



PC50X02 V0
Product Specification (Preliminary)

Approval Sheet

PC50X02 V0

Product Specification

RoHS

Product	RGBWW SMD LED
Part Number	PC50X02 V0
Issue Date	2018/05/17



■ Feature

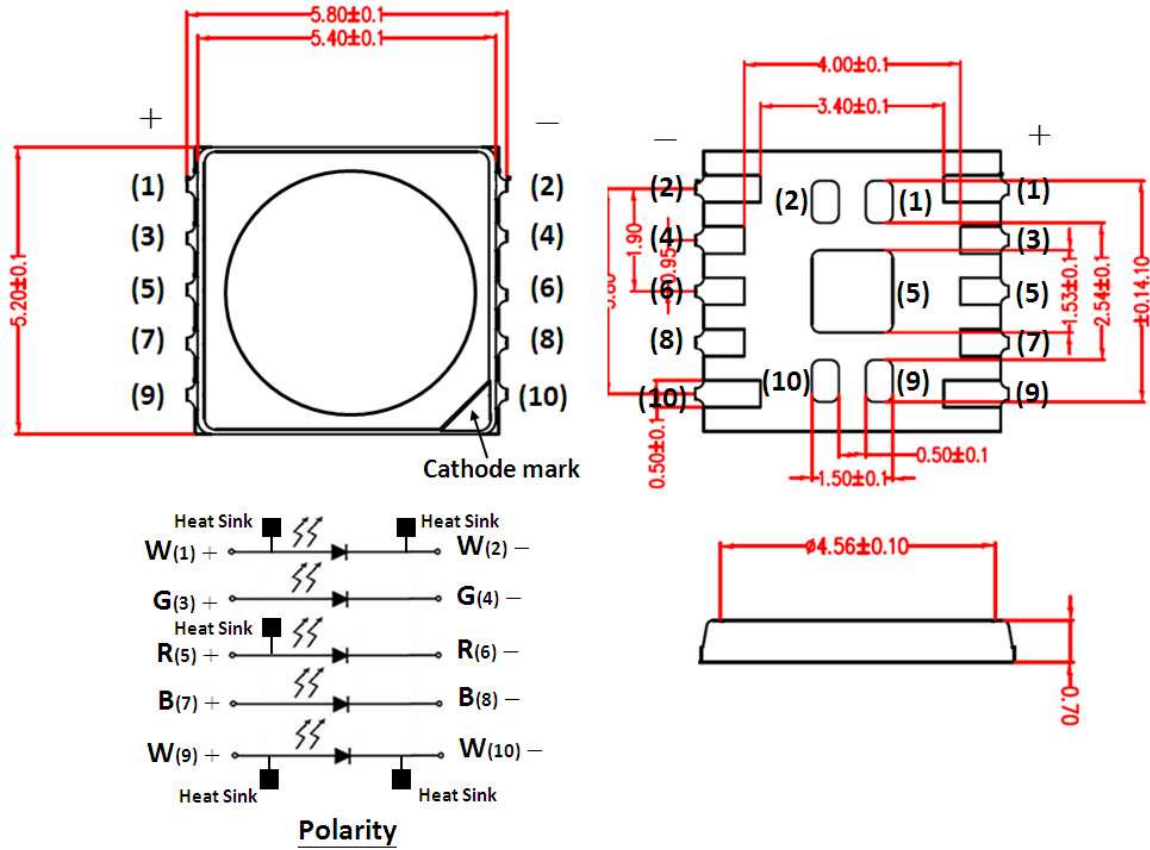
- ✓ Top view SMD LED (5.8 x 5.2 x 0.7 mm)
- ✓ GaN-based LEDs (Blue/Green), AlGaInP LED (Red)
- ✓ Lead frame package with individual 10 pins
- ✓ Wide view angle (X : 120°/ Y : 120°)
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 200 / 500 or 1,000 pcs/reel

■ Applications

- ✓ General lighting
- ✓ Decoration lighting
- ✓ Indicator

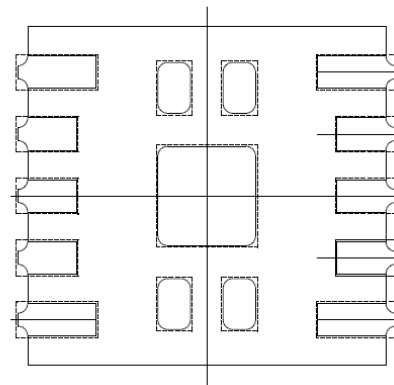
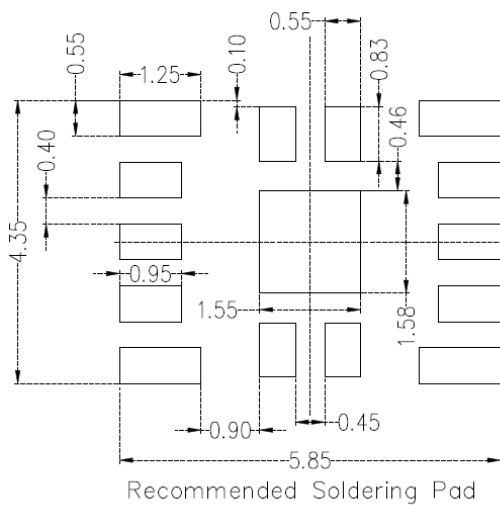
Outline Dimension

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Unit: mm, Tolerance: ± 0.1 mm

Recommended Soldering Pad



BACK SIDE

Ordering Code

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P C 5 0 X 0 2 0 - A 2 7 6 5 0 0 0 0 0 0 0 - 0 0 0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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Item	Pos.	Code	Spec	
Model Name	1-8	PC50X020	PC50X02 V0	
CCT1	9,10	27	27 = 2700K	
		40	40 = 4000K	
		65	65 = 6500K	
CCT2	11,12	27	27 = 2700K	
		40	40 = 4000K	
		65	65 = 6500K	
CIE Bin Group ⁽¹⁾	13,14	00	RGB type	
IV Bin Group	15,16, 17,18	00	RGB type	
Vf Bin Group	19,20	00	RGB type	
Kitting Rules	CIE ⁽¹⁾	21	0	No requirements.
	IV	22	0	No requirements.
	Vf	23	0	No requirements.

■ **Standard Ordering Code:**

CCT	Ordering Code ⁽¹⁾	CIE Bin Group	IV Bin Group	Vf Bin Group
2700K&2700K	PC50X020-A27270000000-000	Full Bin	Full Bin	Full Bin
4000K&4000K	PC50X020-A40400000000-000	Full Bin	Full Bin	Full Bin
6500K&6500K	PC50X020-A65650000000-000	Full Bin	Full Bin	Full Bin
2700K&6500K	PC50X020-A27650000000-000	Full Bin	Full Bin	Full Bin

(1) Only under an agreement between customer and Lextar Electronics, Ordering codes not in “Standard Ordering Code Definitions” can be supplied.

Performance

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Electro-Optical Characteristics (IF=100mA)

Parameter	Symbol	Color	Min	Max	Unit
Luminous Intensity	IV	R	10	16	lm
		G	20	26	
		B	3	7	
		W1	20	30	
		W2	20	30	
Dominant Wavelength	Wd	R	620	630	nm
		G	522.5	535	
		B	457	467	
CCT	K	W1	2700	6500	K
		W2	2700	6500	
Forward Voltage	VF	R	1.8	2.6	V
		G	2.9	3.4	
		B	2.8	3.3	
		W1	2.9	3.4	
		W2	2.9	3.4	

(Ta=25°C)

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	IF	125	mA/1chip
Pulse Forward Current*	IFP	160	mA/1chip
Reverse Voltage	VR	5	V/1chip
Operating Temperature	Topr	-30~ +85	°C
Storage Temperature	Tstg	-40~ +100	°C
Soldering Temperature	Tsld	Reflow Soldering : 260°C for 10secs Hand Soldering : 350°C for 3secs	

- (1) Proper current rating must be observed to maintain junction temperature below maximum
- (2) IFP Condition: Duty 1/10, Pulse within 10msec

Binning

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Bin code definition

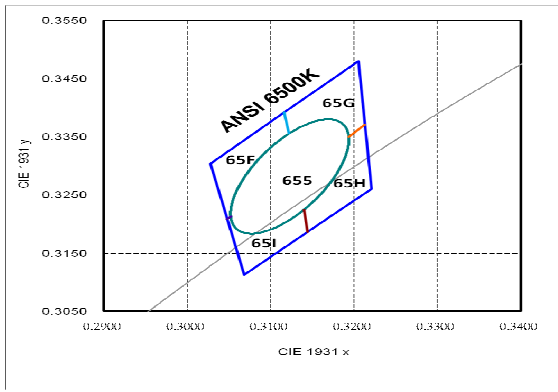
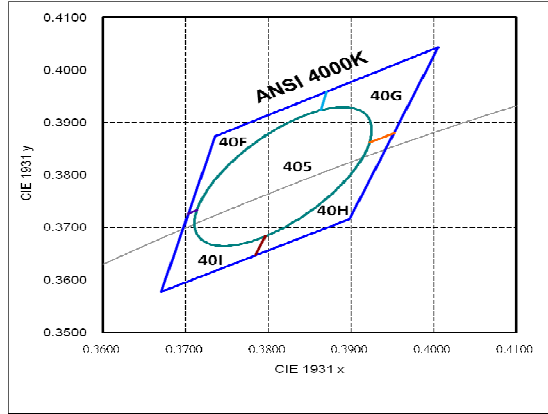
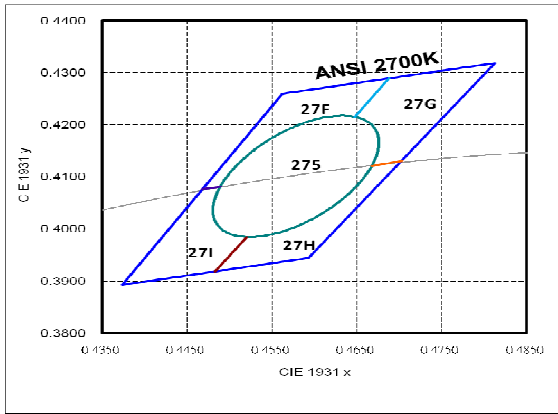
W1			G			R			B			W2		
CCT	CIE		WD	Iv	VF	WD	Iv	VF	WD	Iv	VF	CCT	CIE	
2	7	5	G	3	Y	R	2	X	B	1	Z	6	5	5

Condition	Color	Symbol	Rank	Min.	Max.	Unit
IF = 100mA	R	WD	R	620	630	nm
		Iv	2	10	20	lm
		VF	X	1.8	2.6	V
	G	WD	G	525	535	nm
		Iv	3	20	30	lm
		VF	Y	2.9	3.4	V
	B	WD	B	457	467	nm
		Iv	1	3	10	lm
		VF	Z	2.8	3.3	V

Note:

1. Forward voltage is measured with an accuracy of $\pm 0.1V$.
2. Luminous intensity is measured with an accuracy of $\pm 10\%$
3. Dominant wavelength is measured with an accuracy of $\pm 2nm$.

■ Chromaticity Coordinates



CCT	Steps	Target Center Point (CIE _x , CIE _y)		A(Major Axis)	B(Minor Axis)	Ellipse Rotation Angle
2700K	5	0.4578	0.4101	0.0135	0.007	53.7
4000K	5	0.3818	0.3797	0.01565	0.0067	53.72
6500K	5	0.3123	0.3282	0.01115	0.00475	58.57

	CIE-X	CIE-Y
2700K	0.4813	0.4319
	0.4562	0.4260
	0.4373	0.3893
	0.4593	0.3944

	CIE-X	CIE-Y
4000K	0.4006	0.4044
	0.3736	0.3874
	0.3670	0.3578
	0.3898	0.3716

	CIE-X	CIE-Y
6500K	0.3205	0.3481
	0.3028	0.3304
	0.3068	0.3113
	0.3221	0.3261

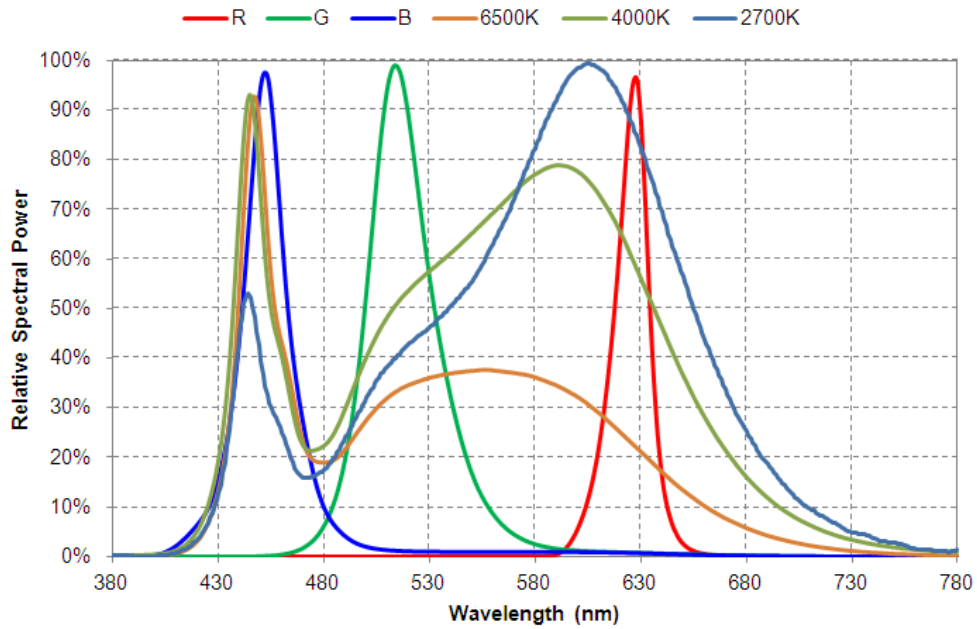
Note:

- (1) Correlated color temperature is derived from the CIE 1931 chromaticity diagram
- (2) CIE measurement tolerance is ± 0.005

Characteristics

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Spectrum



Radiation Pattern

TBD

Forward Voltage vs. Forward Current

TBD

Forward Current vs. Relative Luminosity

TBD

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 _{sld} max.=260°C 10sec	1 cycle 3 Times
Thermal shock	-40°C/20minr ~5minr ~ 100°C/20min	100 Cycles

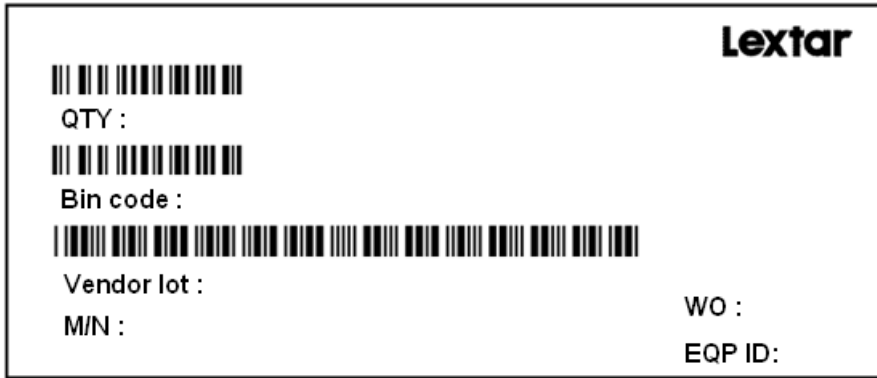
Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	V _f	100mA	$\Delta V_f < 10 \%$
Luminous Flux	I _v	100mA	$\Delta I_v < 30 \%$

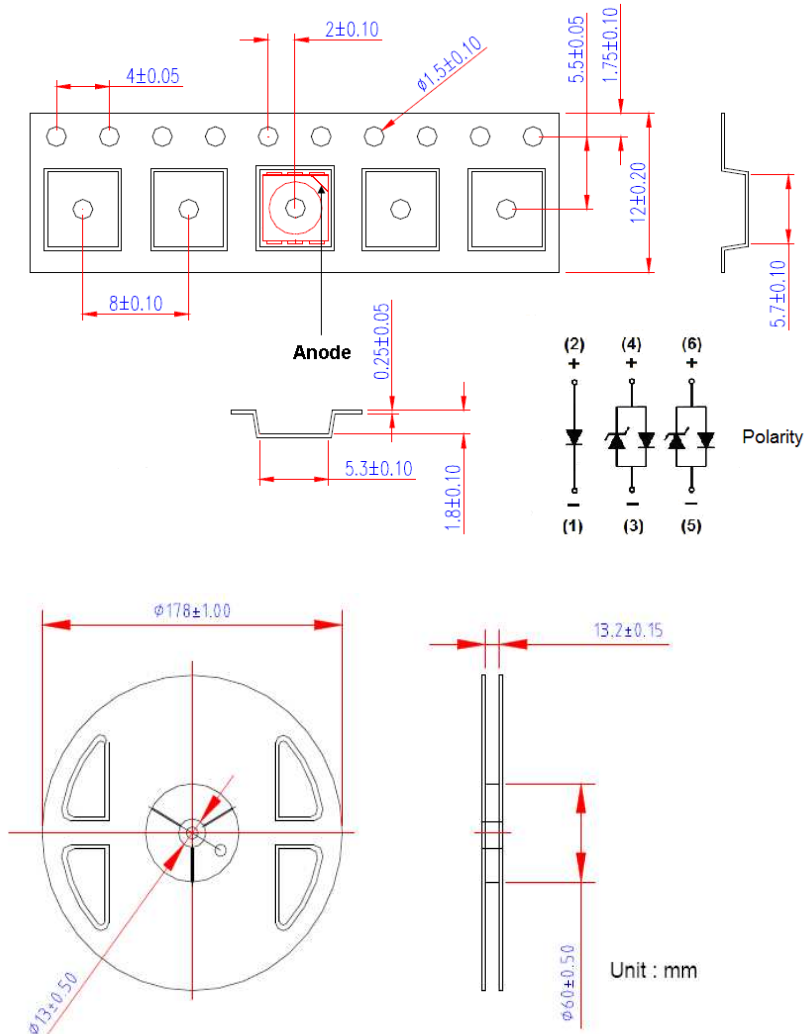
Packaging

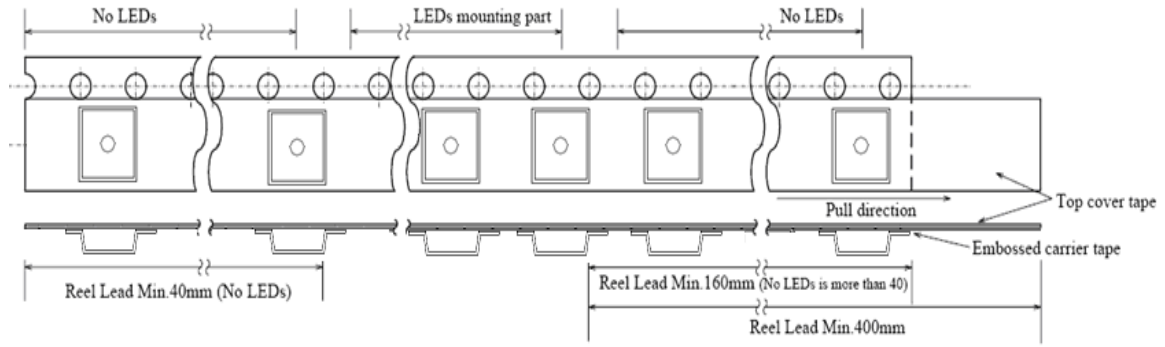
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Label

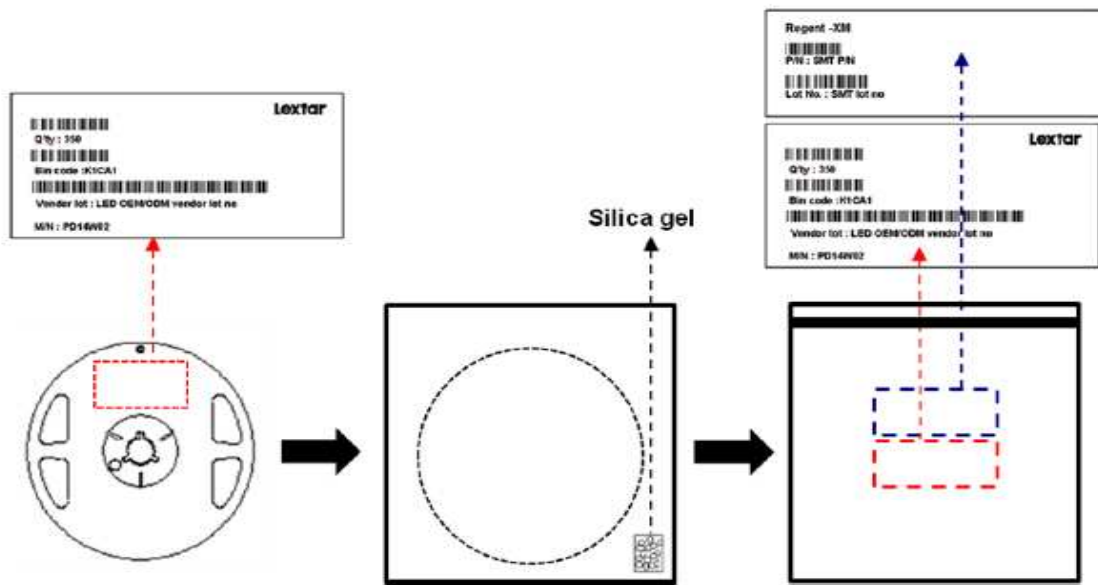


Carrier Taping





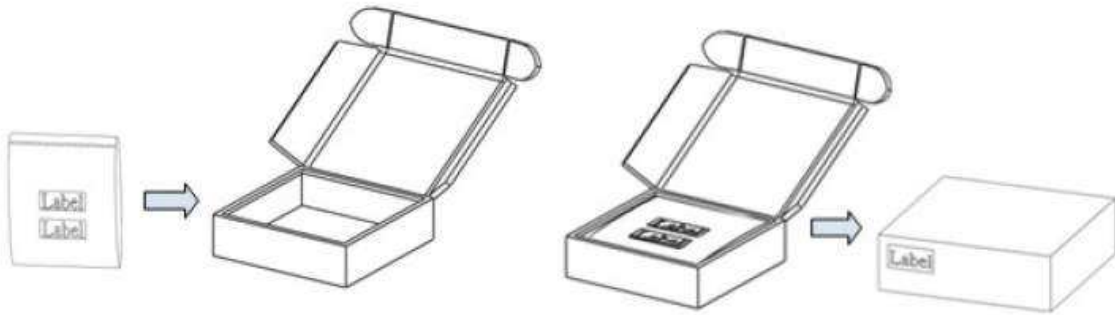
Shield Bag Taping



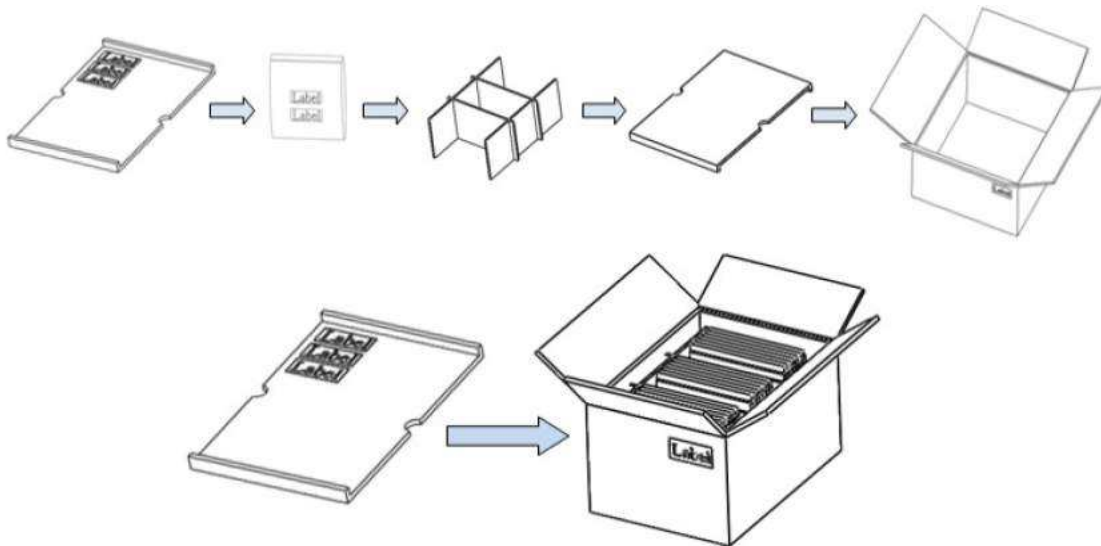
Packing Box

Type	Large Box		Medium Box		Small Box	
Dimension	541X511X276mm		385X303X260mm		283X235x70mm	
Maximum Reels	7"X12mm Reel	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**



■ **Large Box**



Precautions

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■ Safety Precautions

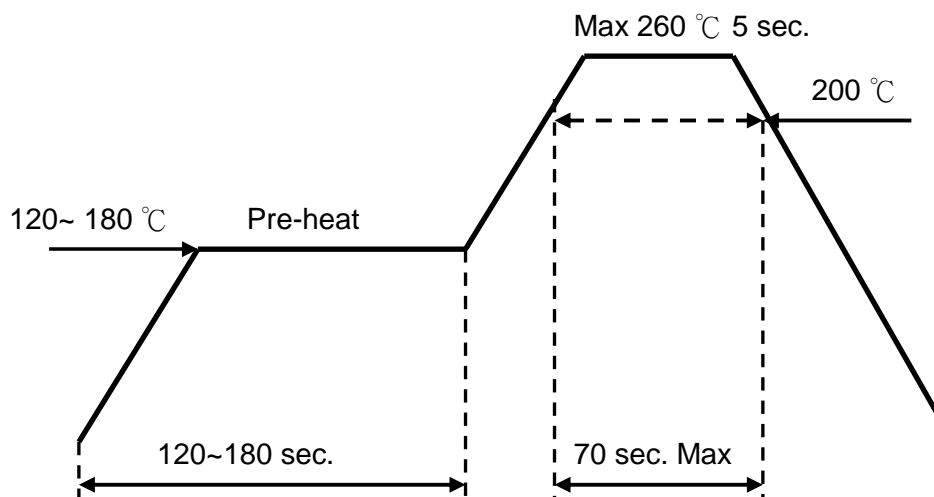
- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

■ Storage

- Before opening the package, the LEDs should storage under 30°C, 60% RH. Recommend to use within one year.
- After opening the package bag, the LEDs should be keep under 30°C, 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°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
2018.05.17	New version	Josh Yang
2018.05.22	Modify Led Vf	Josh Yang

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.