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

Lextar

PC35X26 V0 Preliminary

Product Specification

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Approval Sheet

PC35X26
Product Specification

Product	RGB SMD LED
Part Number	PC35X26
Issue Date	2018/02/01

Feature

- ✓ RGB SMD LED (L x W x H) of 3.5 x 2.8 x 1.4 mm
- ✓ AEC-Q101 qualification
- ✓ Dice Technology : AlGaInP
- ✓ Qualified according to JEDEC moisture sensitivity Level 2a
- ✓ Cu Alloy with Gold plated lead frame
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 1,000 / 500 pcs/reel

Applications

- ✓ Video walls in outdoor areas
- ✓ Full color displays

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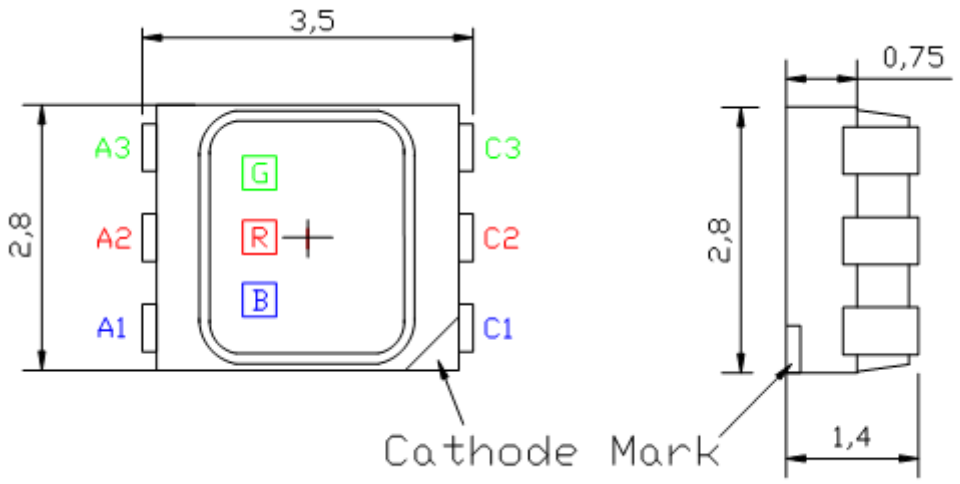
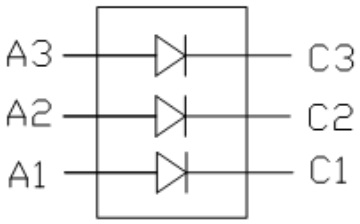
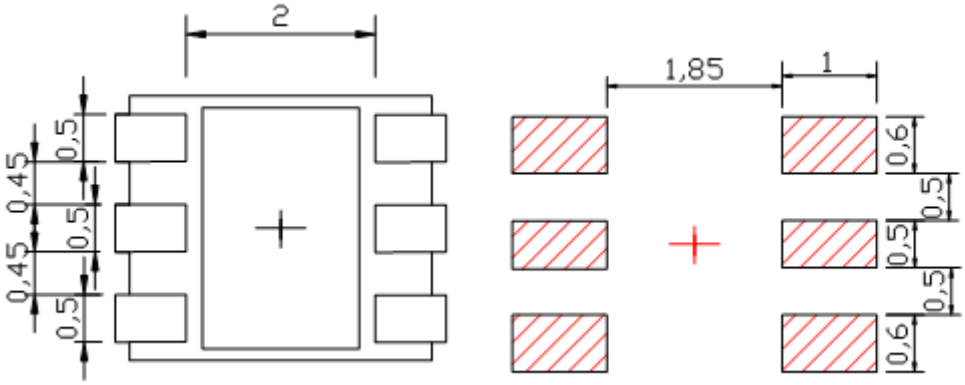
Package Dimension





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	VF	R	IF = 20 mA	1.8	2.1	2.8	V
		G		2.8	3.2	3.8	
		B		2.7	3.0	3.3	
Dominant Wavelength	Wd	R		619	625	631	nm
		G		519	530	546	
		B		457	460	470	
Luminous Intensity	Iv	R		-	800	-	MCD
		G		-	1570	-	
		B		-	145	-	
Chromaticity Color	--			-	(0.19, 0.19)	-	--
View Angle	θ			-	120	-	deg

Absolute Maximum Ratings

Parameter	Symbol	Value			Unit
		R	G	B	
DC Forward Current	I_F	40	40	40	mA
Pulse Forward Current(1)	I_{FP}	100			mA
Reverse Voltage	V_R	5			V
Storage Temperature	T_{stg}	-40 ~ +105			℃
Operating Temperature	T_{opr}	-40 ~ +105			℃
Junction Temperature	T_J	125			℃
ESD (HBM)	ESD_{HBM}	2000			V

(1) IFP Condition: t < 100 μs；D = 0.001；Ta= 25 °C

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Rank

Item	Blue			Green			Red			Unit
	Rank	Min	Max	Rank	Min	Max	Rank	Min	Max	
Forward Voltage	-	2.7	3.3	-	2.8	3.8	-	1.8	2.8	V
Luminous Intensity	BA	95	123	GA	947	1230	RA	497	645	mcd
	BB	123	160	GB	1230	1600	RB	645	835	
	BC	160	208	GC	1600	2080	RC	835	1086	

Color Ranks (Ta=25℃, 20 mA)

Red

	R1			
x	0.6742	0.6598	0.6915	0.708
y	0.2958	0.3106	0.3083	0.292

Green

	G1			
x	0.166	0.136	0.176	0.201
y	0.676	0.739	0.75	0.686
	G2			
x	0.201	0.176	0.220	0.237
y	0.686	0.750	0.745	0.684

Blue

	B1			
x	0.139	0.129	0.145	0.152
y	0.035	0.050	0.072	0.056
	B2			
x	0.129	0.113	0.134	0.145
y	0.050	0.080	0.105	0.072

* The Forward Voltage tolerance is ±0.05V
* The luminous intensity tolerance is ± 8%
* Tolerance of measurements of the Chromaticity Coordinate is ±0.005.

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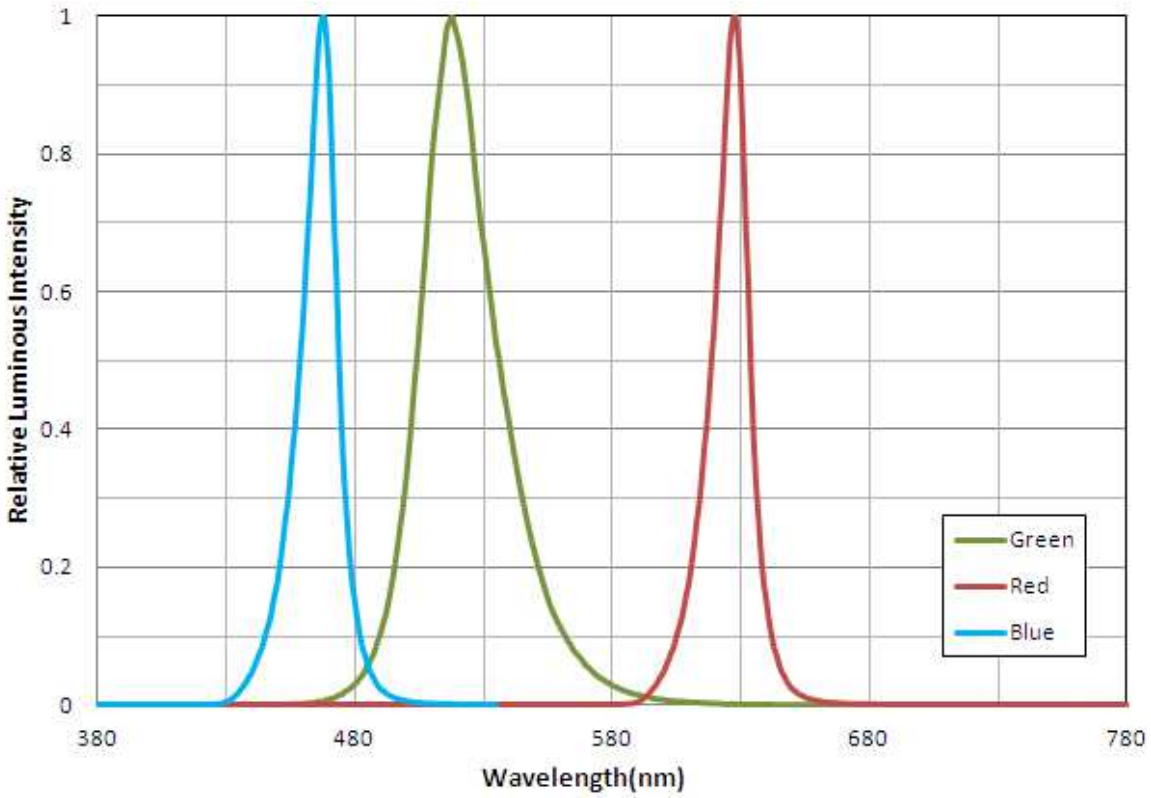
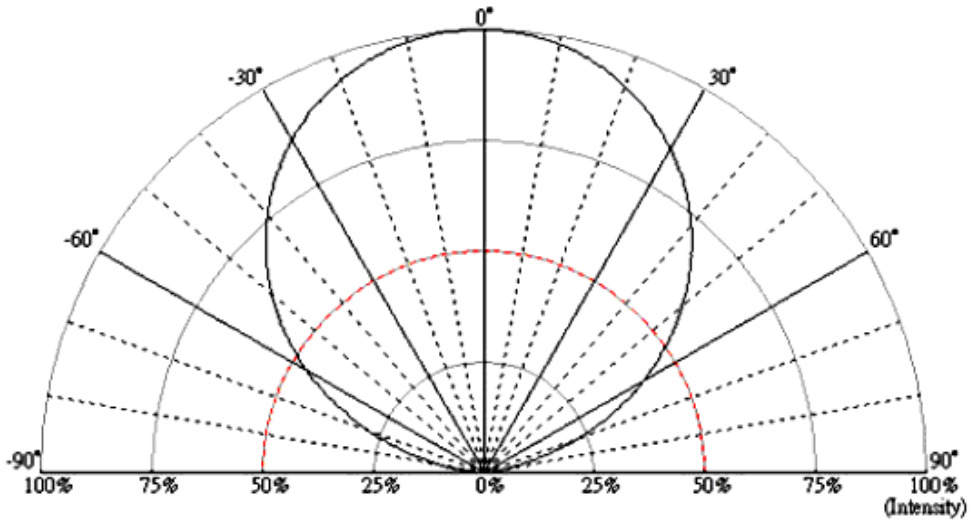
Color Spectrum, I_F=20mA, Ta=25℃



Viewing Angle Distribution, IF=20mA, Ta=25℃



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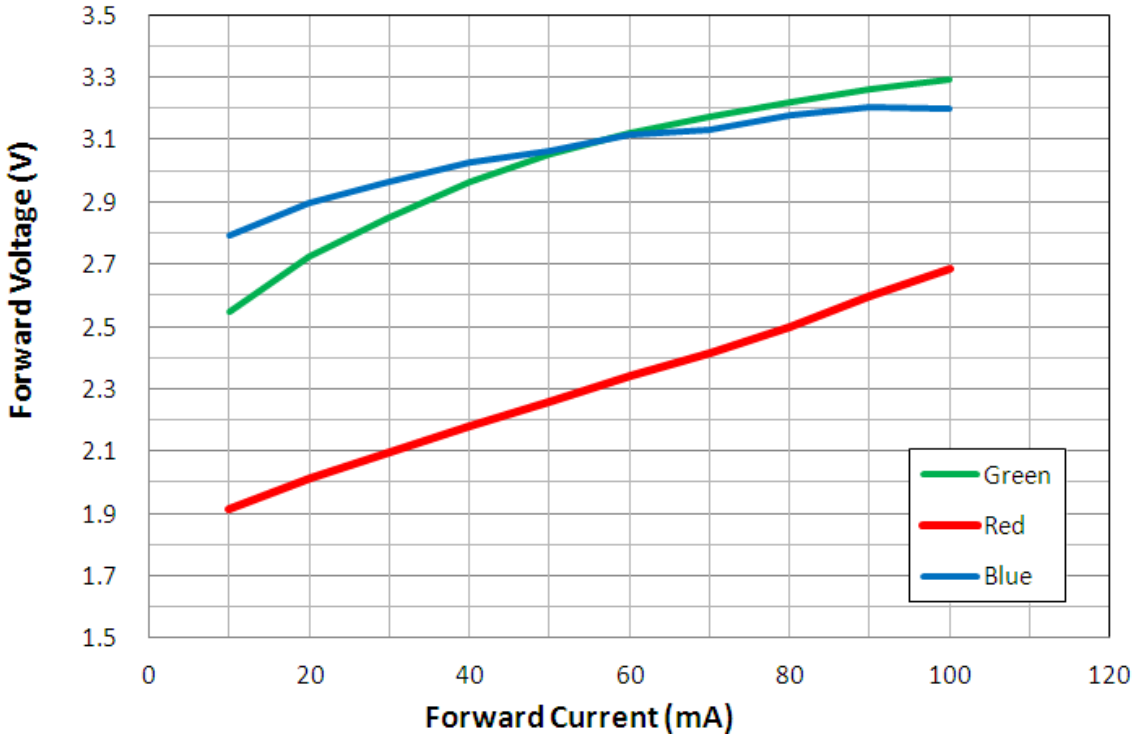
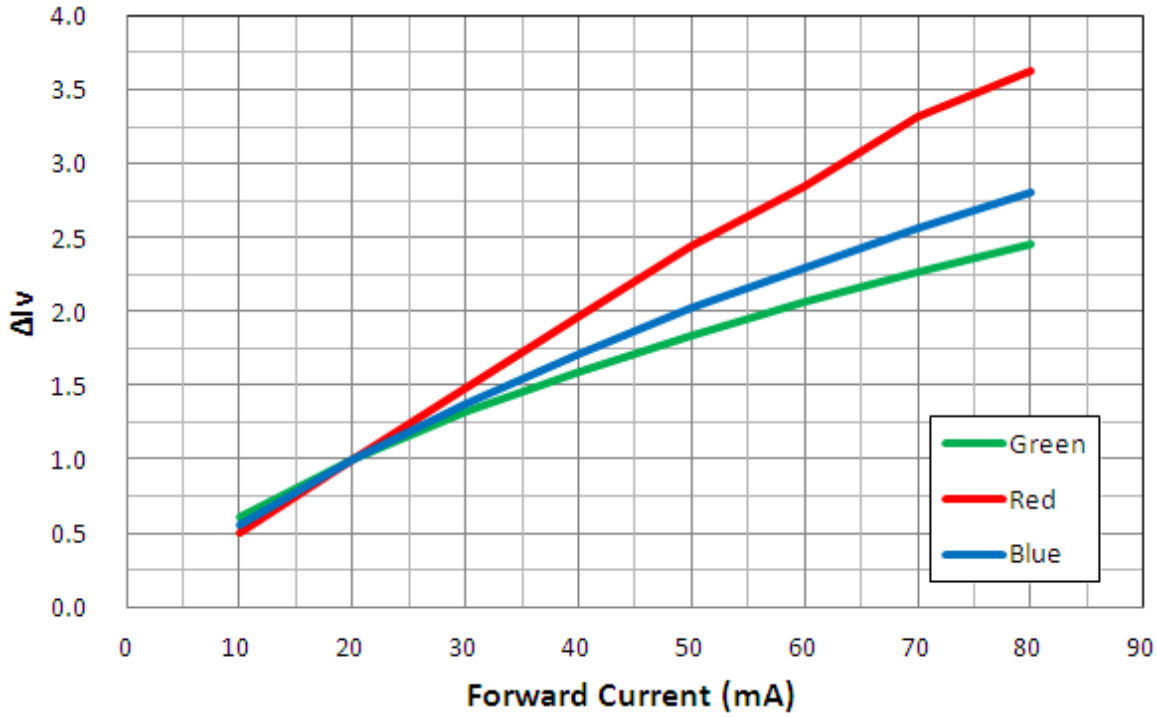
Forward Voltage vs. Forward Current, Ta=25℃



Forward Current vs. Relative Luminosity Intensity, Ta=25℃



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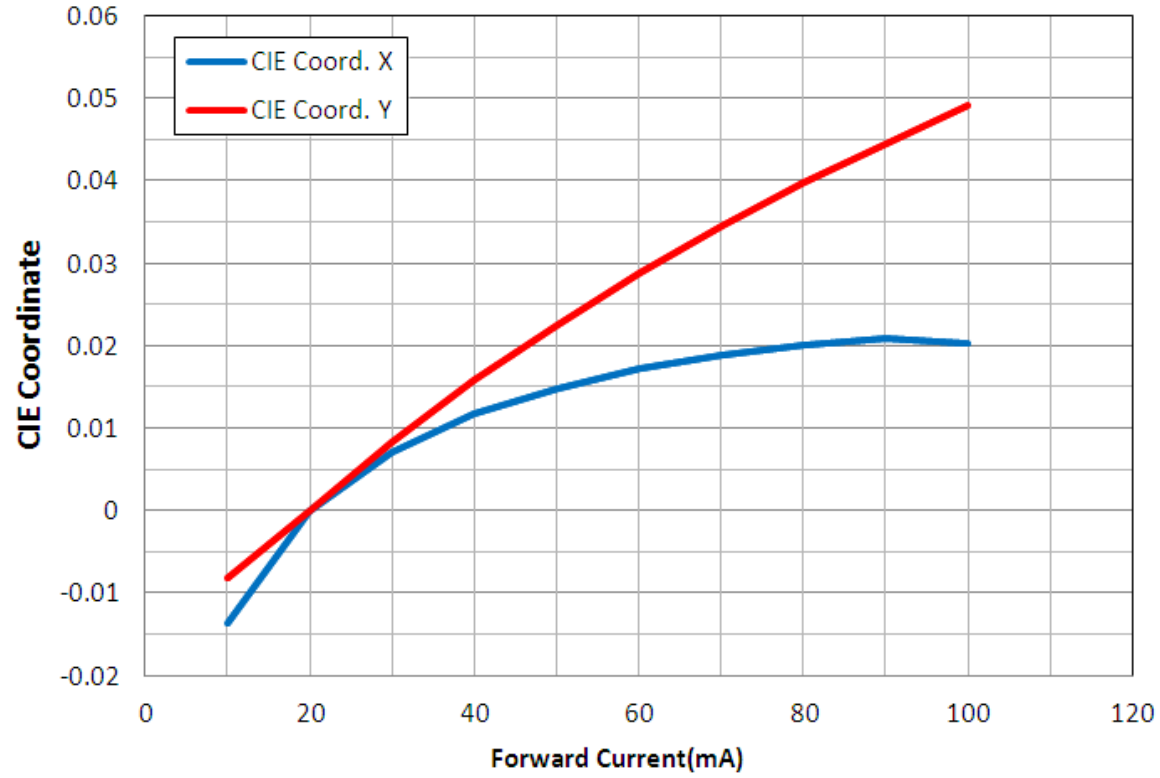
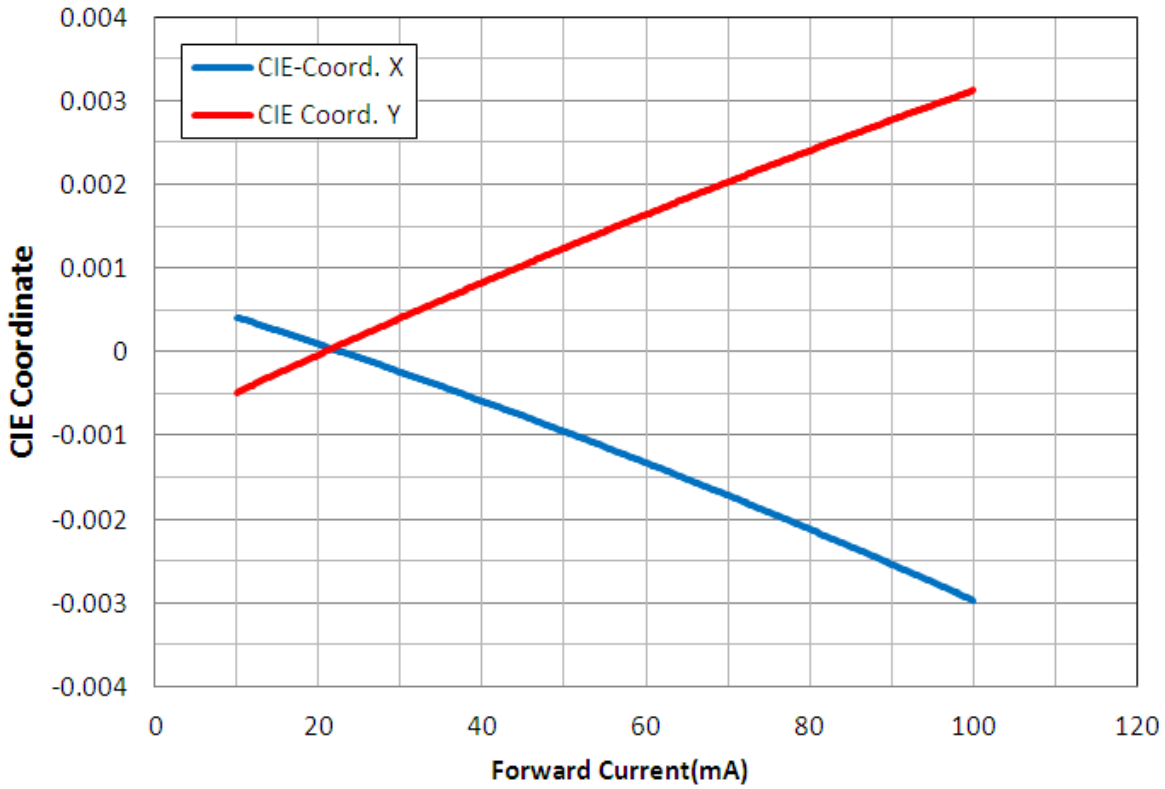
Forward Current vs. CIE X, Y Shift,Ta=25℃(Green)



Forward Current vs. CIE X, Y Shift,Ta=25℃(Red)



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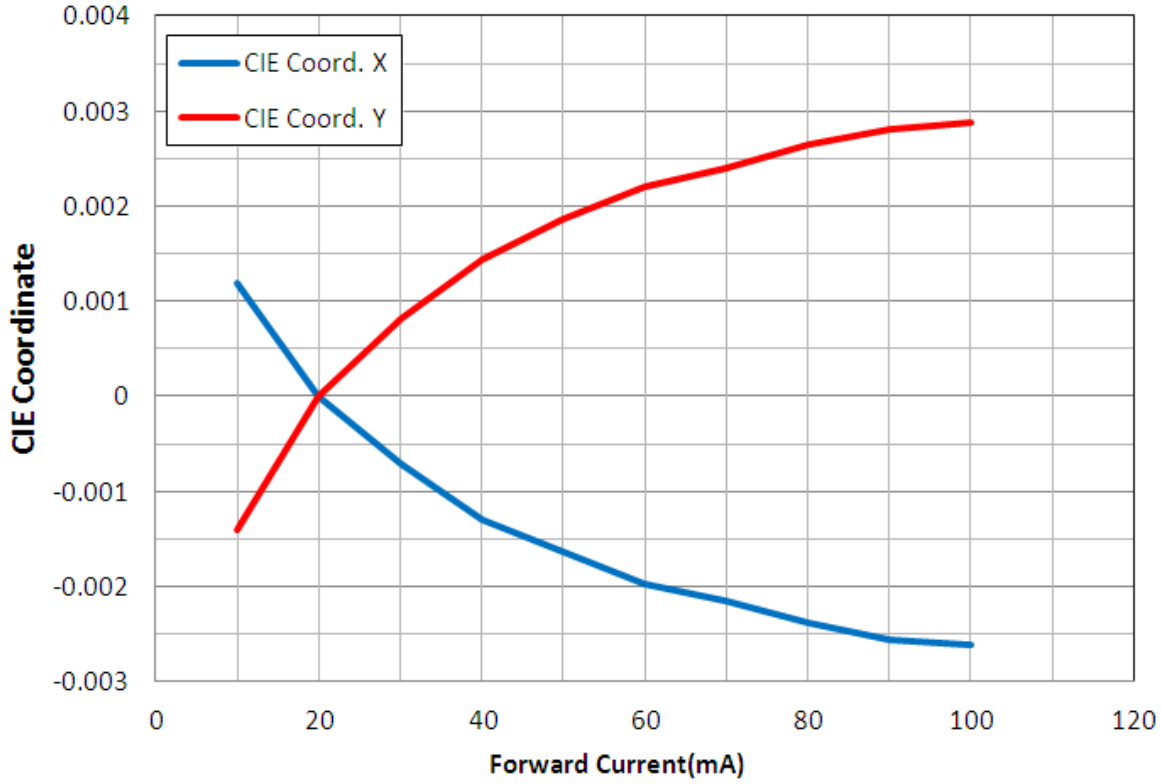
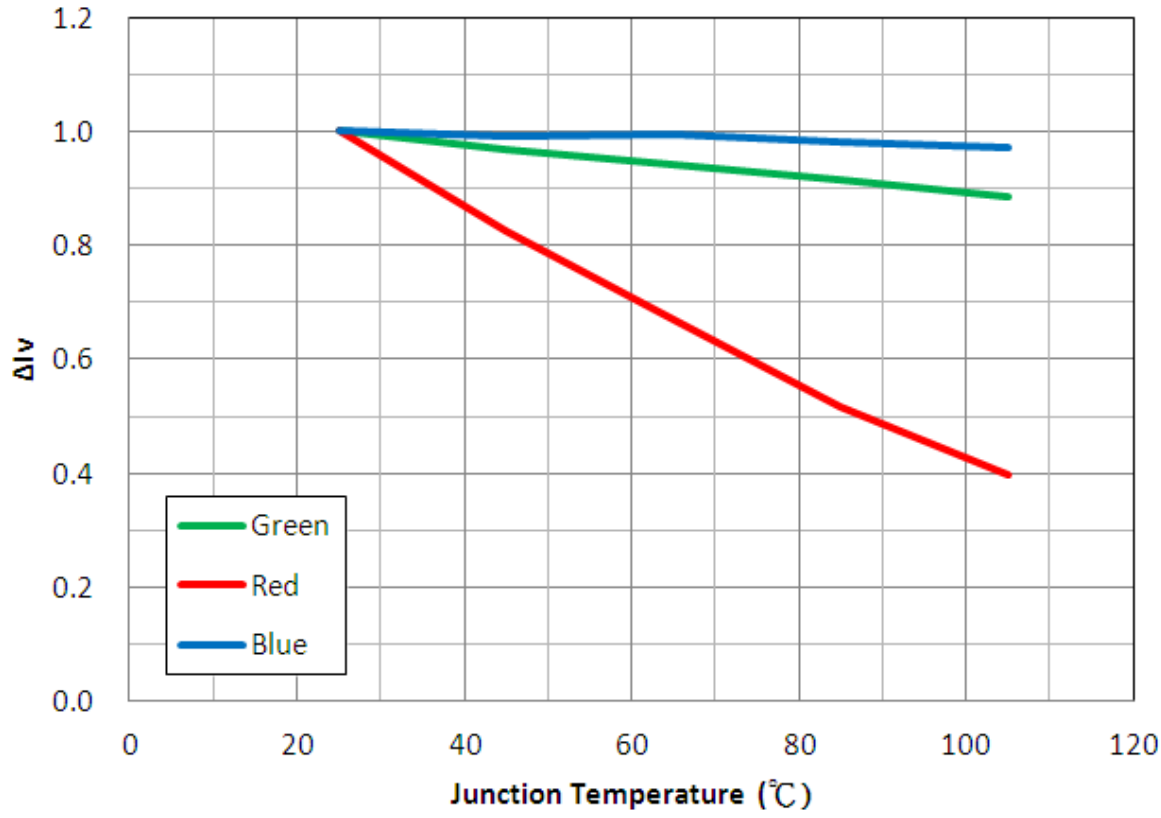
Forward Current vs. CIE X, Y Shift,Ta=25℃(Blue)



Relative Light Output vs. Junction Temperature, I_F=20mA



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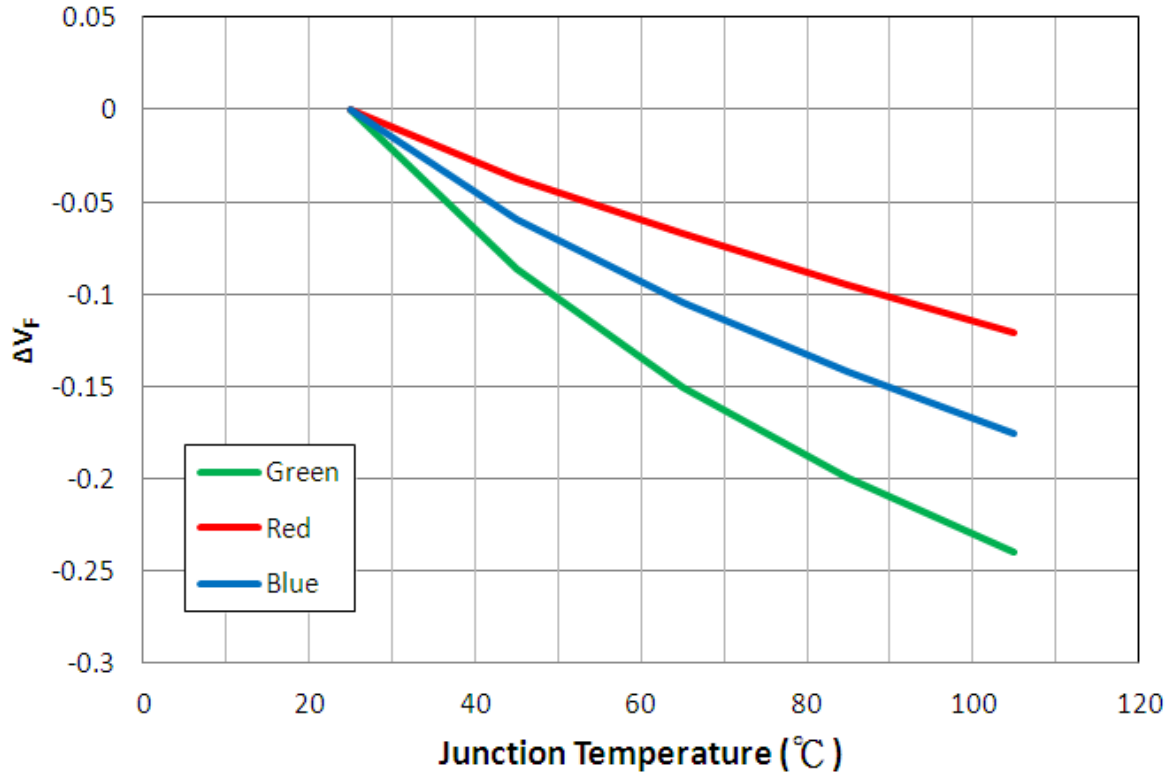
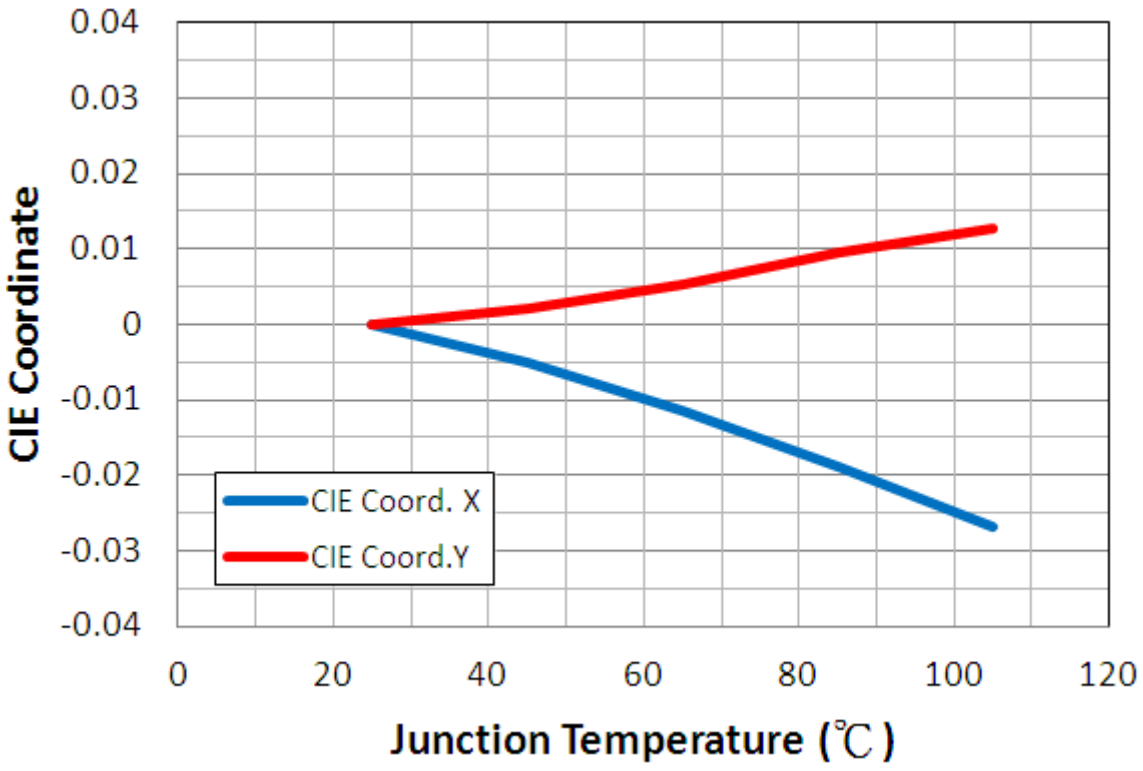
Junction Temperature vs.Forward Voltage Shift, I_F=20mA



Chromaticity Coordinate vs. Junction Temperature, I_F=20mA(Green)



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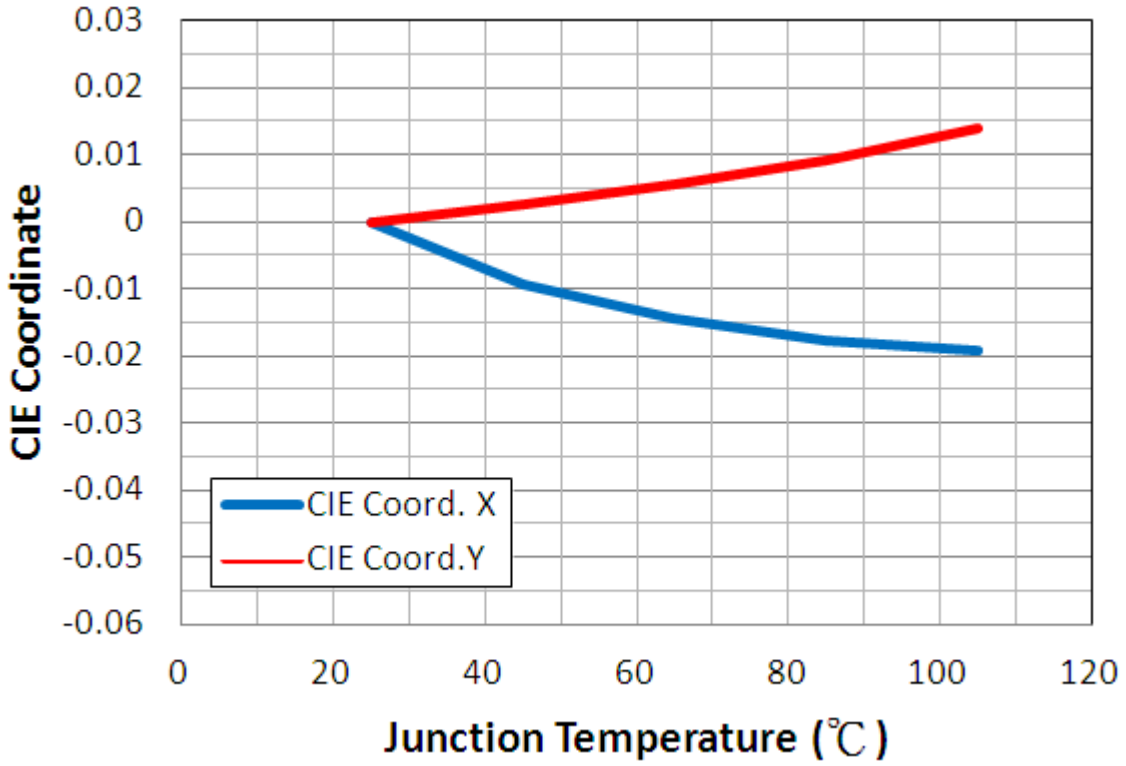
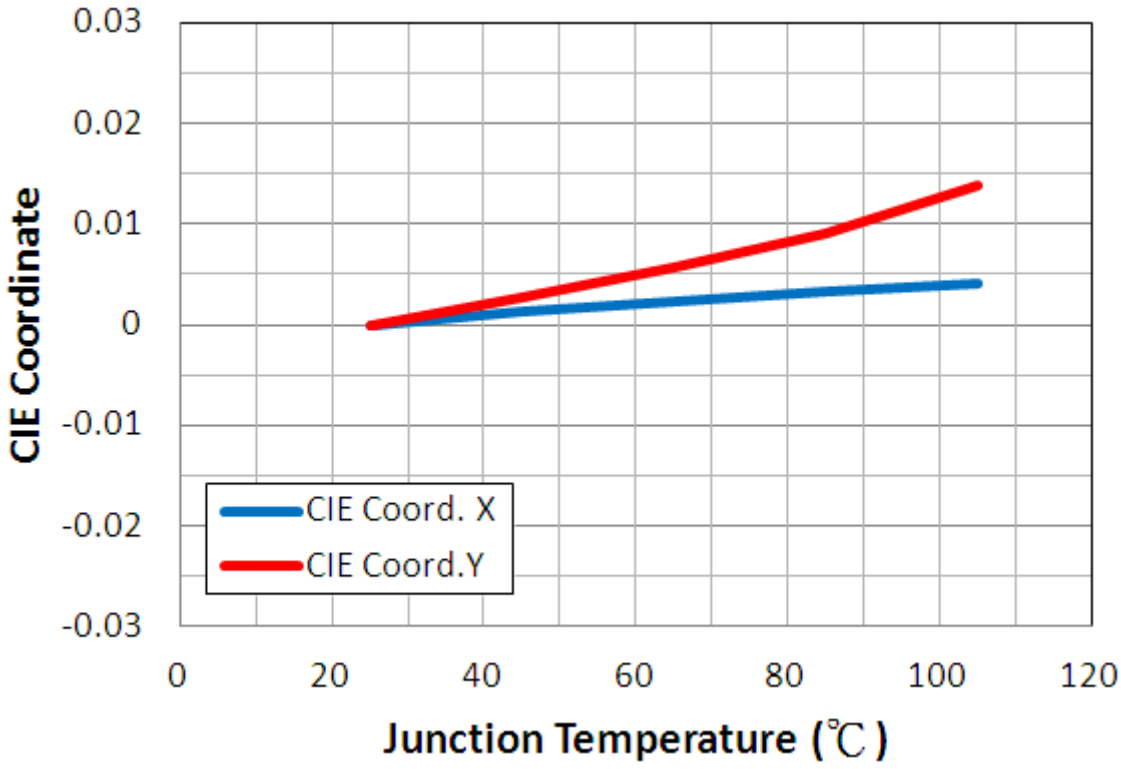
Chromaticity Coordinate vs. Junction Temperature, I_F=20mA(Red)



Chromaticity Coordinate vs. Junction Temperature, I_F=20mA(Blue)



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Reliability test

	Item	Reference Standard	Condition	Time/Cycle
1	Thermal shock	JESD22-A106	-40℃ to 100 ℃, 20 mins dwell, 5 min transfer time	1000 Cycles
2	Temperature Cycle	AEC-Q101 Rev. D	-45℃ to 125 ℃ 15 mins dwell at each high and low temperature extreme	1000 cycles
3	Power and Temperature Cycle	AEC-Q101 Rev. D	-40 ℃~ 85 ℃, IF=40mA, Dwell/transfer time = 10 mins, 20 mins 1,000 cycles , on/off 15,000 cycles	15,000 cycles
4	MSL Level 2	J-STD-020	85℃ / 60% RH	168 hours
5	High Temperature Storage	JESD22-A103	TA=105℃, 1000h	1000 hours
6	Low Temperature Storage	JESD22-A119	TA=-40℃, 1000h	1000 hours
7	High Temperature Operating Life	AEC-Q101 Rev. D	TA=105℃, IF=40mA	1000 hours
8	Low Temperature Operating Life	JESD22-A108	TA=-40℃, IF=40mA	1000 hours
9	Temperature Humidity Operating Life	AEC-Q101 Rev. D	85℃, RH=85%, 1000h, IF=40mA	1000 hours
10	Electrostatic Discharges	AEC-Q101 Rev. D	HBM 2 KV, 1.5KΩ, 100pF, 3 pulses, alternately positive or negative	

Item	Reference Standard	Condition	Time
Corrosion robustness:	IEC 60068-2-43	(H2S) [25°C / 75 %RH / 10 ppm H_2S]	336 hours
	EN60068-2-60	[25 °C / 75 %RH / 200 ppb SO_2, 200 ppb NO_2,10 ppb Cl_2]	504 hours

Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	20mA	ΔVf < 10 %
Luminous Flux	Iv	20mA	ΔIv < 20 %
Delta CIE	CIE-x ,CIE-y	20mA	△x,y <0.01

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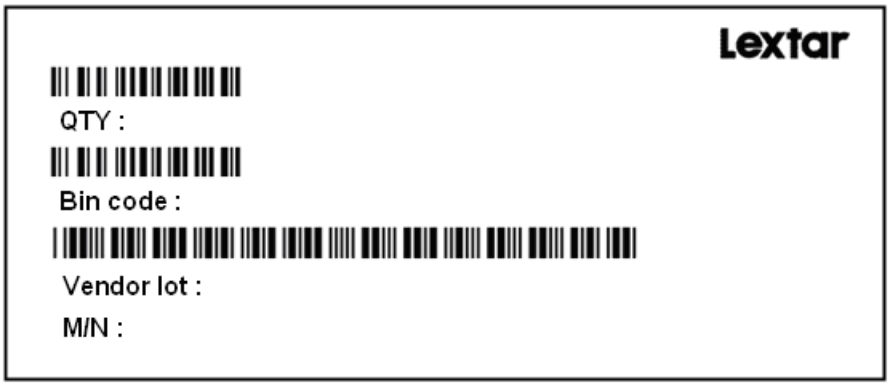
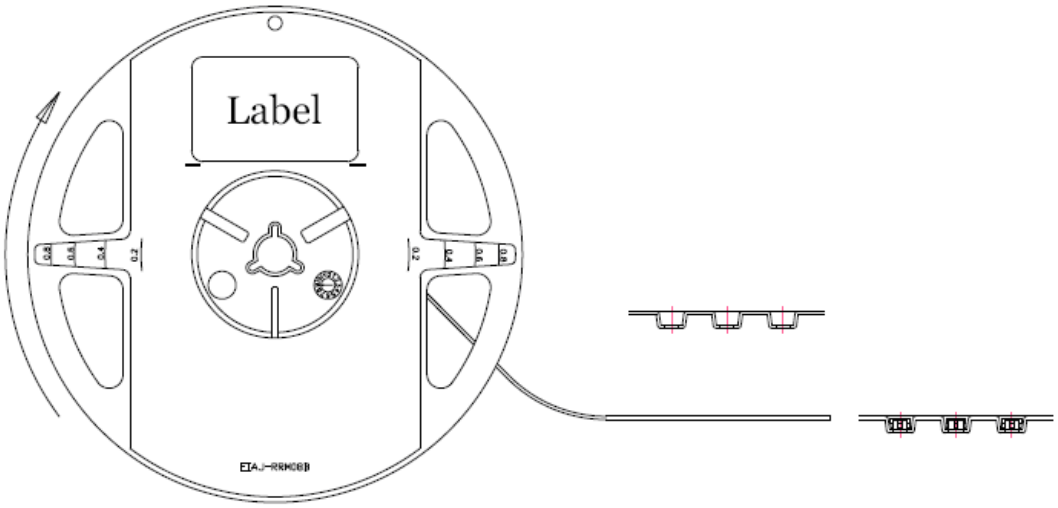
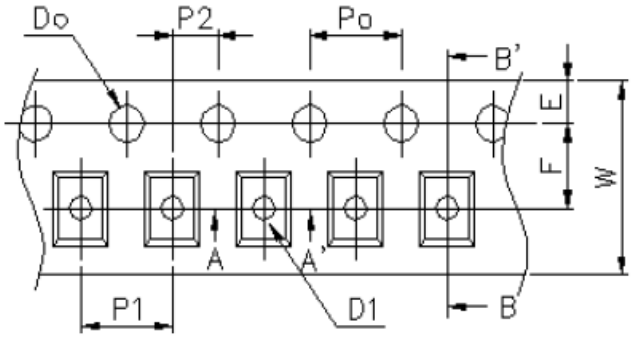
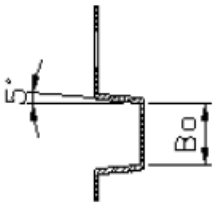
Label



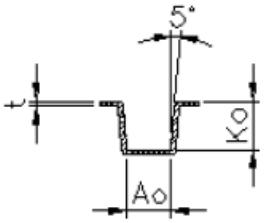
Carrier Taping







SEC: B–B'



SEC: A–A'

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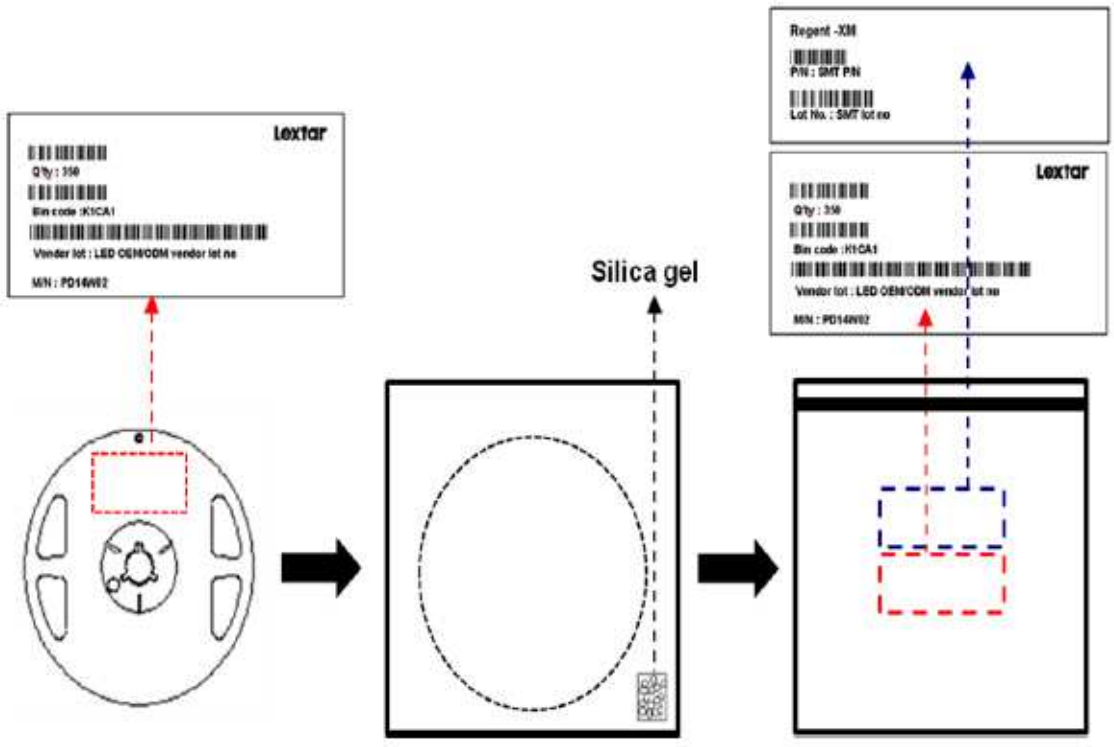
Item	Specification	Tol. (+/-)
W	**8.00**	± 0.20
E	**1.75**	± 0.10
F	**3.50**	± 0.05
D0	**1.50**	+0.10, -0
D1	**1.00**	± 0.10
P0	**4.00**	± 0.05
P1	**4.00**	± 0.10
P2	**2.00**	± 0.05
P0 x 10	**40.00**	± 0.20

t	**0.25**	± 0.05
A0	**3.00**	± 0.10
B0	**3.73**	± 0.10
K0	**2.12**	± 0.10
A1		
B1		
K1		

(Unit：mm)

Shield Bag Taping



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

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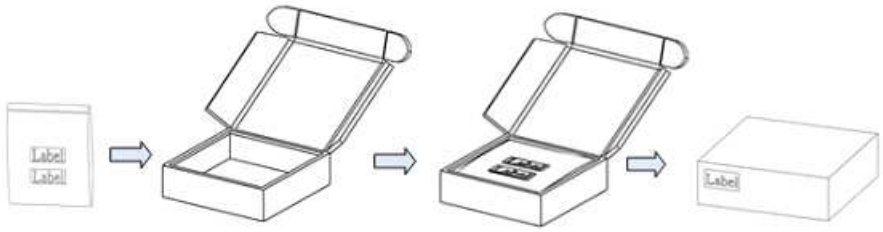
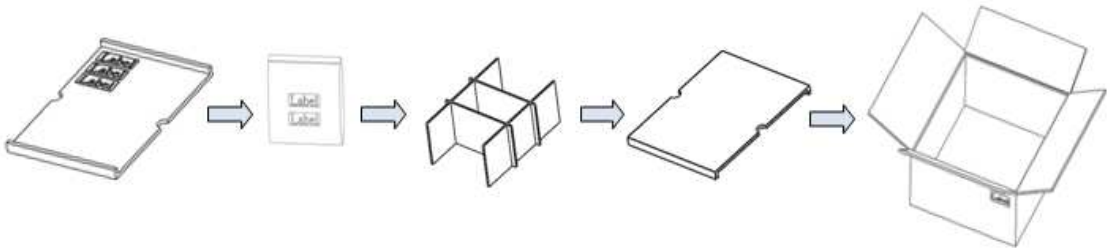
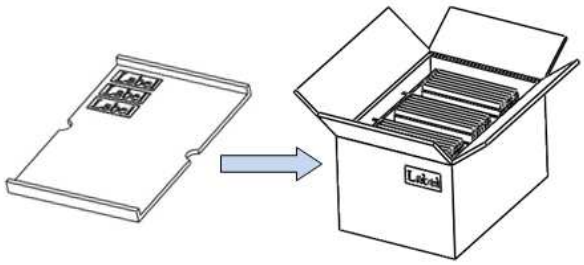
Small Box

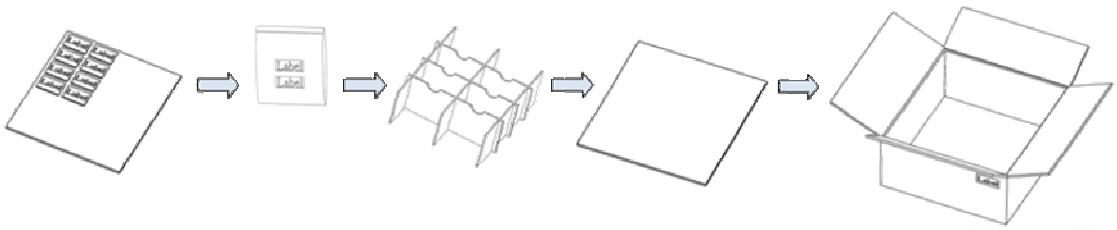


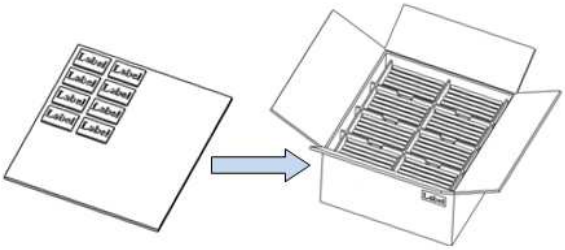
Medium Box





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.

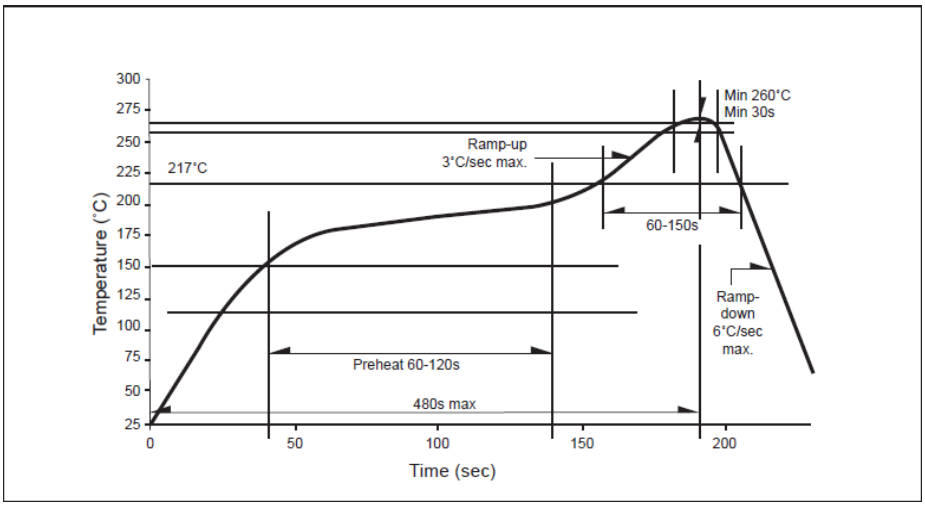
Storage

- 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.
- Reflow temperature profile as below: (lead-free solder)



Classification Reflow Profile (JEDEC J-STD-020D)

- 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
2017.07.14	Preliminary version	Kelly	Bemore
2017.10.12	1. Update Reliability test – P.12 2. Soldering Notice and Conditions – P.16	Kelly	Bemore
2018.02.01	Update Outline Dimension – P.3	Ray	Bemore

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.