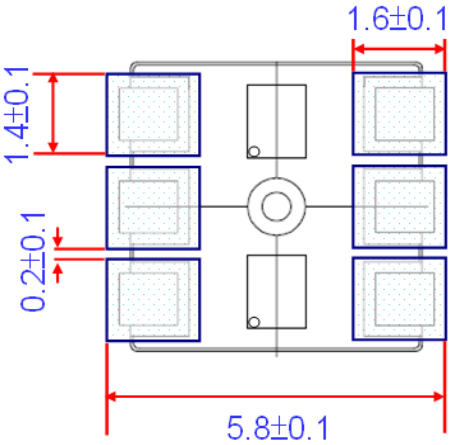




Polarity

Unit: mm, Tolerance: ±0.1mm

Recommended Soldering Pad



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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	℃
Storage Temperature	Tstg	-40~ +100	℃
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

(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	Iv	VF	WD	Iv	VF	WD	Iv	VF
R1	M0	B5	G3	P0	E7	B2	L0	E9

Electro-Optical Characteristics (Ta=25℃)

Parameter	Condition	Bincode		Min.	Max.	Unit
Forward Voltage* Vf	IF = 20mA	R	A7	1.7	1.9	V
			B5	1.9	2.1	
			B7	2.1	2.3	
		G	D5	2.8	3.0	
			E7	3.0	3.2	
			E9	3.2	3.4	
			EB	3.4	3.6	
		B	D5	2.8	3.0	
			E7	3.0	3.2	
			E9	3.2	3.4	
Luminous Intensity** Iv	IF = 20mA	R	M0	300	400	mcd
			N0	400	530	
			O0	530	700	
			P0	700	930	
		G	P0	700	930	
			Q0	930	1200	
			R0	1200	1500	
			S0	1500	2000	
		B	J0	180	230	
			K0	230	300	
			M0	300	400	
			N0	400	530	

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Parameter	Condition	Bincode		Min.	Max.	Unit
Dominant Wavelength*** Wd	IF = 20mA	R	R1	615	620	nm
			R2	620	625	
			R3	625	630	
		G	G3	515	520	
			G4	520	525	
			G5	525	530	
		B	B0	445	450	
			B1	450	455	
			B2	455	460	

* 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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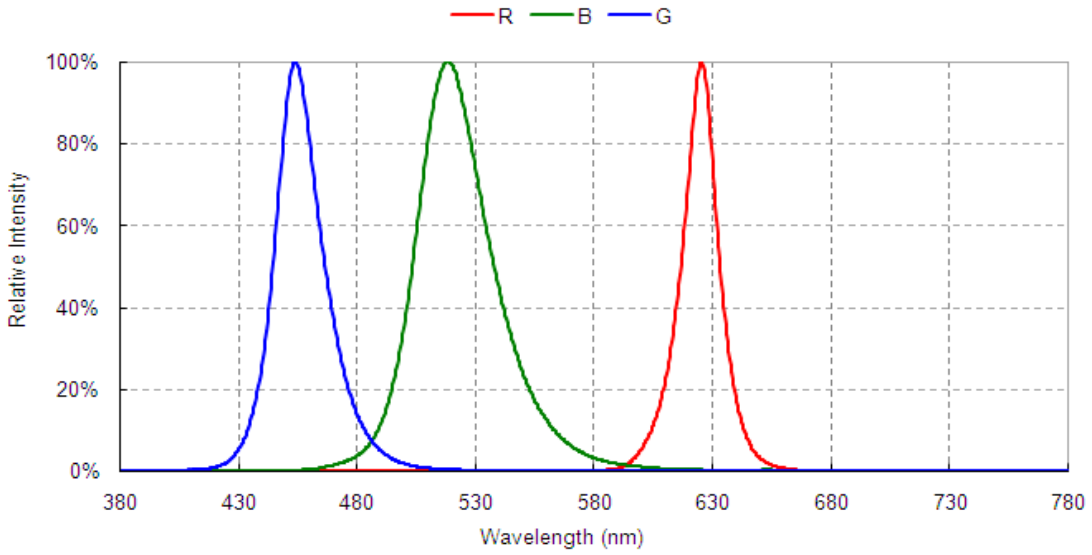
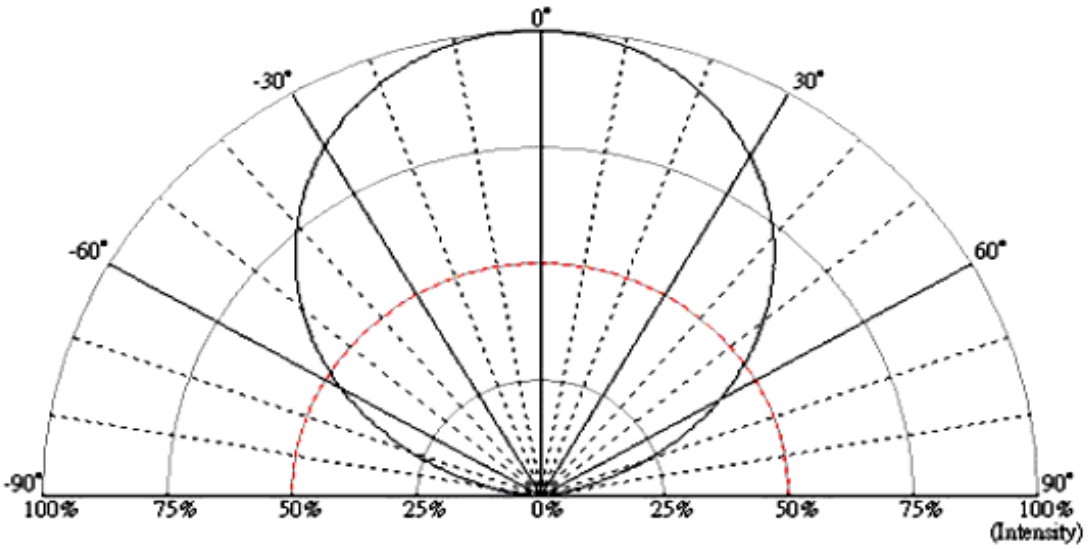
Spectrum



Radiation Pattern



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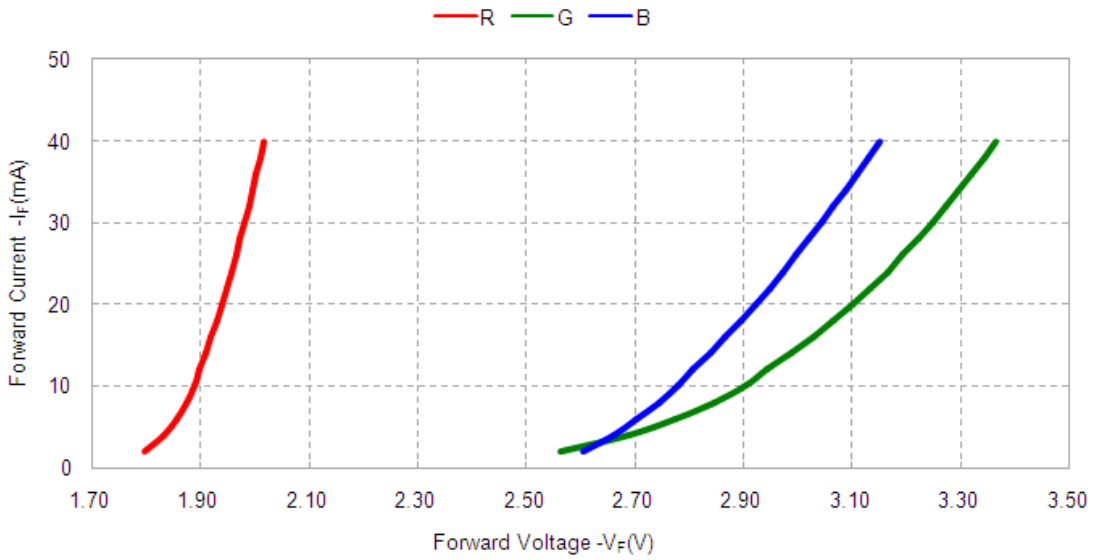
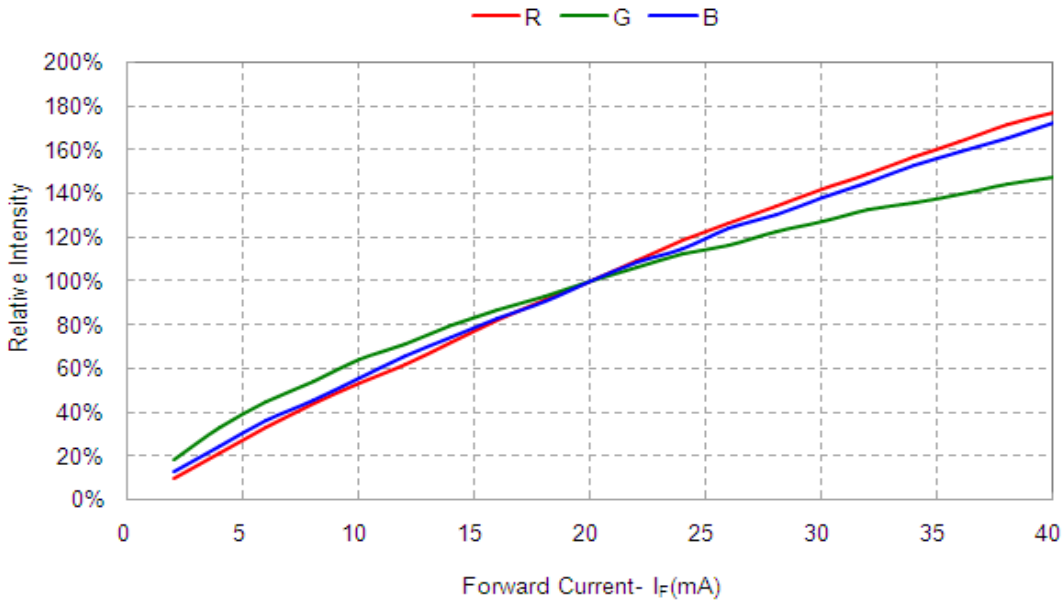
Forward Voltage vs. Forward Current



Forward Current vs. Relative Luminosity



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Reliability test

Test item	Test Condition	Time/Cycle	# of damaged
Resistance to soldering heat	Tsld=260℃ ,10sec	2 times	0/18
Thermal shock	0℃~100℃	20 cycles	0/18
	15 sec~15 sec		
Temperature cycle	-40℃~25℃~100℃~25℃ 20min~5min~20min~5min	200 cycles	0/18
High temperature storage	Ta=100℃	1000 hrs	0/18
Steady state operating life 1	Ta=25℃,IF=60mA	1000 hrs	0/18
Steady state operating life 2	Ta=25℃,IF=80mA	1000 hrs	0/18
Steady state operating life of high temperature	Ta=85℃,IF=60mA	1000 hrs	0/18
Steady state operating life of high humidity heat	Ta=60℃,RH=90%,IF=60mA	1000 hrs	0/18

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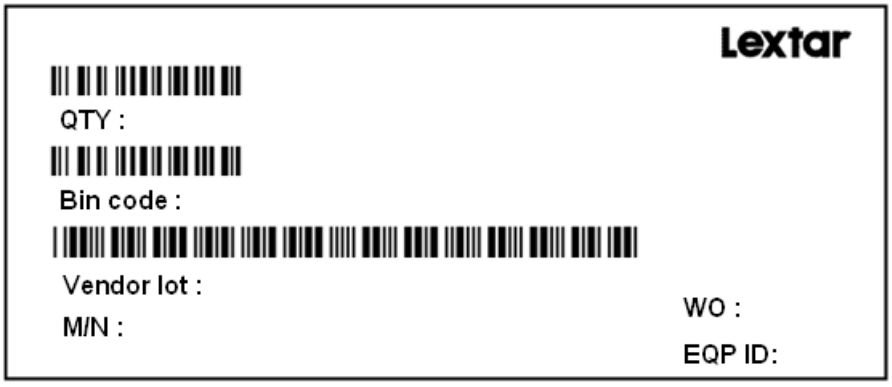
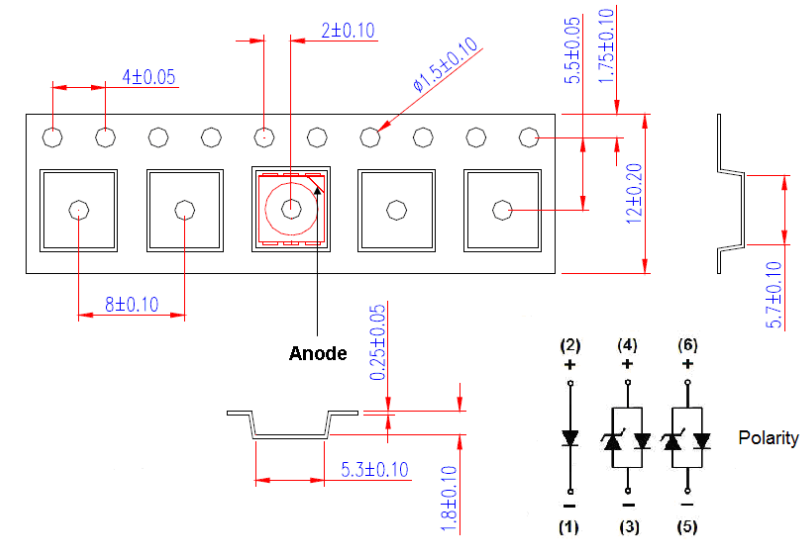
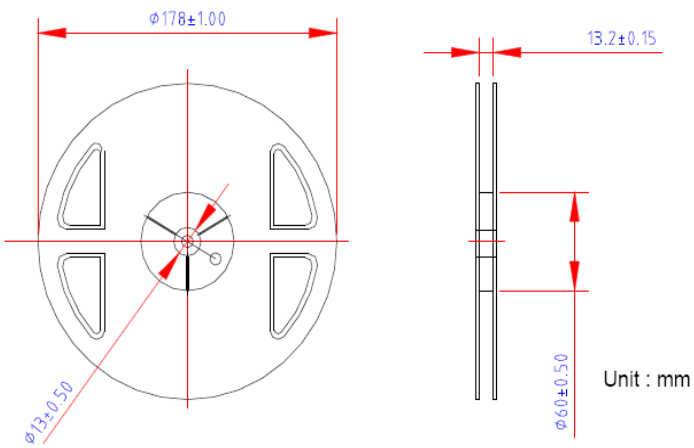
Label



Carrier Taping





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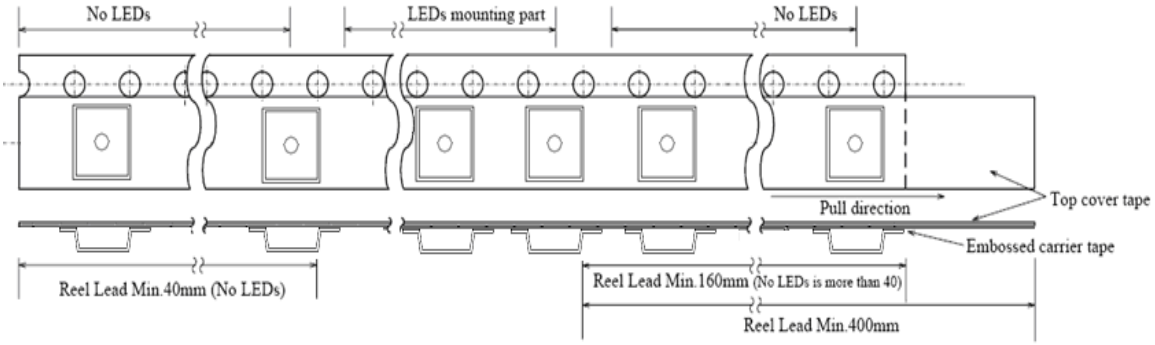
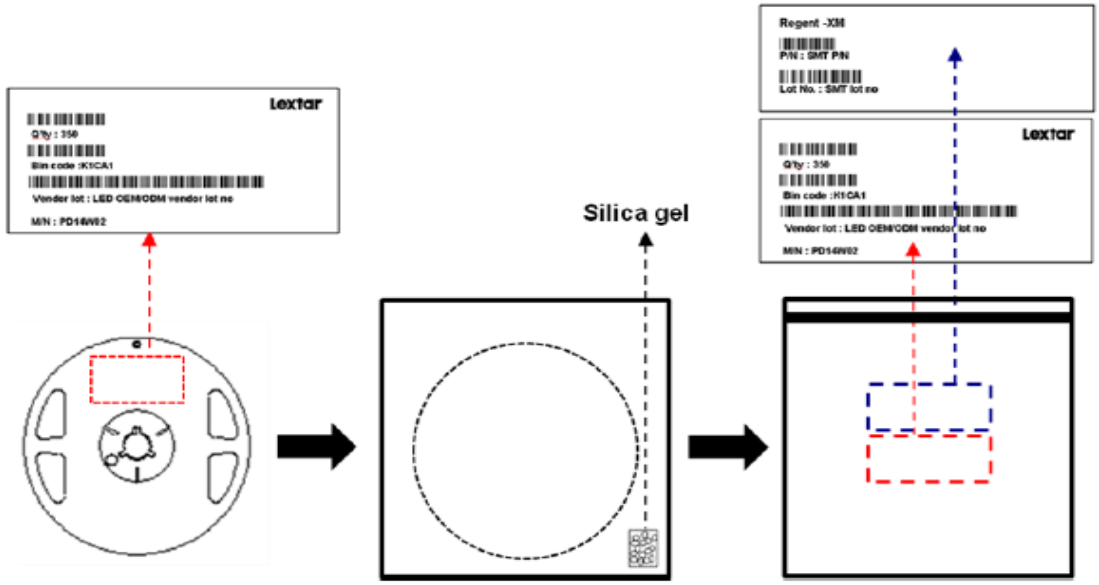


Shield Bag Taping



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

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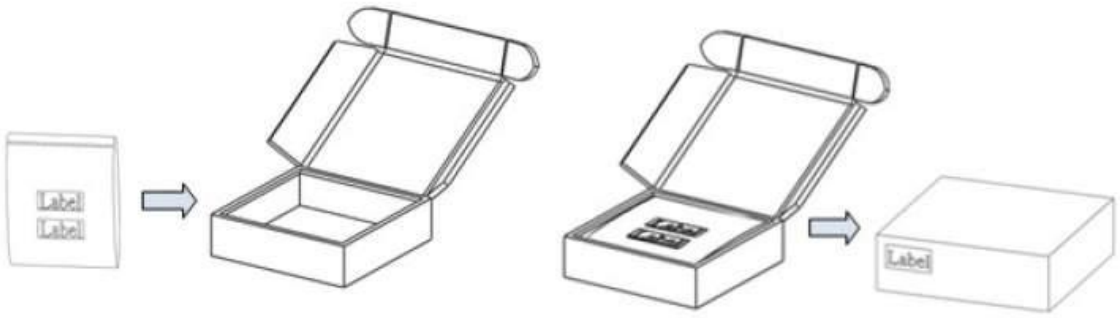
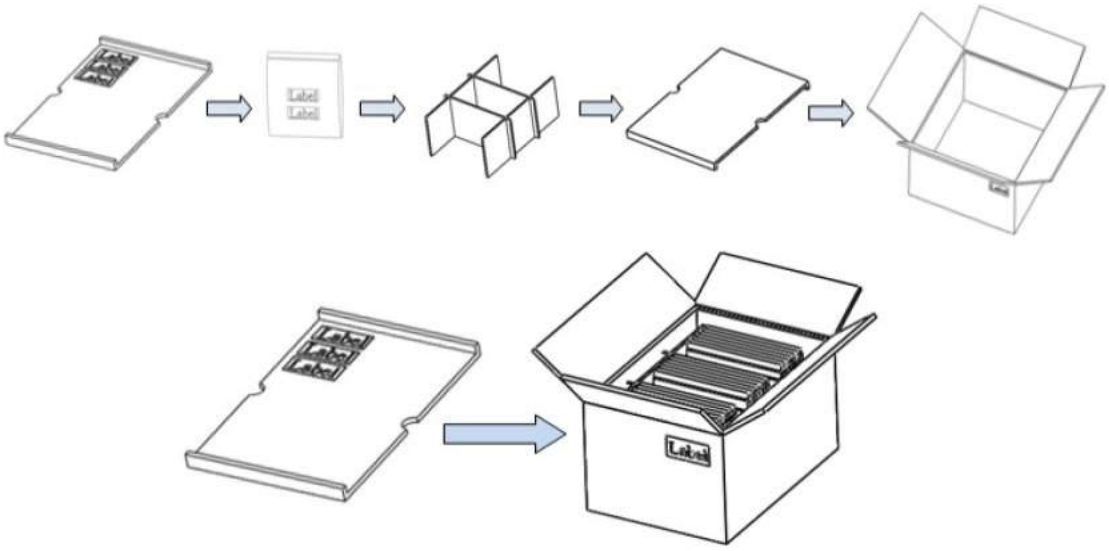
Small Box



Large Box



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Precautions

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).

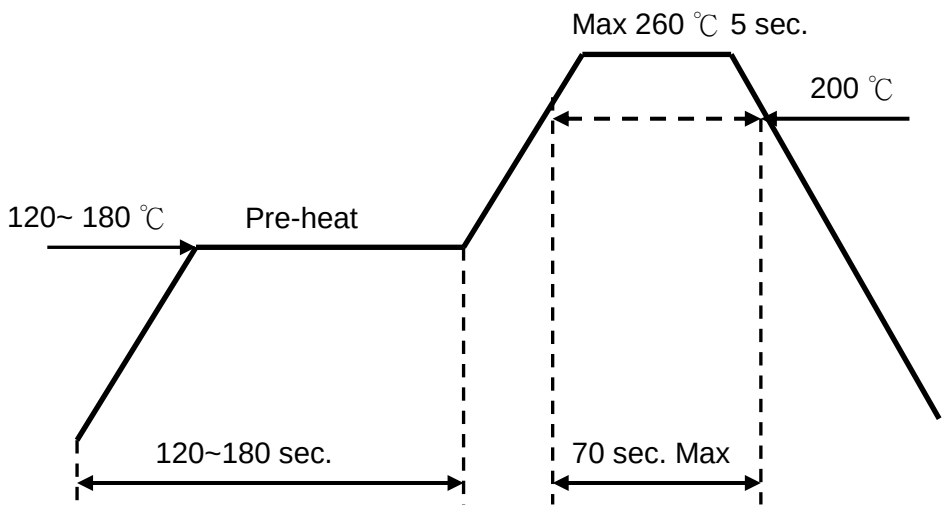
Soldering Notice and Conditions

- 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.

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Revision History

Date	Contents	Writer
2013.12.20	New version	Blanc Tung
2016.06.22	**Update Electro-Optical Characteristics**	Kenis Hung
2016.10.27	Add Wavelength	Kenis Hung

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.