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

Lextar

PF12N01 V0

Product Specification

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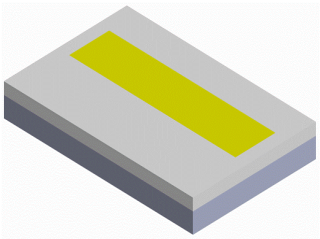
Approval Sheet

PF12N01 V0
Product Specification

RoHS

Product	3870 White LED
Part Number	PF12N01
Issue Date	2017/02/24



Feature

- ✓ White SMD LED (L x W x H) of 7.04x 3.75 x 0.75 mm
- ✓ Dice Technology : InGaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 1
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 100 ~ 400 pcs/reel

Applications

- ✓ DRL
- ✓ Fog light
- ✓ Head lamp

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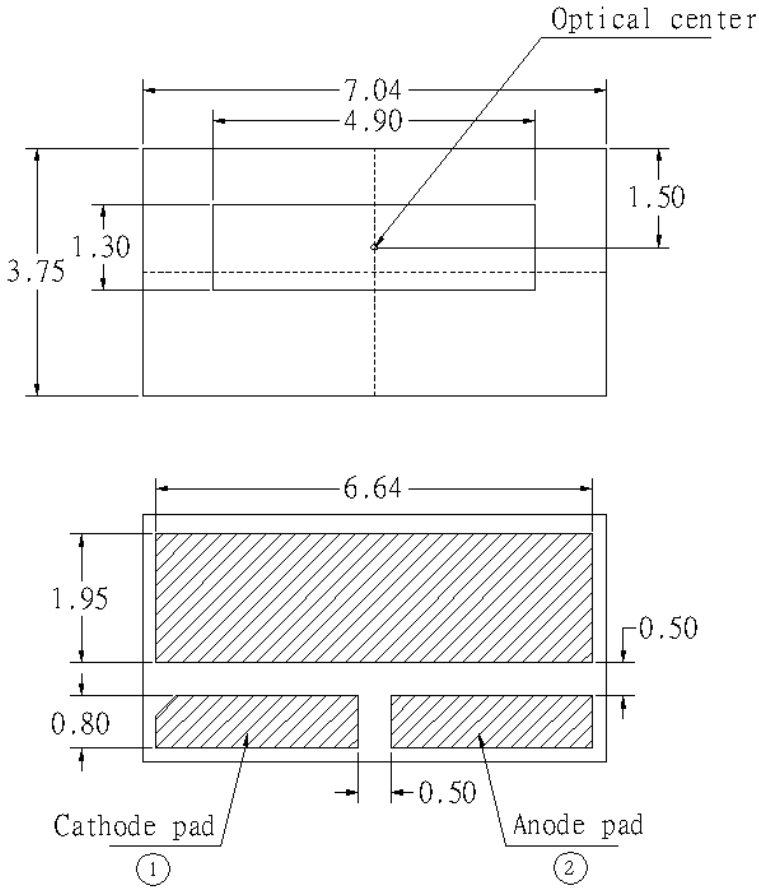
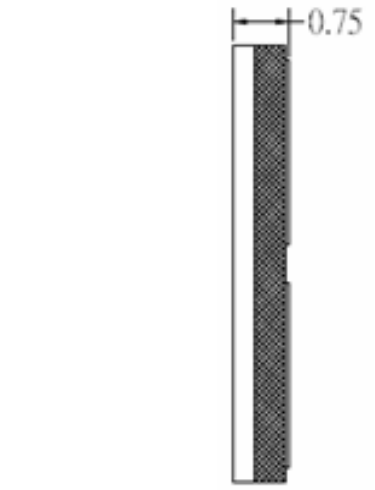
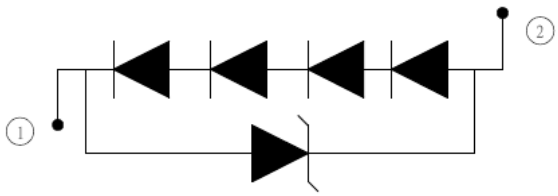
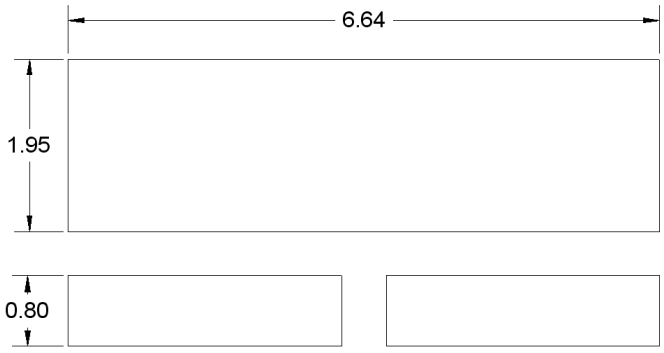






Unit: mm, Tolerance: ±0.15mm

Recommend Soldering Pad Layout



Unit: mm, Tolerance: ±0.15mm

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Electro-Optical Characteristics(Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage(1)	V_F	I_F = 1000 mA	12	13.2	14.4	V
Luminous Flux	ΦV		1000	1300	1500	Lm
View Angle	θ		110	120	130	deg
Thermal Resistance	Rth		-	1.8	--	°C/W

(1) The Forward Voltage tolerance is ±3%

(2) The luminous flux tolerance is ±10%

(3) Thermal resistance is calculated from junction to solder

(4) Electric and optical data is tested at 25 ms pulse condition

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	I_F	1200	mA
Power Dissipation	P_D	16.3	W
Pulse Forward Current (2)	I_{FP}	1500	mA
Storage Temperature	T_{stg}	-40 ~ +125	°C
Operating Temperature	T_{opr}	-40 ~ +125	°C
Junction Temperature	T_J	150	°C
Assembly Temperature	Tsld	260 (max. 5sec)	°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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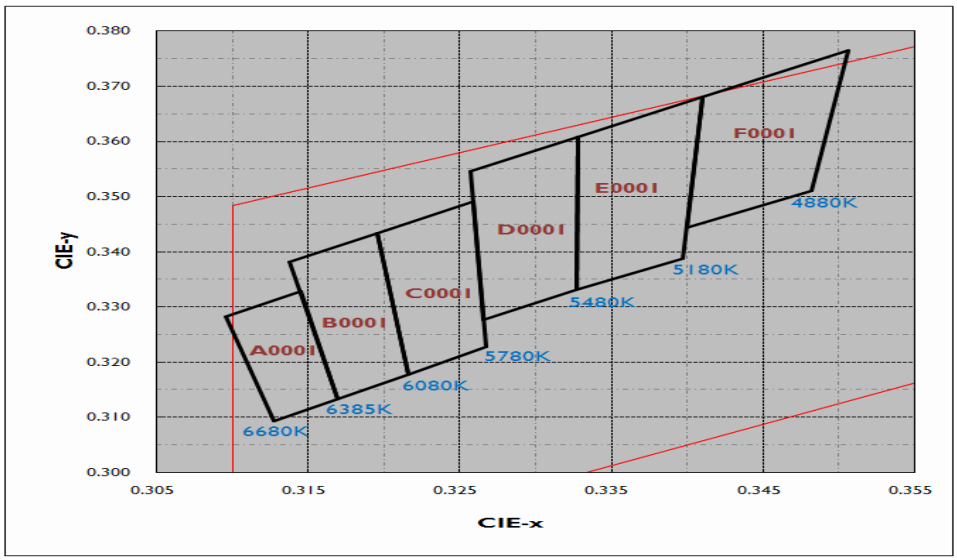
Chromaticity Coordinates



Bin code definition

V_F Rank	Luminous Flux Rank	CIE Rank
A	VU	A0001

V_F Rank	Condition	Min.	Max.
A	I_F = 1000 mA Ta=25℃	12.0	12.8
B		12.8	13.6
C		13.6	14.4

Luminous Flux Rank	Condition	Min.	Max.
VT	I_F =1000mA Ta=25℃	1000	1100
VU		1100	1200
VV		1200	1300
VW		1300	1400

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CIE Rank

CCT	CIE Rank	CIE X	CIE Y
6385 ~ 6680	A0001	0.3096	0.3283
		0.3145	0.3328
		0.3169	0.3133
		0.3127	0.3093
6080 ~ 6385	B0001	0.3138	0.3381
		0.3195	0.3433
		0.3216	0.3178
		0.3169	0.3133
5780 ~ 6080	C0001	0.3195	0.3433
		0.3259	0.3491
		0.3267	0.3228
		0.3216	0.3178
5480 ~ 5780	D0001	0.3257	0.3546
		0.3328	0.3608
		0.3327	0.3331
		0.3265	0.3276
5180 ~ 5480	E0001	0.3328	0.3608
		0.3410	0.3681
		0.3397	0.3387
		0.3327	0.3331
4880 ~ 5180	F0001	0.3410	0.3681
		0.3506	0.3765
		0.3482	0.3510
		0.3400	0.3443

(1) Color bins are tested at IF = 1000mA 25ms pulse operation condition

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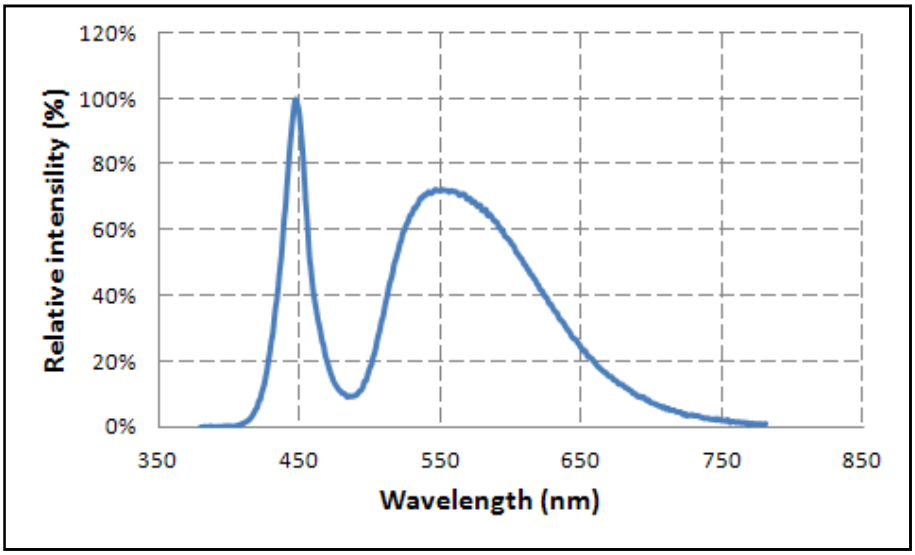
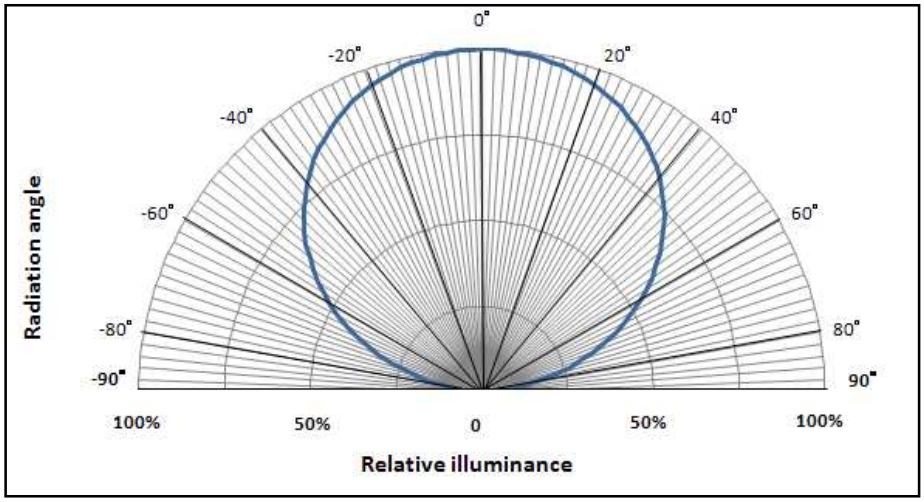
Spectrum



Radiation Pattern



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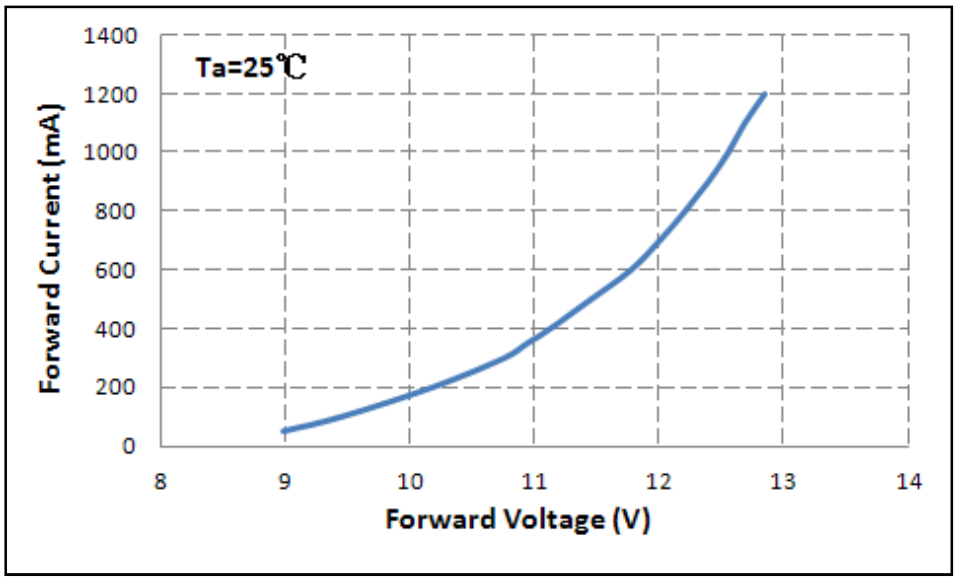
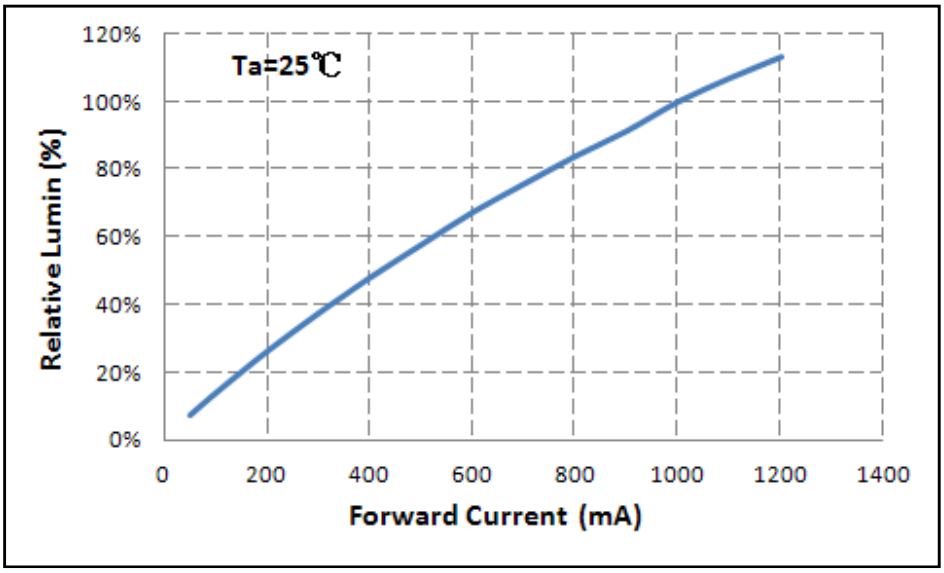
Forward Voltage vs. Forward Current



Forward Current vs. Relative Luminosity



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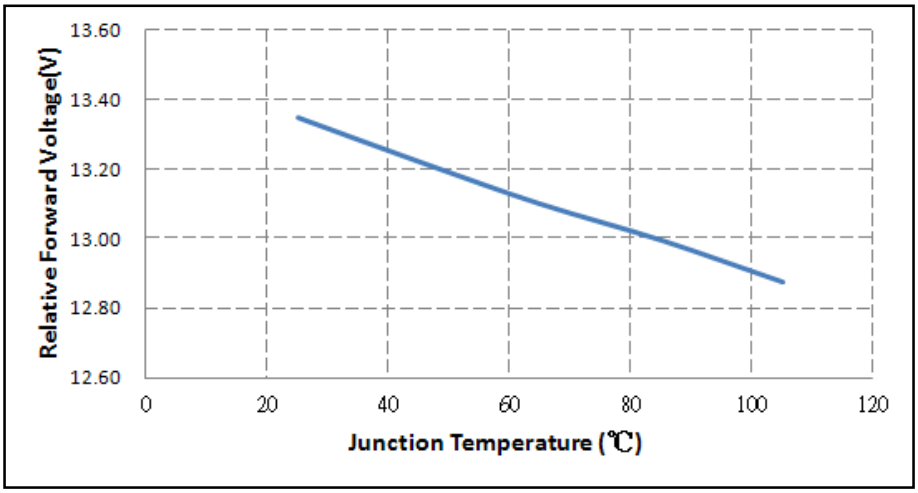
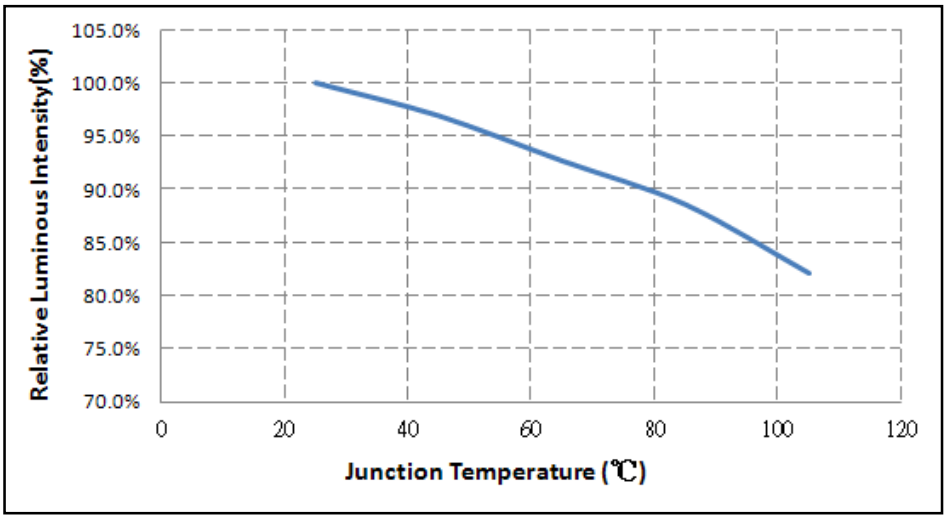
Relative Forward Voltage vs. Junction Temperature



Relative Luminous Intensity vs. Junction Temperature



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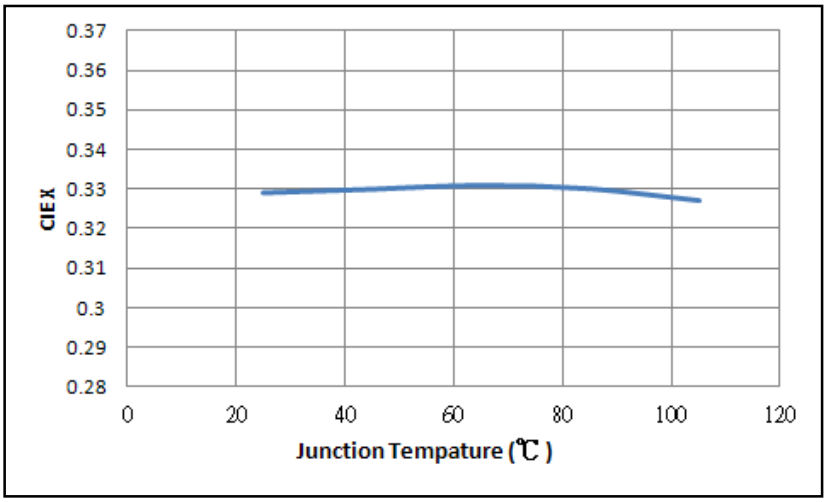
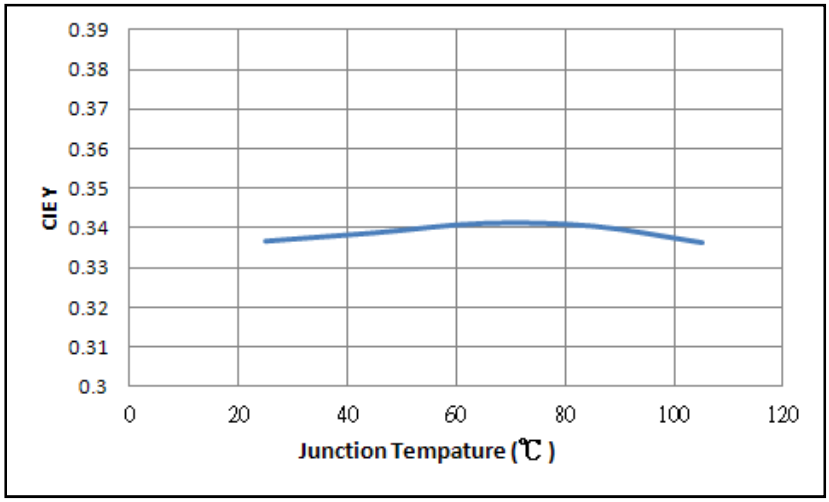
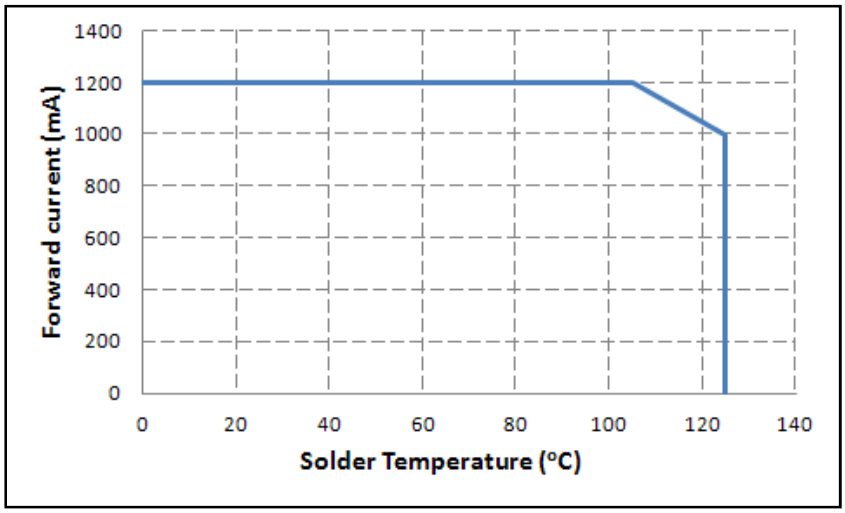
Chromaticity vs. Junction Temperature





Forward Current Derating Curve



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Reliability test

Item	Condition	Current	Time/Cycle
High Temperature Operation Life Test	Ta=85°C	1200mA	1000 Hrs
Low Temperature Operation Life Test	Ta=-40°C	1200mA	1000 Hrs
High Temperature and High Humidity Operation Life Test	Ta=85°C , 85%RH	1200mA	1000 Hrs
High Temperature Storage	Ta=100°C	NA	1000 Hrs
Low Temperature Storage	Ta=-40°C	NA	1000 Hrs
High Temperature High Humidity Storage	Ta=85°C , 85%RH	NA	1000 Hrs
Thermal shock	-40℃/20minr ~5minr ~ 125℃/20min	NA	100 Cycles

Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	1000 mA	ΔVf< 10 %
Luminous Flux	Iv	1000 mA	ΔIv< 20 %

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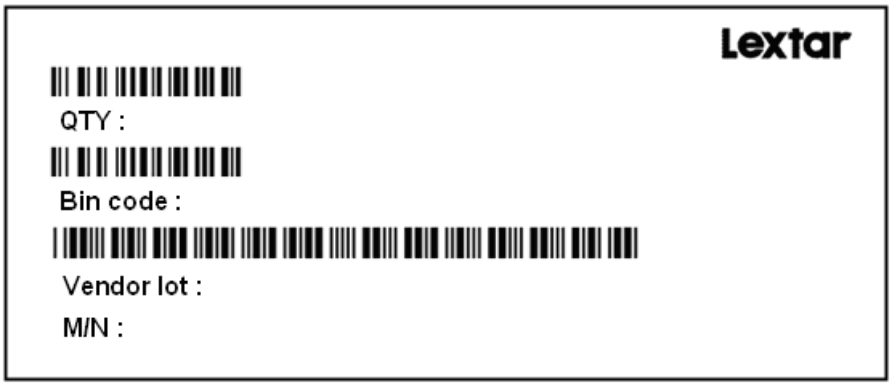
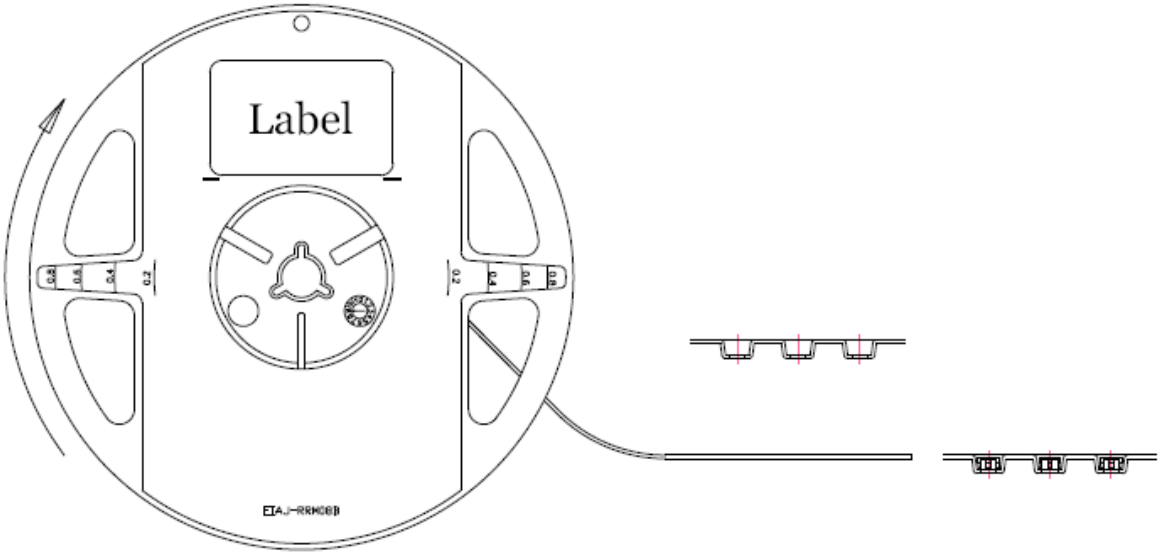
Label



Carrier Taping



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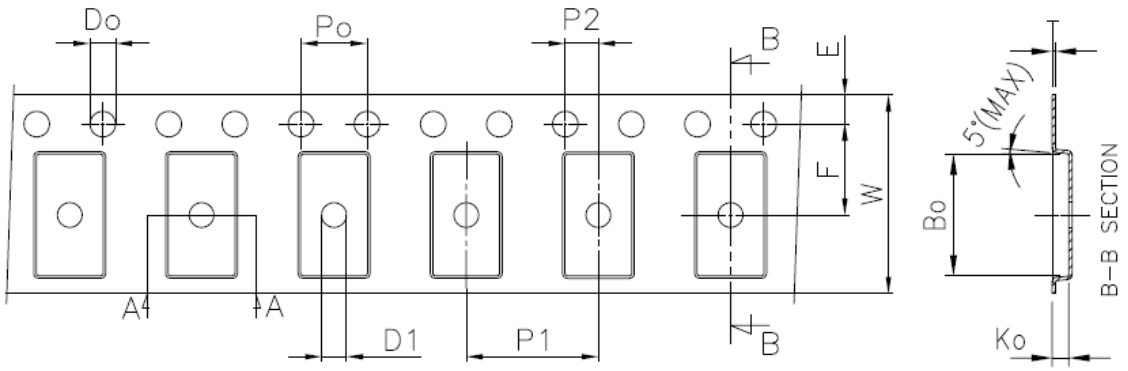

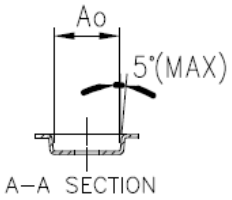

Unit:mm

symbol	Ao	Bo	Ko	Po	P1	P2	T
spec	4.03±0.10	7.32±0.10	1.03±0.10	4.00±0.10	8.00±0.10	2.00±0.05	0.20±0.05
symbol	E	F	Do	D1	W	10Po	
spec	1.75±0.10	5.50±0.05	$1.50^{+0.10}_{-0}$	1.50±0.10	12.0±0.30	40.00±0.20	

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.

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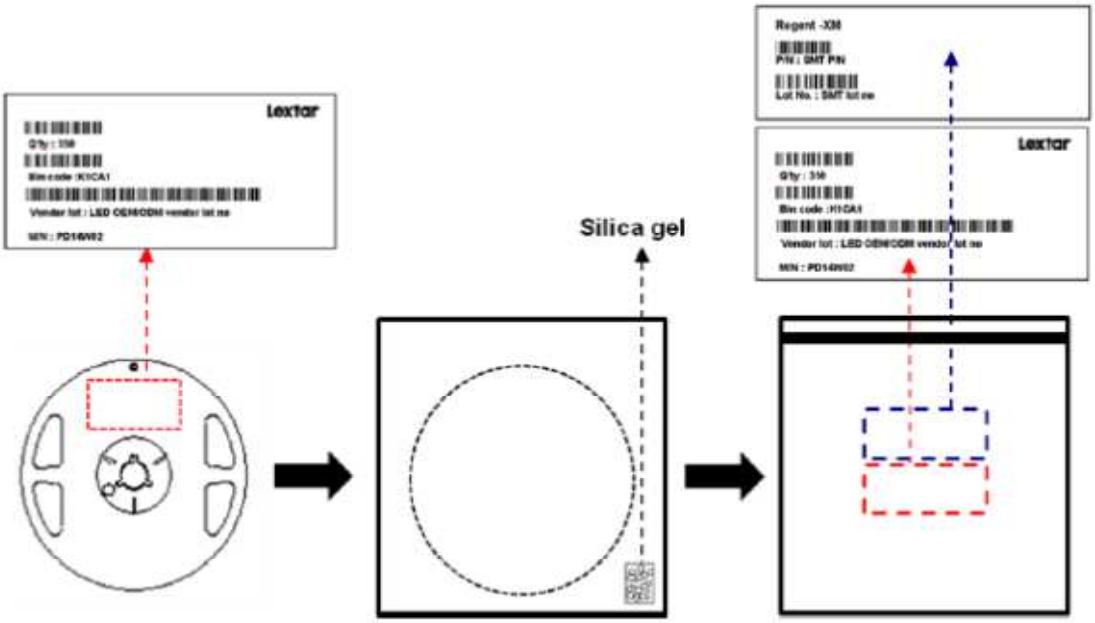
Shield Bag Taping



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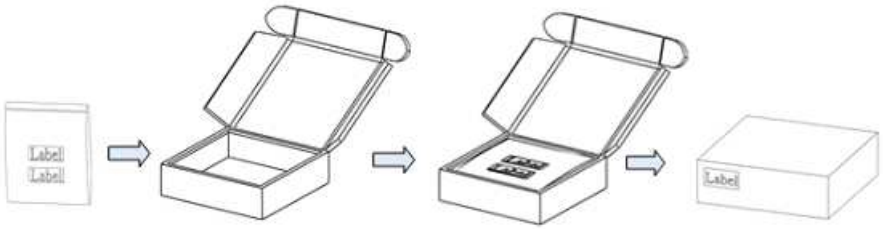
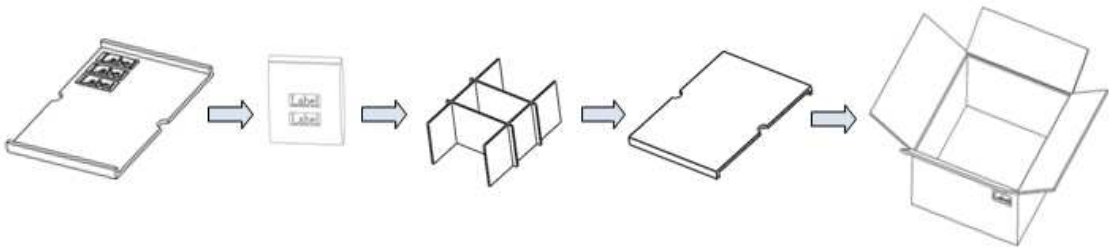
Packing Box

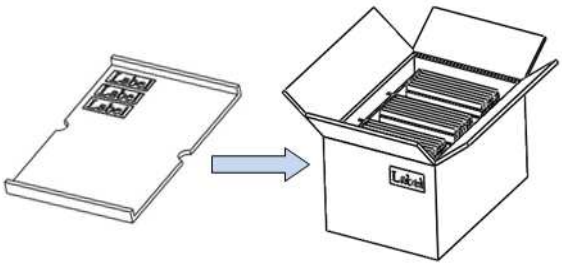
Type	Large Box		Medium Box		Small Box	
Dimension	541X511X276mm		385X303X260mm		283X235x70mm	
Maximum Reels	7"X12mm Reel	64/R	7"X12mm Reel	21/R	7"X12mm Reel	4/R
Minimum Reels	7"X12mm Reel	32/R	7"X12mm Reel	9/R	7"X12mm Reel	1/R

Small Box



Medium Box





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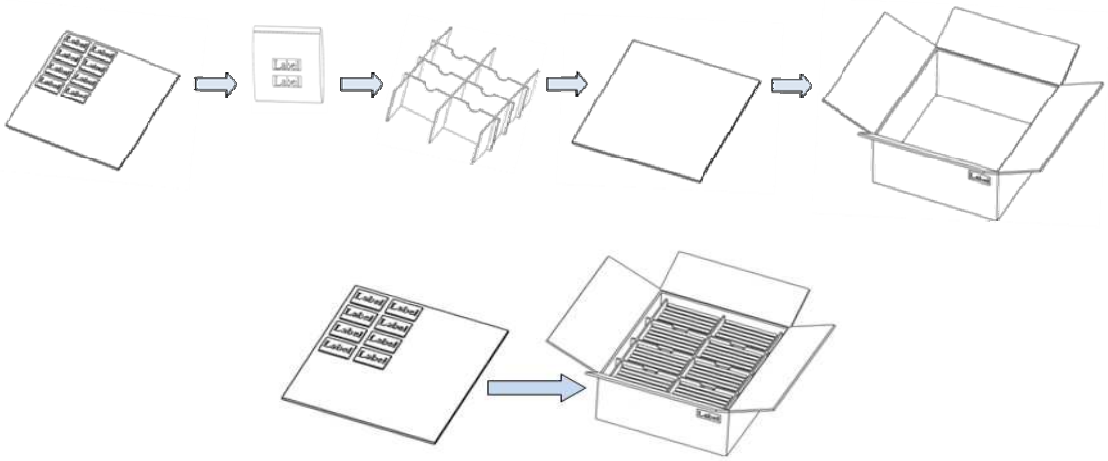
Large Box



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Safety Precautions

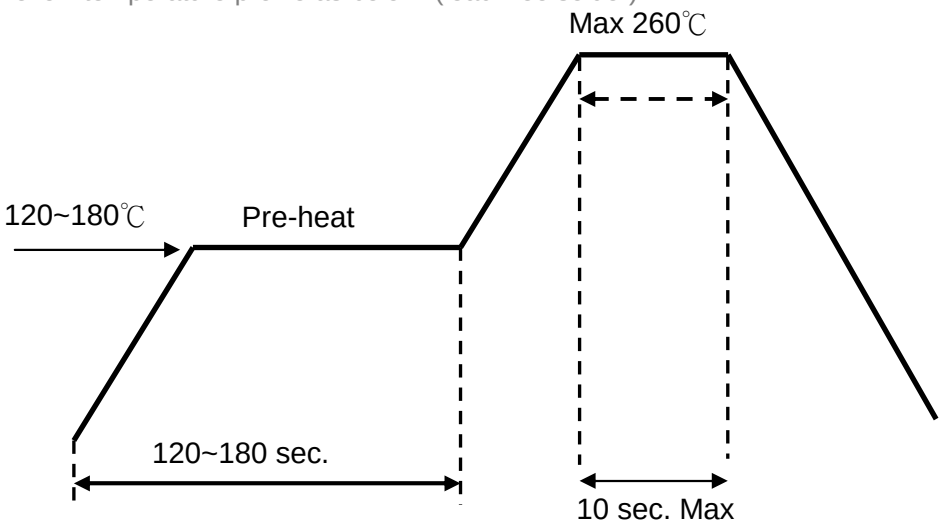
- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

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:
  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
2017/02/24	Preliminary version	Paul Liu	SK Chen

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.