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

Lextar

PC55H10 V1

Product Specification

No. 3, Gongye E. 3rd Road, Hsinchu Science Park, Hsinchu 30075, Taiwan
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Approval Sheet

PC55H10 V1

Product Specification

RoHS

Product	White SMD LED
Part Number	PC55H10 V1
Issue Date	2015/12/21

Feature

- ✓ White SMD LED (L x W x H) of 5.8 x 5.2 x 0.7 mm
- ✓ ANSI binning
- ✓ Dice Technology : InGaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 500 pcs/reel

Applications

- ✓ MR16, GU10
- ✓ General lighting
- ✓ Outdoor lighting

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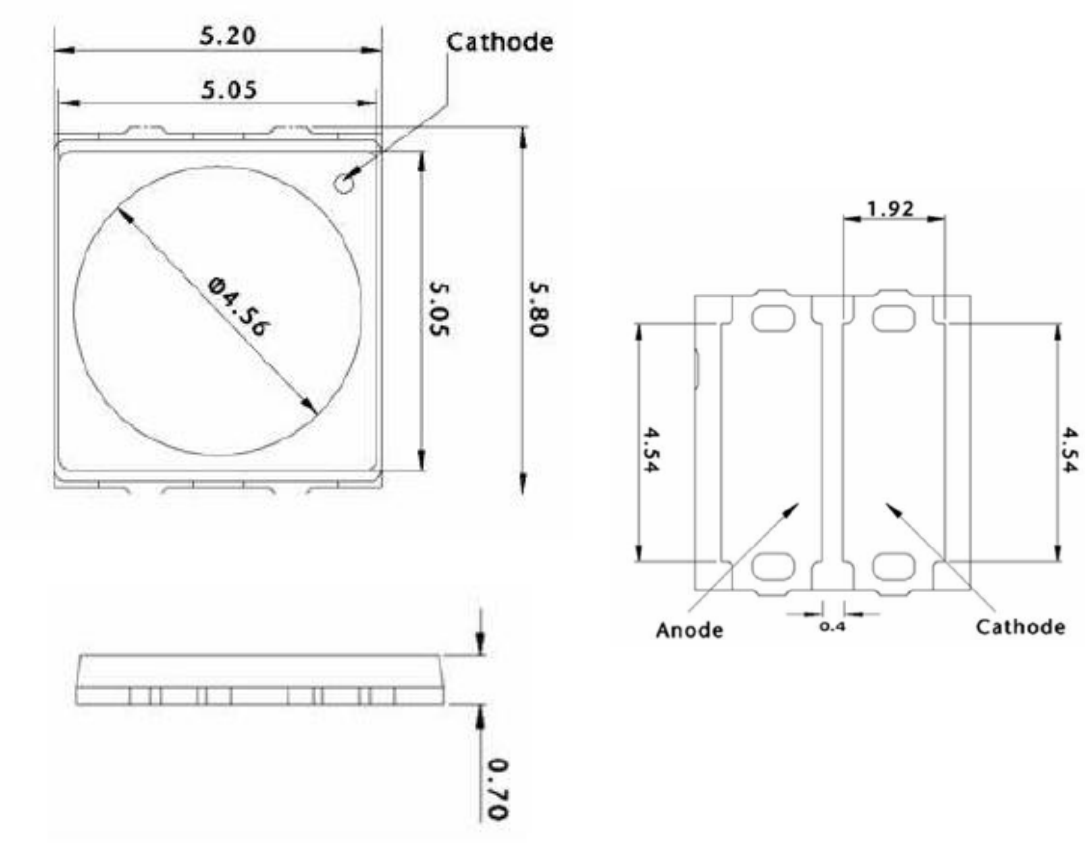
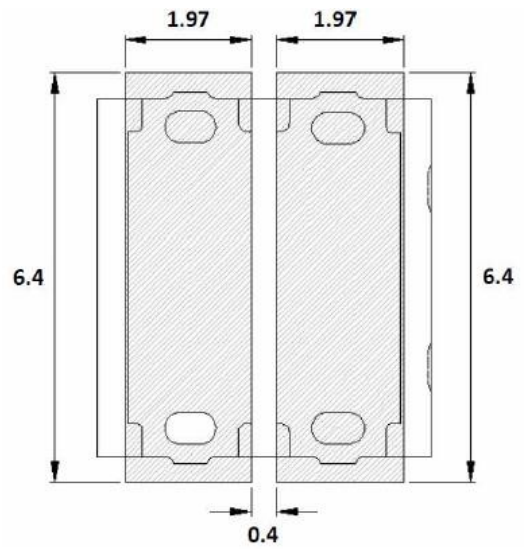
Outline Dimension



Unit: mm,

Tolerance: ±0.1mm

Recommended Soldering Pad



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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage(1)	V_F	I_F = 450 mA	16.3	18.1	19.9	V
Color Rendering Index(2)	Ra		80	-	-	-
Color Rendering Index(3)	R9		0			
View Angle	θ		-	120	-	deg
Thermal Resistance(4)	R_{th}		-	4	-	°C/W

(1) The Forward Voltage tolerance is ±0.1V

(2) The Color Rendering Index is measured at Ta=85℃ and tolerance is ±2

(3) The R9 is measured at Ta=85℃ and tolerance is ±6.

(4) Thermal resistance is calculated from junction to solder

Luminous Flux (Ta=25℃)

CCT	Condition	Rank	Typ.	Unit
2600K~4000K	I_F = 300 mA	GQ,GR	700	lm
5000K~7000K		GR,GS	740	

* The luminous flux tolerance is ± 7%

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	IF	480	mA
Power Dissipation	PD	8.7	W
Pulse Forward Current (2)	IFP	720	mA
Storage Temperature	Tstg	-40 ~ 100	oC
Operating Temperature	Topr	-40 ~ 100	oC
Junction Temperature	TJ	125	oC
Assembly Temperature	-	260 (max. 10sec)	°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

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Ordering Code

P	C	5	5	H	1	0	1	-	A	2	7	1	3	0	G	P	G	S	Y	Y	-	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	PC55H101	PC55H10 V1
CIE Center Point		9	A	ANSI 1931 on B.B.L
CCT		10,11	27 30 40 50	27 = 2700K 30 = 3000K 40 = 4000K 50 = 5000K
R9		12	1	R9 > 0
CIE Bin Group(1)		13,14	30 50	273 273,275
IV Bin Group		15,16, 17,18	GP,GR GQ,GS	Bin code : GP,GQ,GR Bin code : GQ,GR,GS
Vf Bin Group		19,20	YY	Bin code : Y
Kitting Rules	CIE(1)	21	0	No requirements.
	IV	22	0	No requirements.
	Vf	23	0	No requirements.

(1) The first two digits 27 means CCT in 2700K, can be replaced to 30, 40, 50 for different CCT requirements.

Standard Ordering Code:

CCT	Ordering Code(1)	CIE Bin Group	IV Bin Group	Vf Bin Group
2700K	PC55H101-A27130GPGSYY-000	30	GP,GQ,GR,GS	YY
	PC55H101-A27150GPGSYY-000	50		
3000K	PC55H101-A30130GPGSYY-000	30	GP,GQ,GR,GS	YY
	PC55H101-A30150GPGSYY-000	50		
4000K	PC55H101-A40130GPGSYY-000	30	GP,GQ,GR,GS	YY
	PC55H101-A40150GPGSYY-000	50		
5000K	PC55H101-A50130GPGSYY-000	30	GP,GQ,GR,GS	YY
	PC55H101-A50150GPGSYY-000	50		

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

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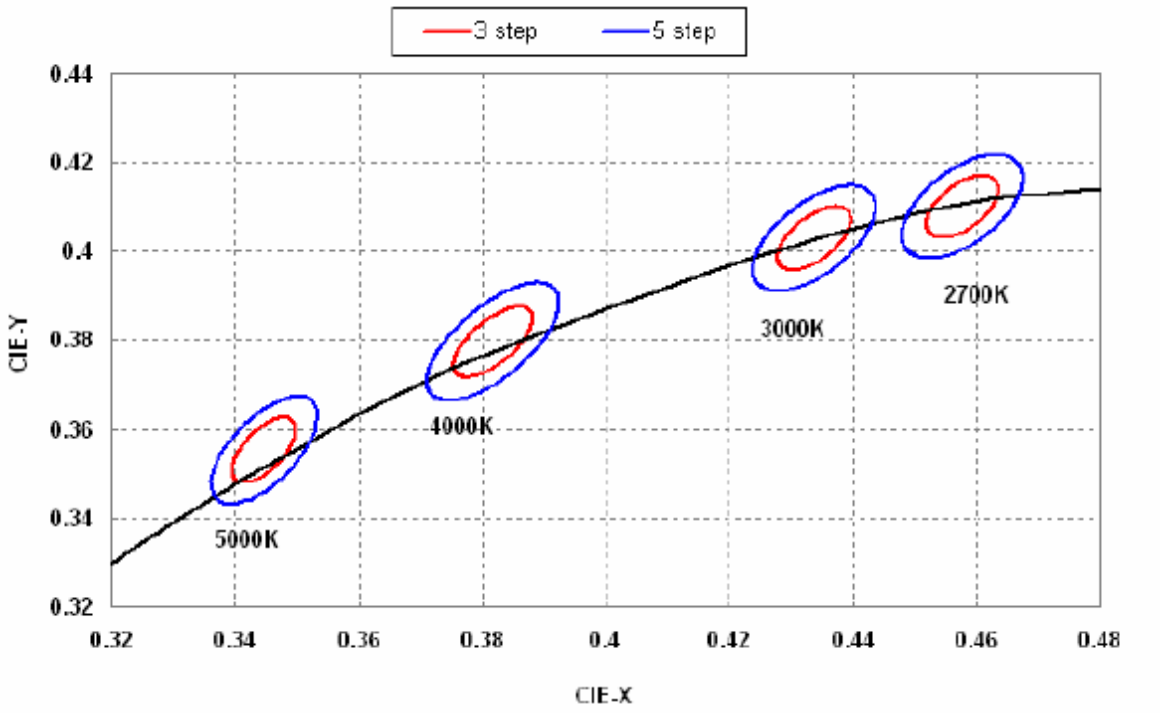
Chromaticity Coordinates(Ta=85℃)



Items	2700K 3-Step (273S)	3000K 3-Step (303S)	4000K 3-Step (403S)	5000K 3-Step (503S)
Center Point, Cx	0.4578	0.4338	0.3818	0.3447
Center Point, Cy	0.4101	0.4030	0.3797	0.3553
Major Axis, a	0.0081	0.0083	0.0093	0.0082
Minor Axis, b	0.0042	0.0040	0.0040	0.0035
Rotation Angle	53.7	53.2	53.7	59.6

Items	2700K 5-Step (275S)	3000K 5-Step (305S)	4000K 5-Step (405S)	5000K 5-Step (505S)
Center Point, Cx	0.4578	0.4338	0.3818	0.3447
Center Point, Cy	0.4101	0.4030	0.3797	0.3553
Major Axis, a	0.0135	0.01390	0.0156	0.0137
Minor Axis, b	0.0070	0.00680	0.0040	0.0059
Rotation Angle	53.7	53.2	53.7	59.6

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Bin code definition

V_F Rank	Luminous Flux Rank	CIE Rank
273S	GP	Y

V_F Rank	Condition	Min.	Max.
Y	I_F = 300mA	16.3	19.9

Luminous Flux Rank	Condition	Min.	Max.
GP	I_F = 300 mA	550	600
GQ		600	660
GR		660	726
GS		726	799

Note:

(1) Correlated color Temperature is derived from the CIE 1931Chromaticity diagram

(2) CIE Measurement tolerance is ± 0.005

(3) The luminous flux tolerance is ±7%

(4) The Forward Voltage tolerance is ±3%

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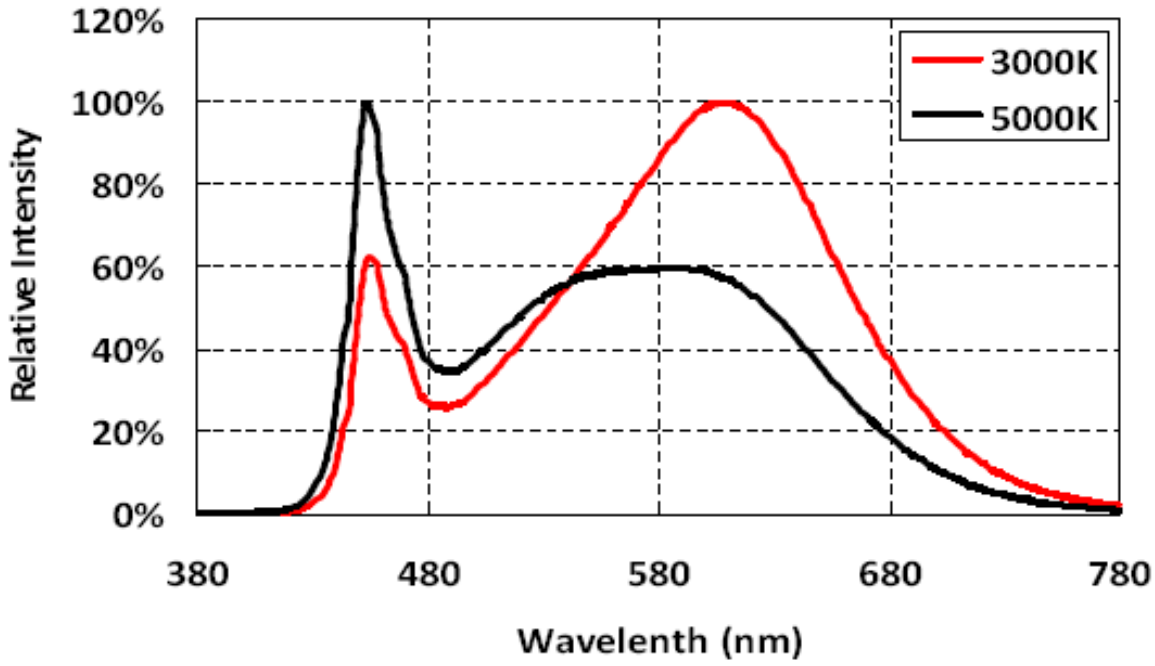
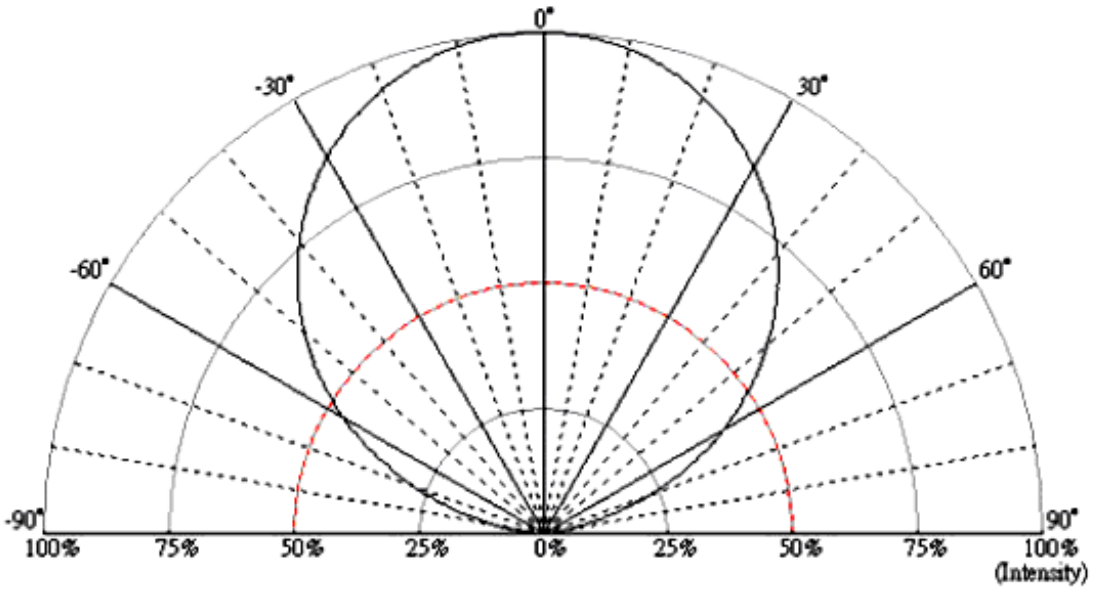
Radiation Pattern



Radiation Pattern



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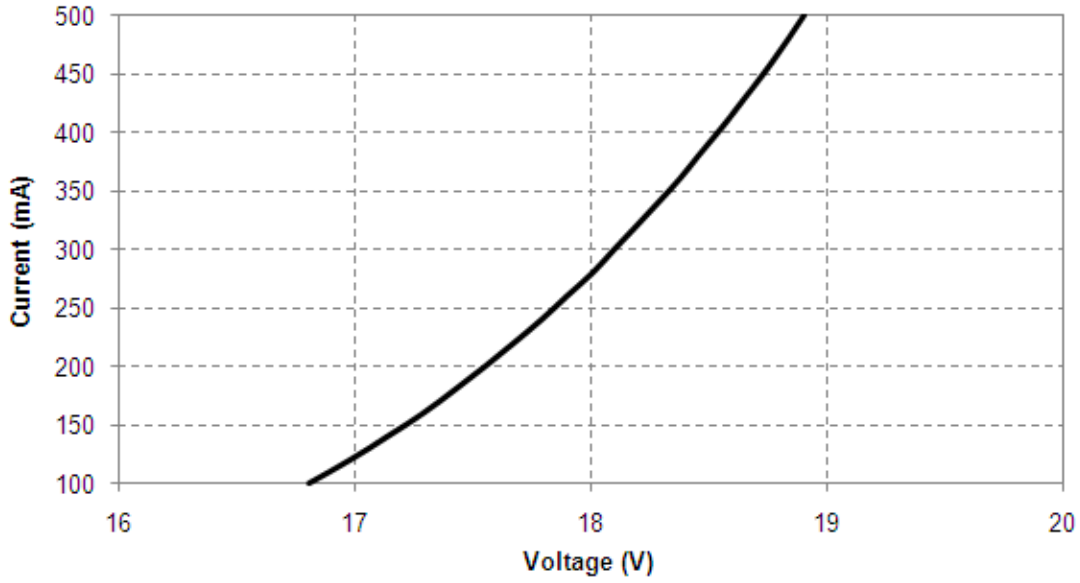
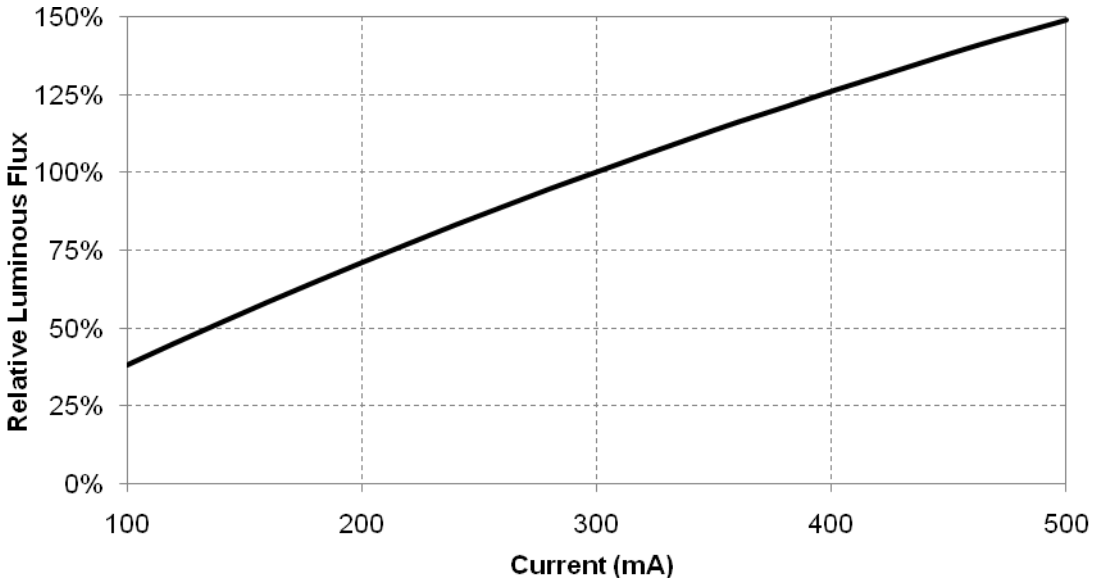
Forward Voltage vs. Forward Current



Forward Current vs. Relative Luminosity



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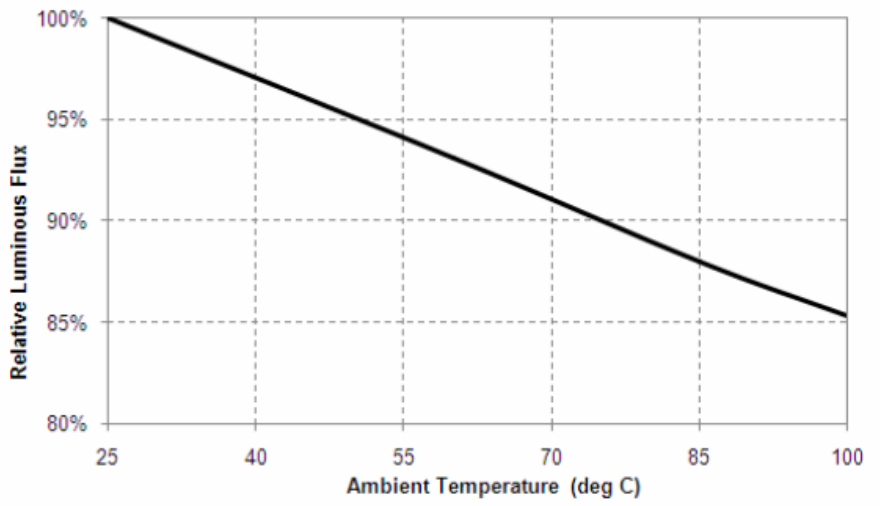
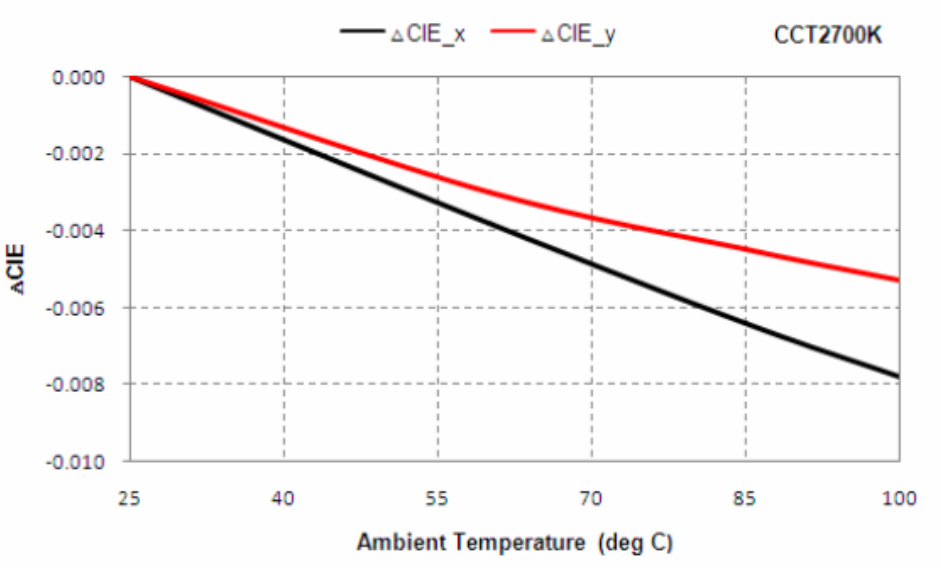
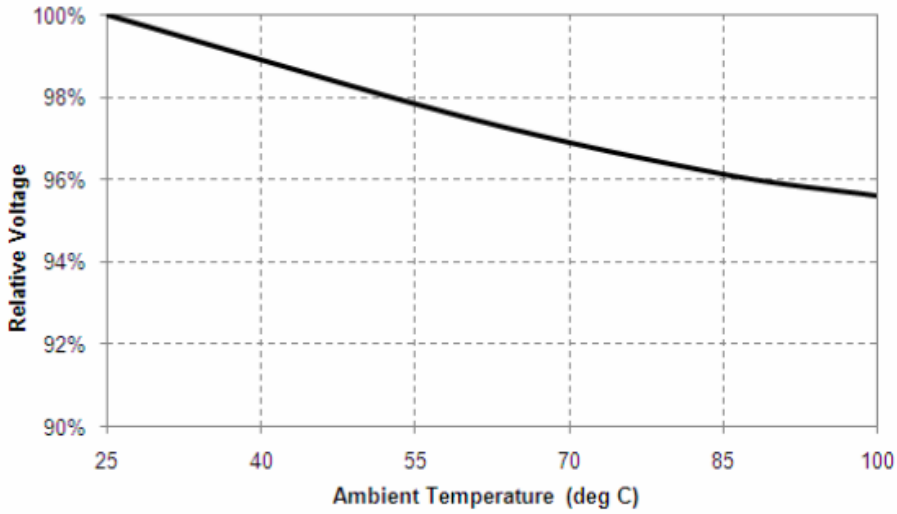
Relative Luminous Intensity vs. Ambient Temperature



Chromaticity vs. Ambient Temperature



Relative VF vs. Ambient Temperature



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Reliability test

Item	Condition	Time/Cycle
Steady State Operating Life of Low Temperature -40℃	-40℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 60℃	60℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 85℃	85℃ Operating	1000 Hrs
Steady State Operating Life of High Temperature 100℃	105℃ Operating	1000 Hrs
Low temperature storage -40℃	-40℃ Storage	1000 Hrs
High temperature storage 100℃	105℃ Storage	1000 Hrs
Steady State Operating Life of High Humidity Heat 60℃90%	60℃/90% Operating	1000 Hrs
Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60℃, 60%RH for 52hrs Tsld max.=260℃ 10sec	3 Times
Thermal shock	-40℃/20minr ~5minr ~ 100℃/20min	300 Cycles

Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	150mA	ΔVf < 10 %
Luminous Flux	Iv	150mA	ΔIv < 30 %

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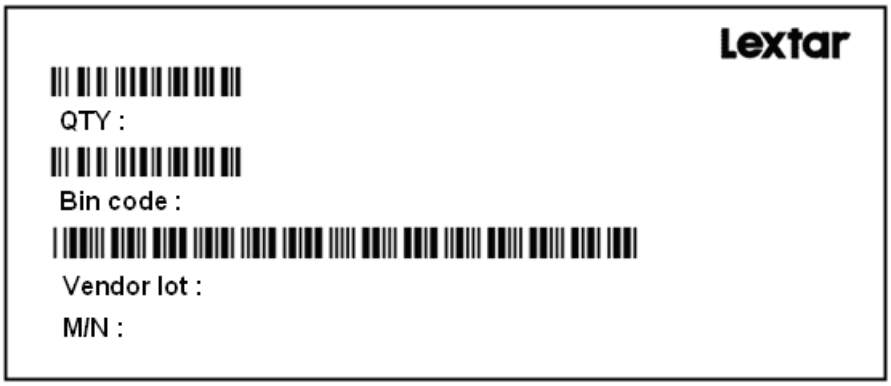
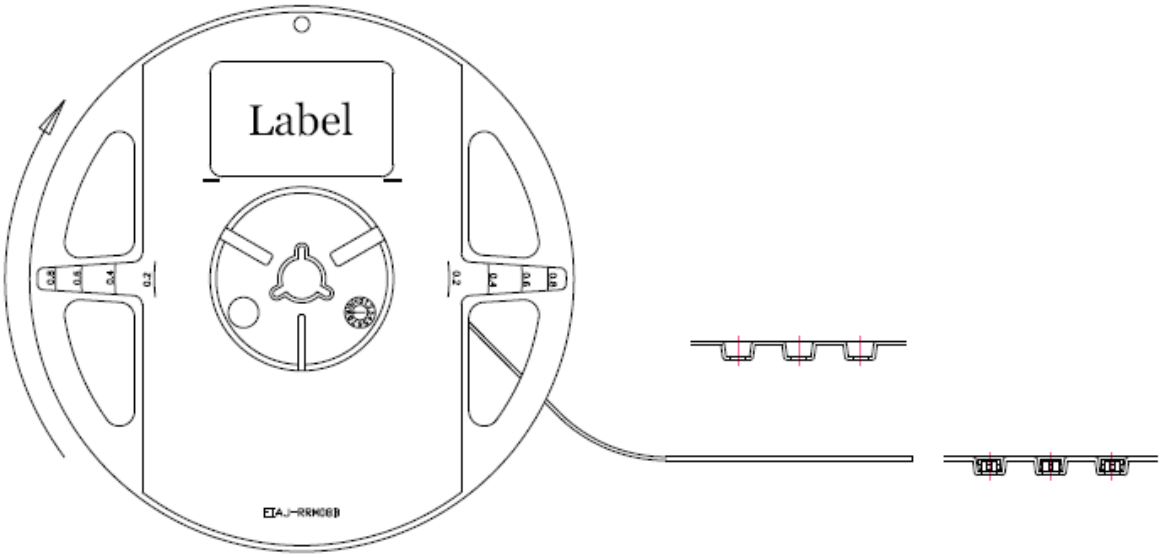
Label



Carrier Taping



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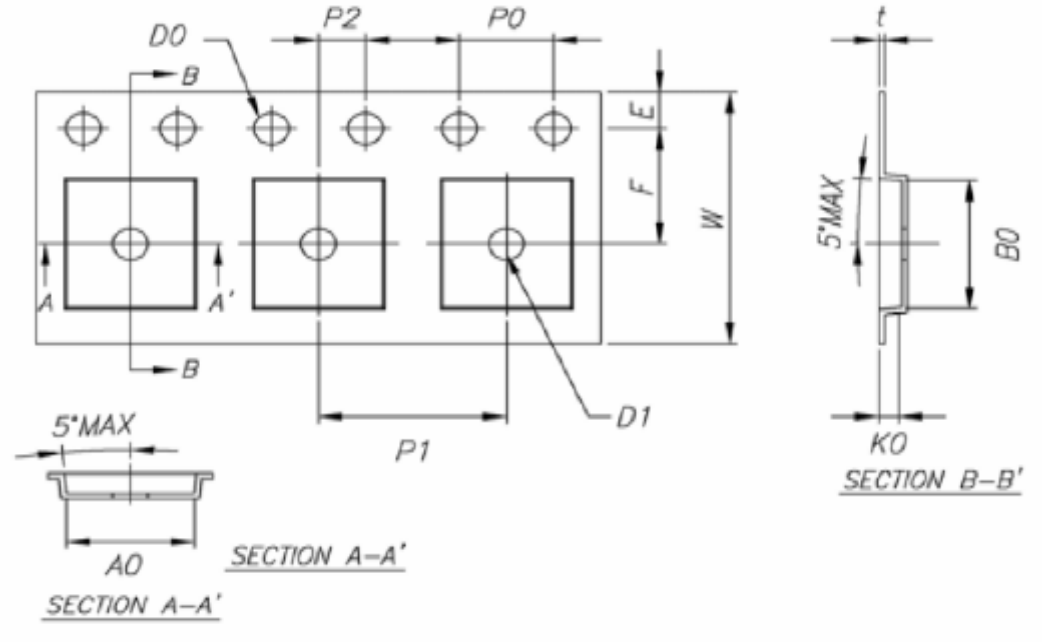
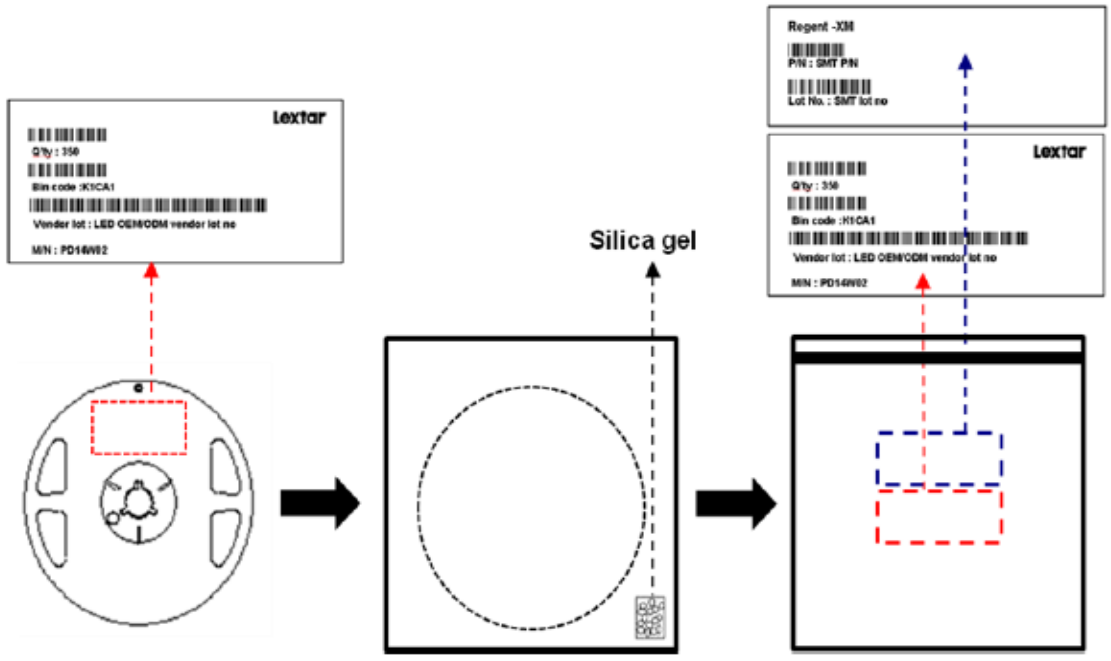


PS : unit : mm

Notice:

1. 10 Sprocket hole pitch cumulative tolerance is ±0.20mm.
2. Carrier camber shall be not more than 1mm per 100mm through a length of 250mm.
3. Ao & Bo measured on a place in the middle of the corner radii.
4. Ko measured from a place on the inside bottom of the pocket to top surface of carrier.
5. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.
6. Surface resisivity 10^4 ~10^8 ohm/sq.

Shield Bag Taping



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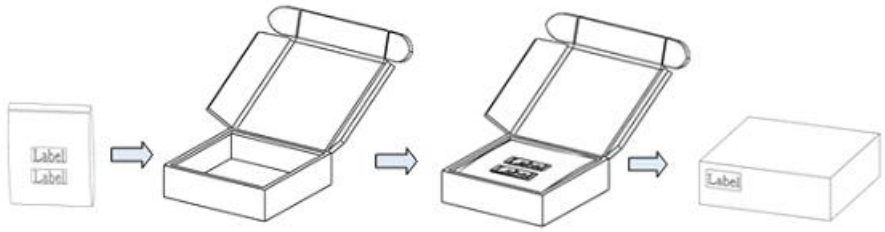
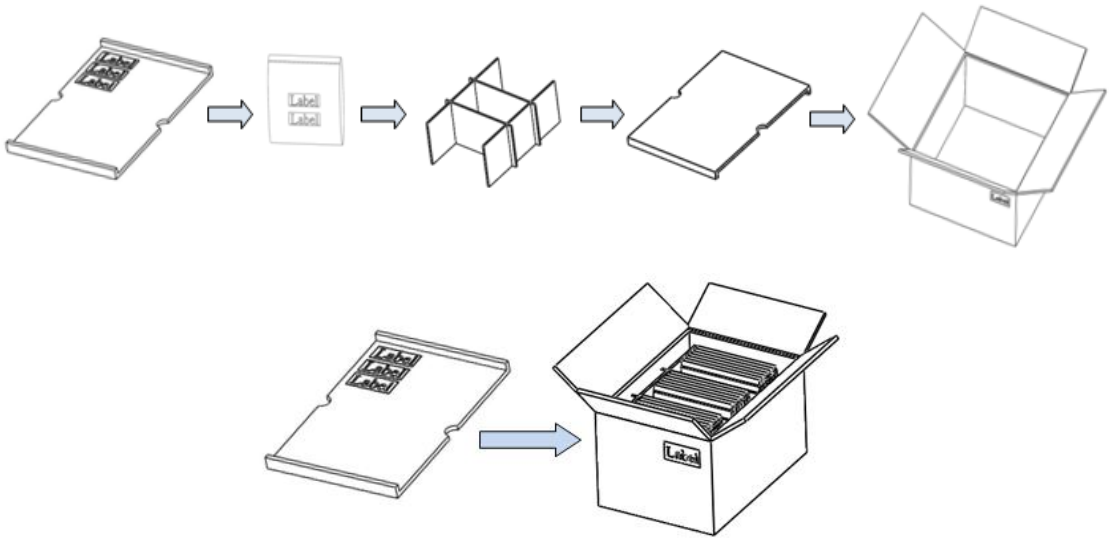
Packing Box

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

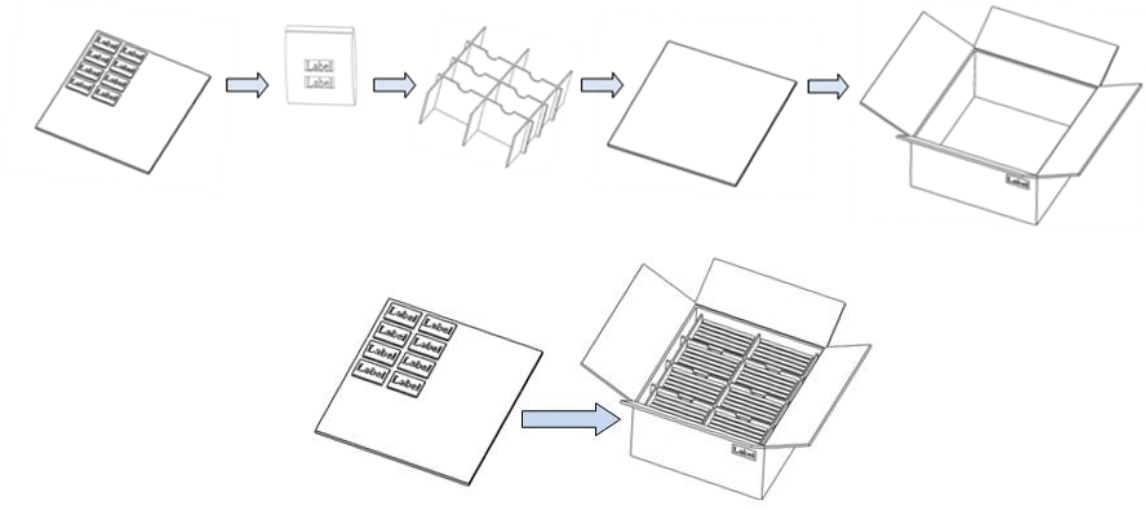
Small Box



Medium Box



Large Box



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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℃, 60% RH.
- After opening the package bag, the LEDs should be keep under 30℃, 60% RH. Recommend to use within 168 hrs. 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).

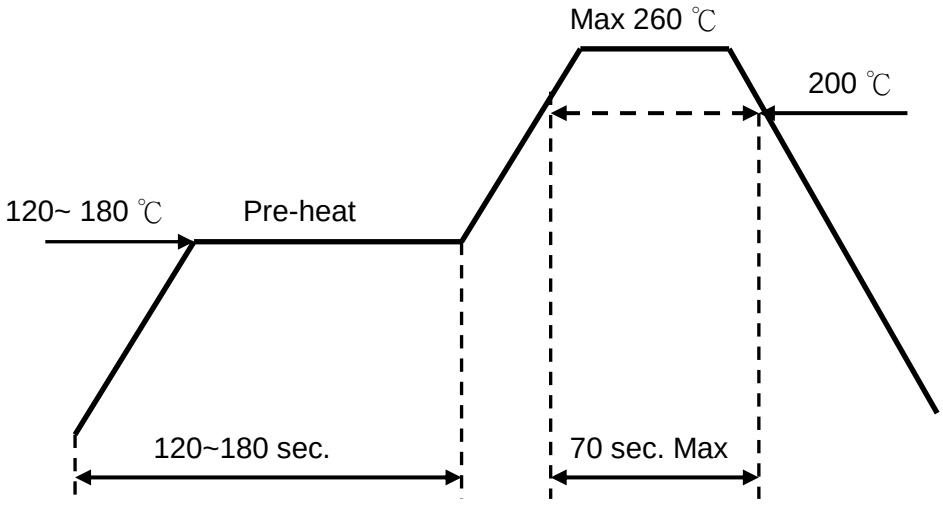
Soldering Notice and Conditions

- 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 150 ℃ max , 180 sec. max.
Peak 260 ℃ max , 10 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	Approved
2015.12.21	New version	Kenis Hung	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 2010 is 266 million USD.