



**PC50X01 V0**  
**Product Specification (Preliminary)**

## Approval Sheet

PC50X01 V0  
Product Specification

RoHS

<b>Product</b>	RGB SMD LED
<b>Part Number</b>	PC50X01 V0
<b>Issue Date</b>	2018/05/18

### ■ Feature

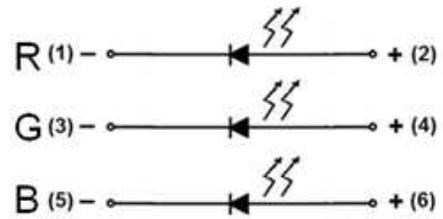
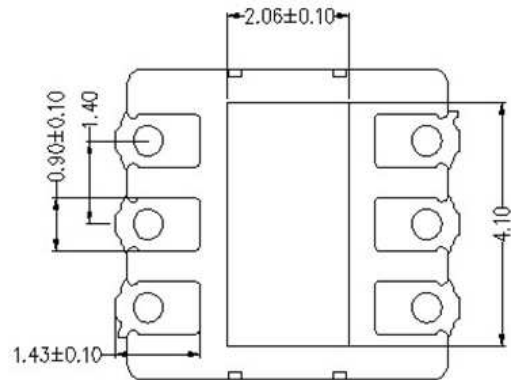
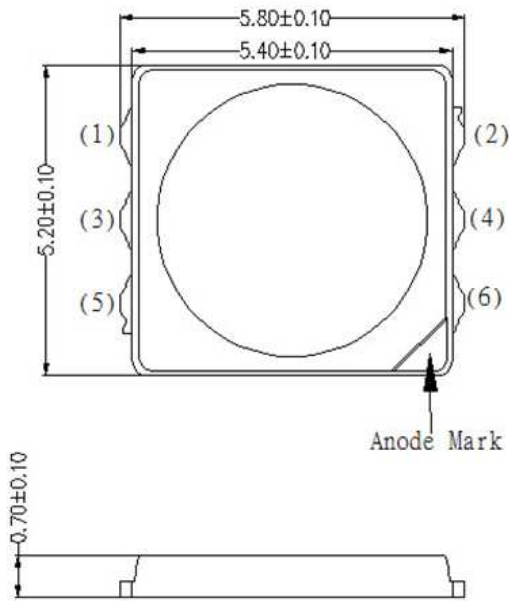
- ✓ Top view SMD LED (5.8 x 5.2 x 0.7 mm )
- ✓ GaN-based LEDs (Blue/Green), AlGaInP LED (Red)
- ✓ Lead frame package with individual 6 pins
- ✓ Wide view angle ( X : 120°/ Y : 120°)
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 200 / 500 or 1,000 pcs/reel

### ■ Applications

- ✓ General lighting
- ✓ Decoration lighting
- ✓ Indicator

Outline Dimension

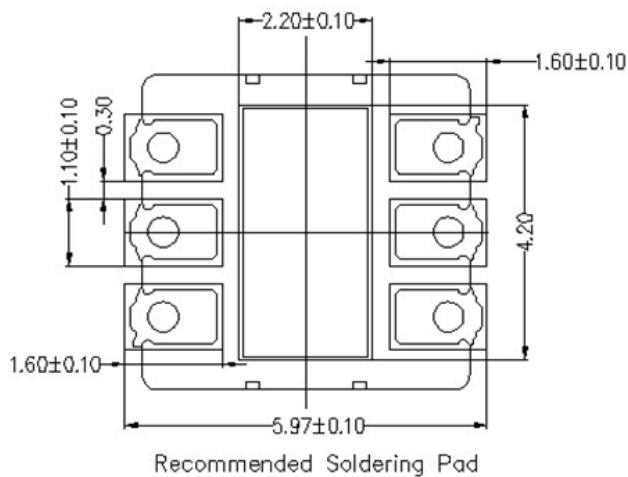
PC50X01 V0  
 Product Specification



**Polarity**

Unit: mm, Tolerance: ±0.1mm

■ Recommended Soldering Pad



## Ordering Code

PC50X01 V0  
 Product Specification

**P C 5 0 X 0 1 0 - 0 0 0 0 0 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
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Item	Pos.	Code	Spec	
Model Name	1-8	PC50X010	PC50X01 V0	
CIE Center Point	9	0	RGB type	
CCT	10,11	00	RGB type	
R9	12	0	RGB type	
CIE Bin Group <sup>(1)</sup>	13,14	00	RGB type	
IV Bin Group	15,16, 17,18	00	RGB type	
Vf Bin Group	19,20	00	RGB type	
Kitting	CIE <sup>(1)</sup>	21	0	No requirements.
Rules	IV	22	0	No requirements.
	Vf	23	0	No requirements.

### Standard Ordering Code:

CCT	Ordering Code <sup>(1)</sup>	CIE Bin Group	IV Bin Group	Vf Bin Group
Single Bin	PC50X010-000000000000-000	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

PC50X01 V0  
 Product Specification

■ Electro-Optical Characteristics (IF=100mA)

Parameter	Symbol	Color	Min	Max	Unit
Luminous Intensity	IV	R	10	16	lm
		G	20	26	
		B	3	7	
Dominant Wavelength	Wd	R	620	630	nm
		G	525	535	
		B	457	467	
Forward Voltage	VF	R	1.8	2.6	V
		G	2.9	3.4	
		B	2.8	3.3	

(Ta=25°C)

■ Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	IF	120	mA/1chip
Pulse Forward Current*	IFP	150	mA/1chip
Reverse Voltage	VR	5	V/1chip
Power Dissipation	PD	900	mW
Operating Temperature	Topr	-30~ +85	°C
Storage Temperature	Tstg	-40~ +130	°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**

PC50X01 V0  
 Product Specification

**Bin code definition**

R			G			B		
WD	Iv	VF	WD	Iv	VF	WD	Iv	VF
R	2	X	G	3	Y	B	1	Z

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

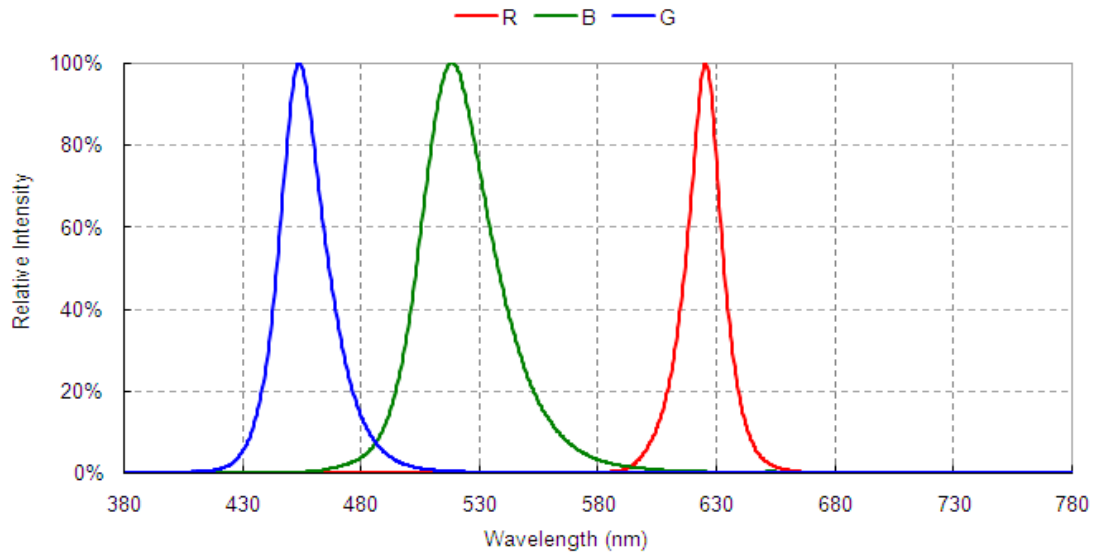
Note:

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  $\pm 2nm$ .

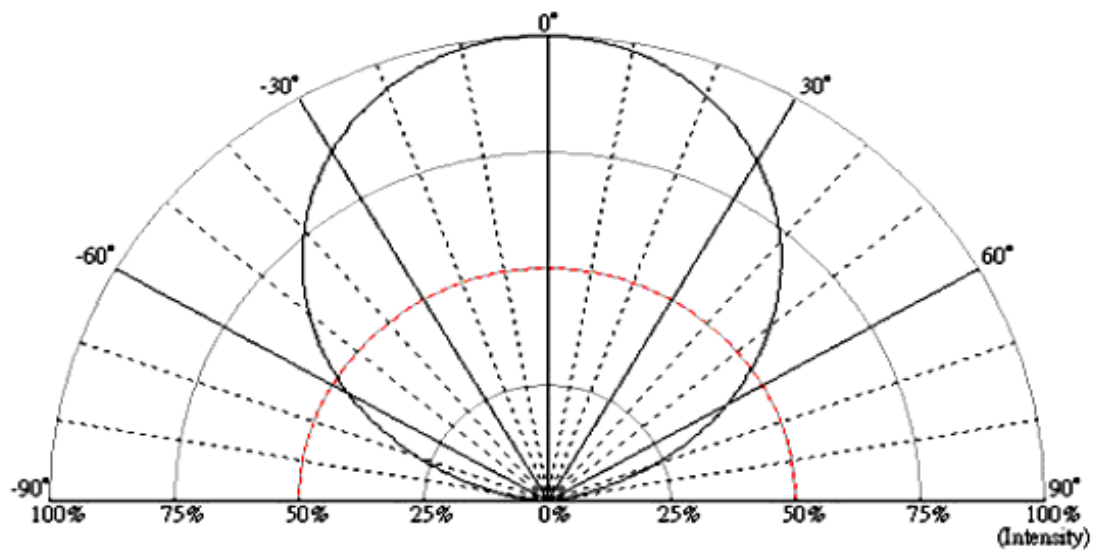
## Characteristics

PC50X01 V0  
Product Specification

### Spectrum



### Radiation Pattern



■ **Forward Voltage vs. Forward Current**

TBD

■ **Forward Current vs. Relative Luminosity**

TBD



**Reliability**

PC50X01 V0  
 Product Specification

**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>	100mA	$\Delta V_f < 10 \%$
Luminous Flux	I <sub>v</sub>	100mA	$\Delta I_v < 30 \%$

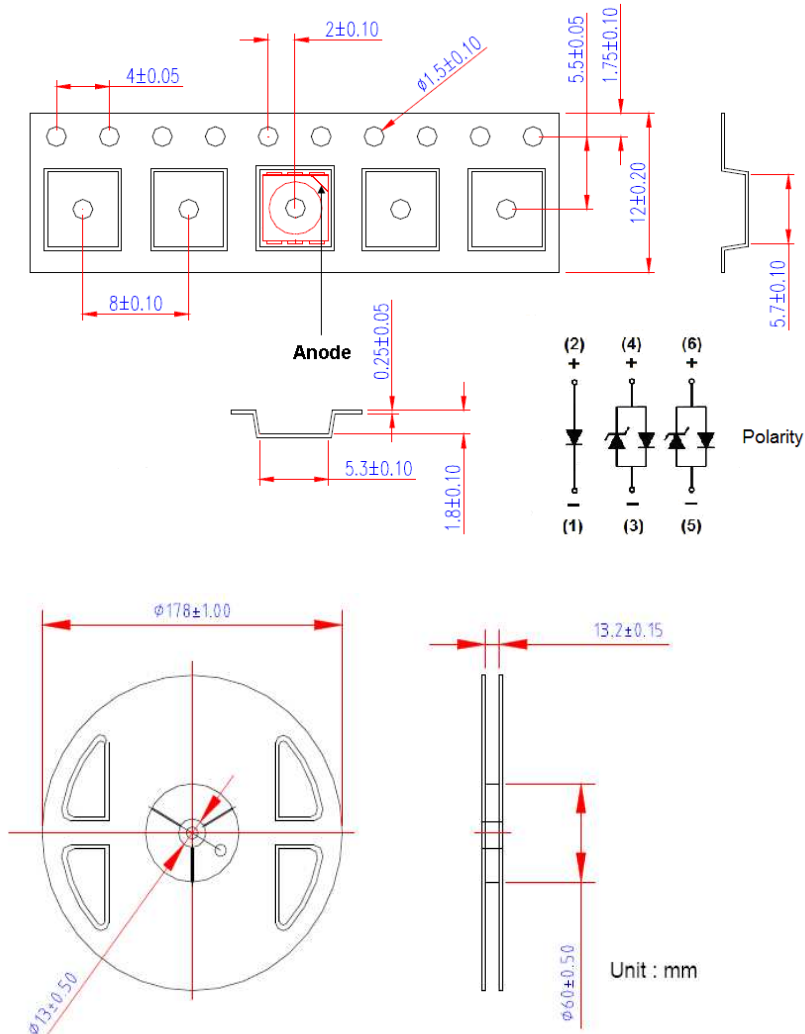
Packaging

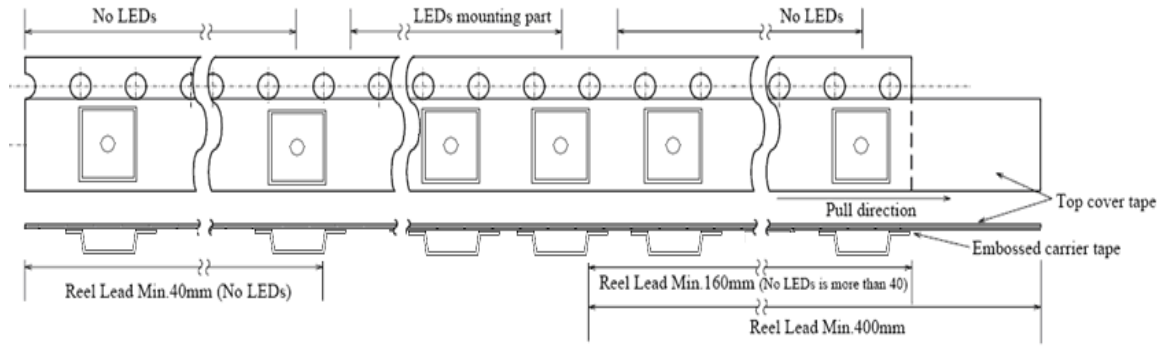
PC50X01 V0  
 Product Specification

Label

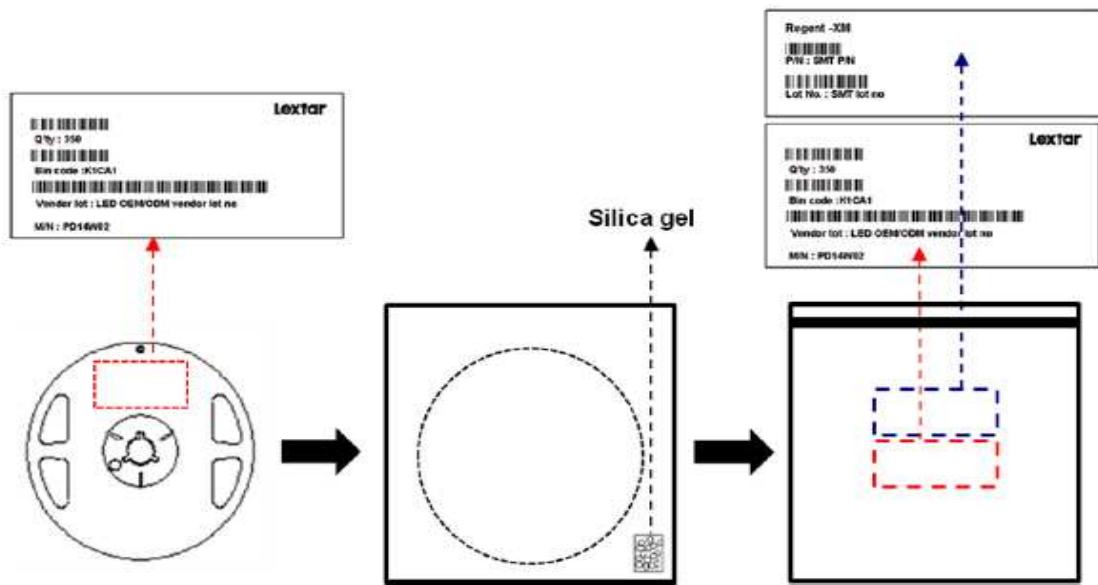


Carrier Taping





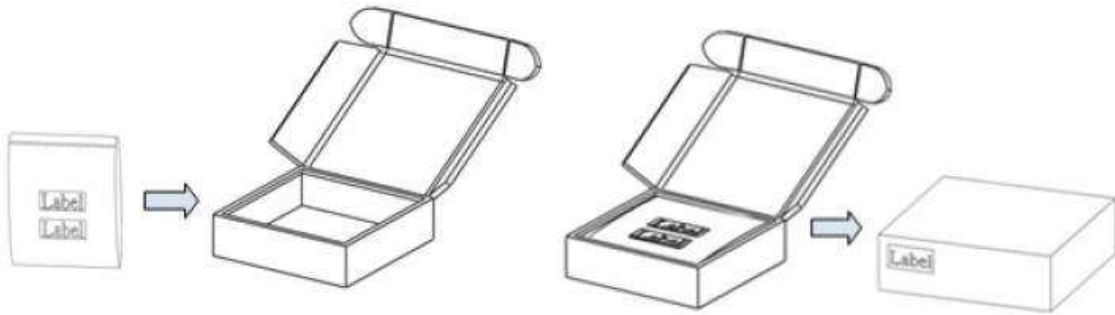
### Shield Bag Taping



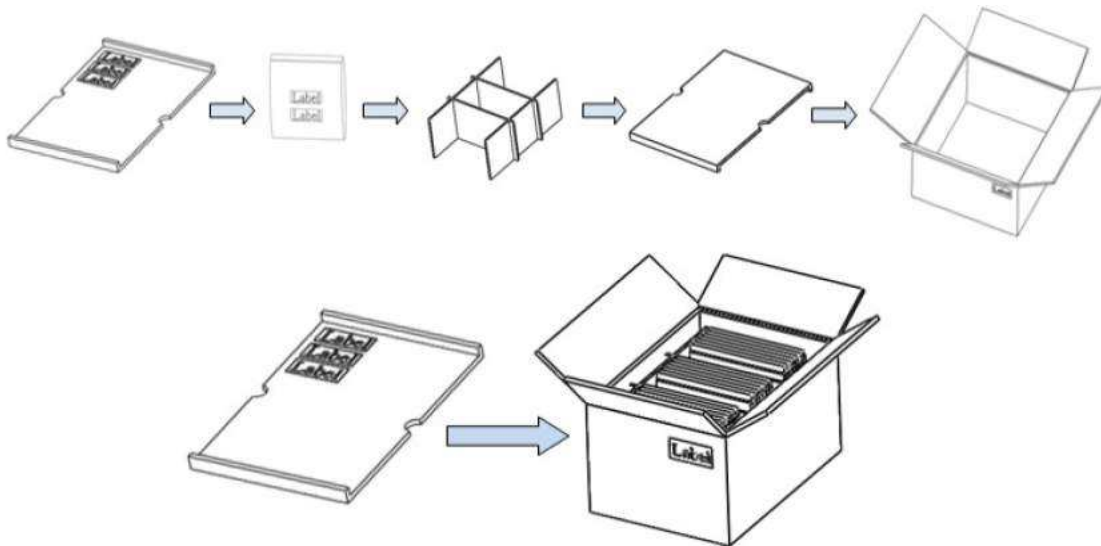
### Packing Box

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

PC50X01 V0

Product Specification

### ■ Safety Precautions

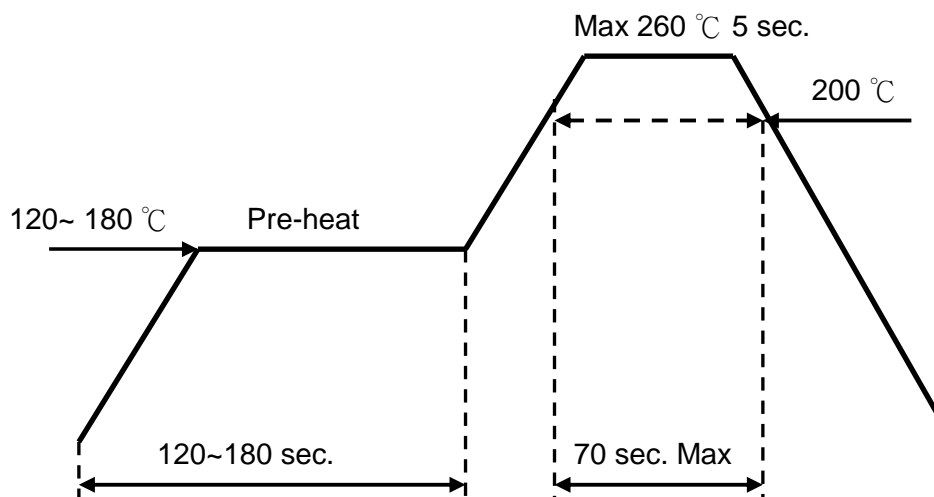
- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

### ■ 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

PC50X01 V0  
Product Specification

Date	Contents	Writer
2018.01.02	New version	Josh Yang
2018.05.17	Modify Storage temperature	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.