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

Lextar

PC35R14 V0
Product Specification

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Approval Sheet

PC35R14
Product Specification

Product	Red SMD LED
Part Number	PC35R14 V0
Issue Date	2018/12/05

Features

- ✓ Red SMD LED (L x W x H) of 3.5 x 2.8 x 1.9 mm
- ✓ AEC-Q101 Rev. D and IEC 60810 qualification
- ✓ Dice Technology : AlGaInP
- ✓ Qualified according to JEDEC moisture sensitivity Level 2
- ✓ Cu Alloy with Gold plated lead frame
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 2,000 / 1,000 / 500 pcs/reel

Applications

- ✓ Center high mounted stop light
- ✓ Stop light
- ✓ Signaling

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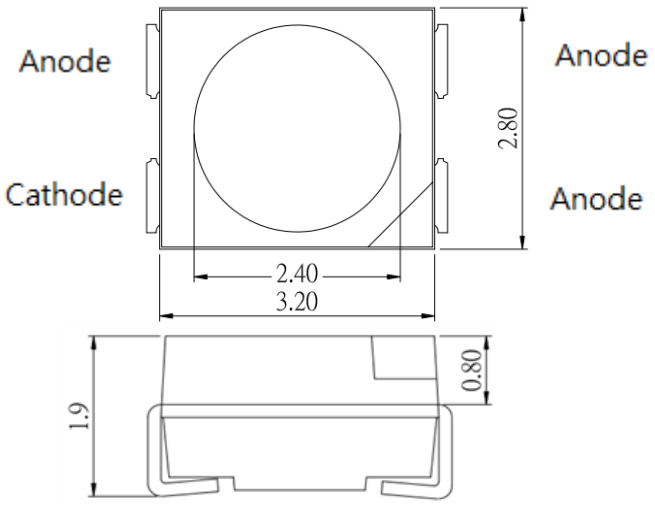
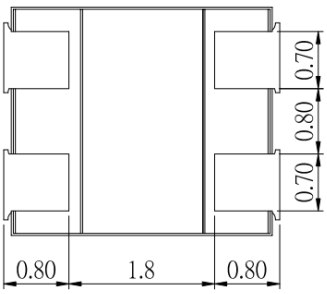
Outline Dimension

PC35R14
Product Specification

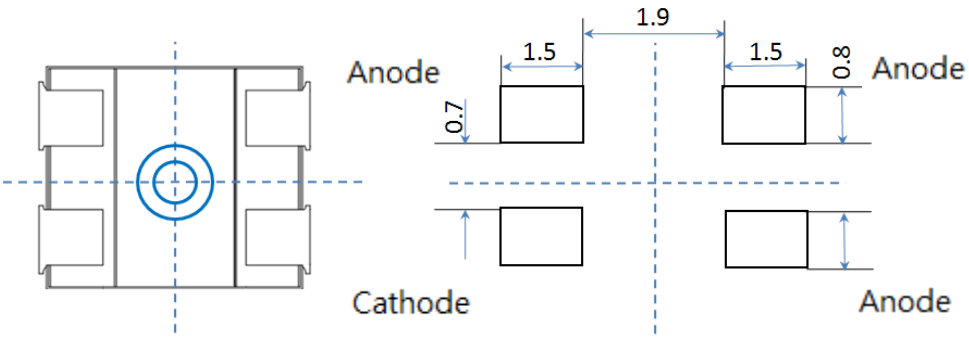
Package Dimension





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	V_F	I_F = 50 mA	1.9	2.25	2.65	V
Dominant Wavelength	Wd		612	618	635	nm
Luminous Intensity	Iv		1400	2800	3550	mcd
View Angle	θ			120		deg
Thermal Resistance	Rth			45		℃/W

* The Forward Voltage tolerance is ±0.05V
* The luminous intensity tolerance is ± 8%
* The Wavelength tolerance is ±0.5nm

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	I_F	70	mA
Power Dissipation	P_D	0.185	W
Pulse Forward Current(2)	IFP	100	mA
Storage Temperature	T_{stg}	-40 ~ +105	°C
Operating Temperature	T_{opr}	-40 ~ +105	°C
Junction Temperature	T_J	125	°C
ESD (HBM)	ESD_{HBM}	2000	V
Assembly Temperature	Tsld	260	°C

(1) Proper current rating must be observed to maintain junction temperature below maximum at all time

(2) IFP Condition: Duty 5/1000, Pulse within 10 μs

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Bin code definition

V_F Rank	Luminous Flux Rank	Wd Rank
A	S1	A1000

V_F Rank	Condition	Min.	Max.
A	I_F = 50 mA Tj=25℃	1.90	2.05
B		2.05	2.20
C		2.20	2.35
D		2.35	2.50
E		2.50	2.65

Luminous Intensity Rank	Condition	Min. Iv (mcd)	Max. Iv (mcd)
S1	I_F = 50 mA Tj=25℃	1400	1800
S2		1800	2240
S3		2240	2800
S4		2800	3550

CIE Rank

Wd Rank	Condition	(Min) λ(nm)	(Max) λ(nm)
A1000	I_F = 50 mA Tj=25℃	612	616
A2000		616	620
A3000		620	624
A4000		624	630
A5000		630	635

* The Forward Voltage tolerance is ±0.05V
* The luminous intensity tolerance is ± 8%
* The Wavelength tolerance is ±0.5nm

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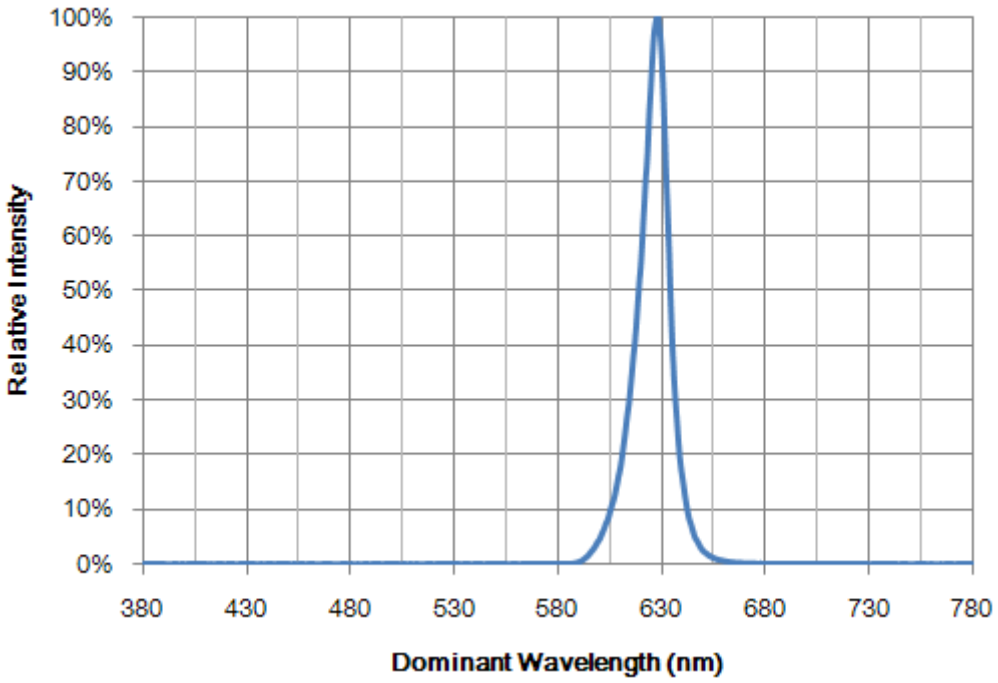
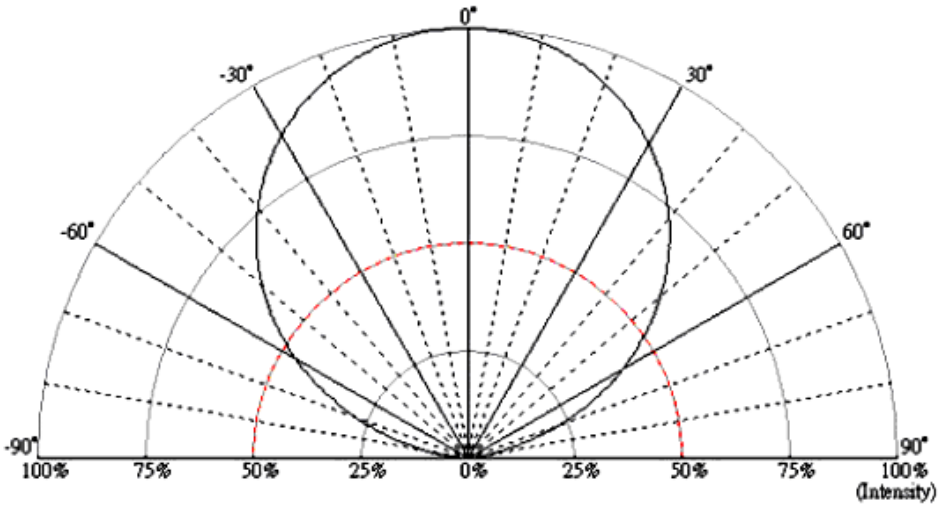
Spectrum



Radiation Pattern



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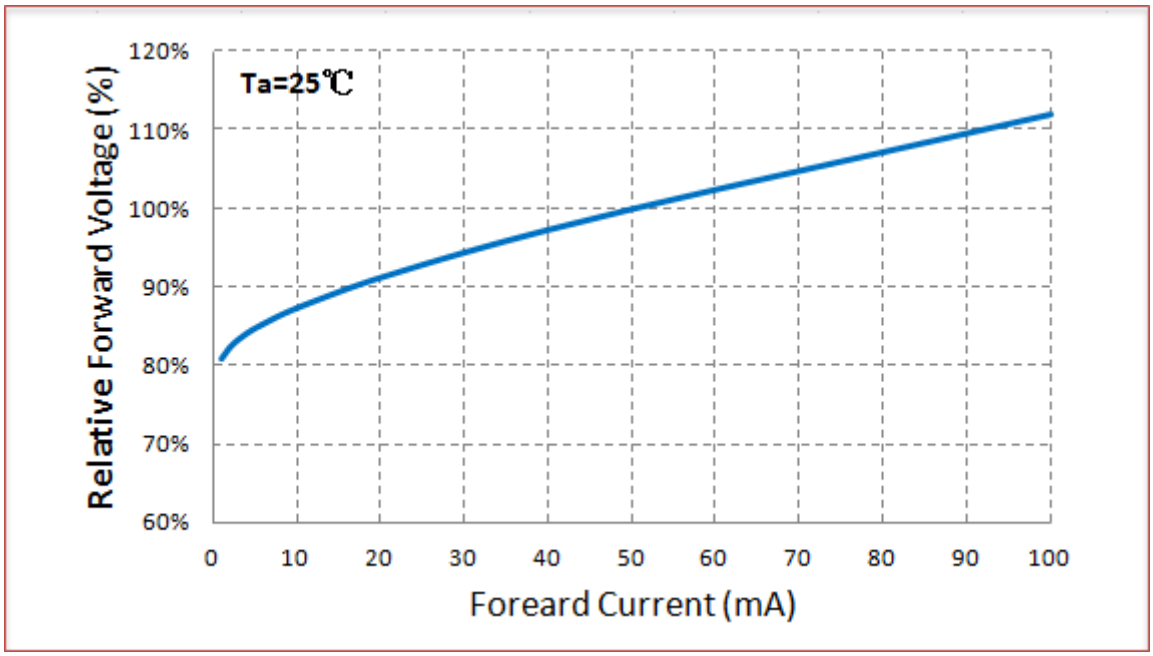
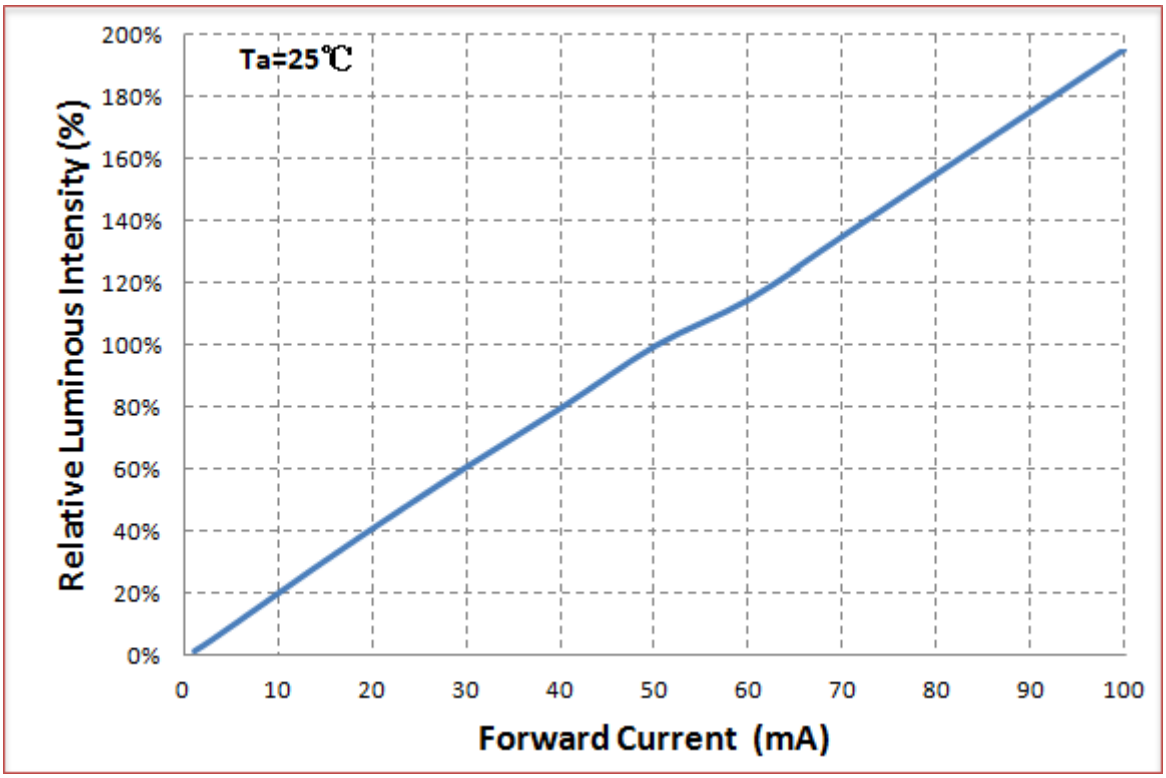
Forward Voltage vs. Forward Current



Forward Current vs. Relative Luminous Intensity



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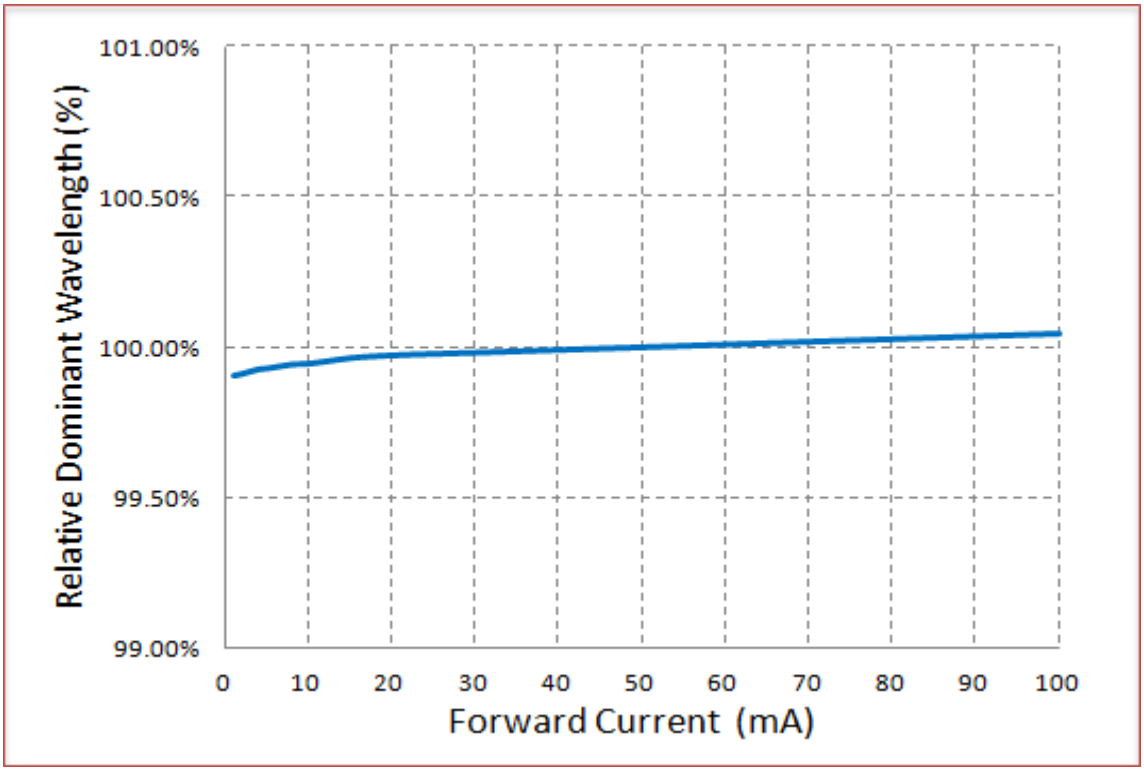
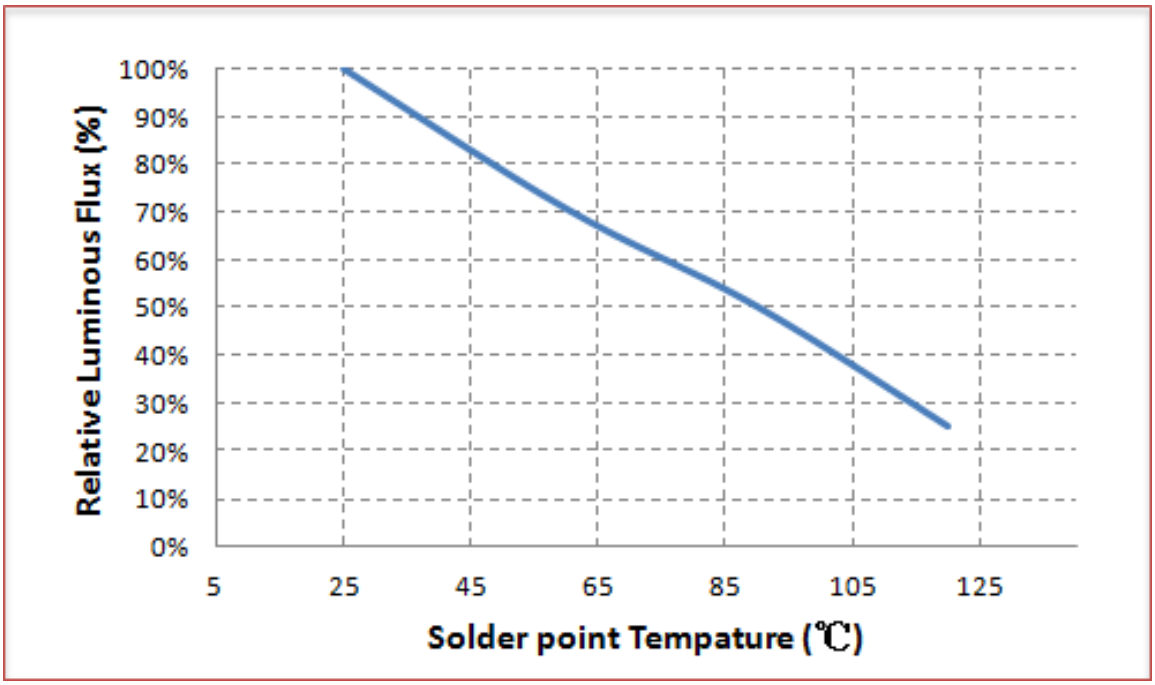
Forward Current vs. Dominant Wavelength



Soldering Temperature vs. Relative Luminance, I_F=50mA



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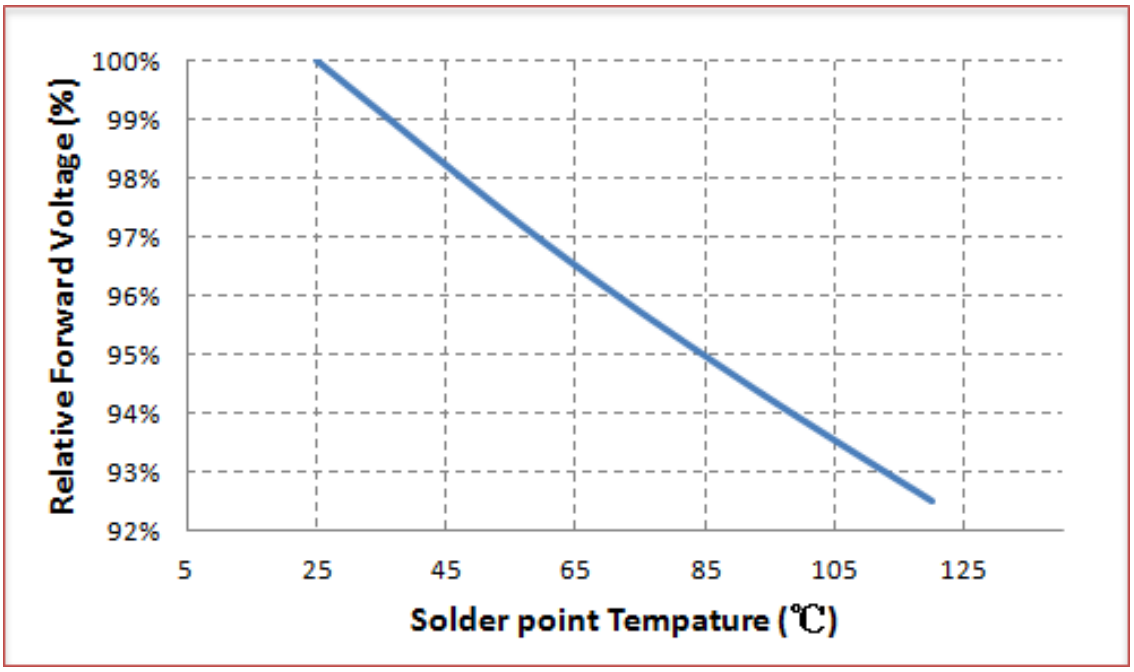
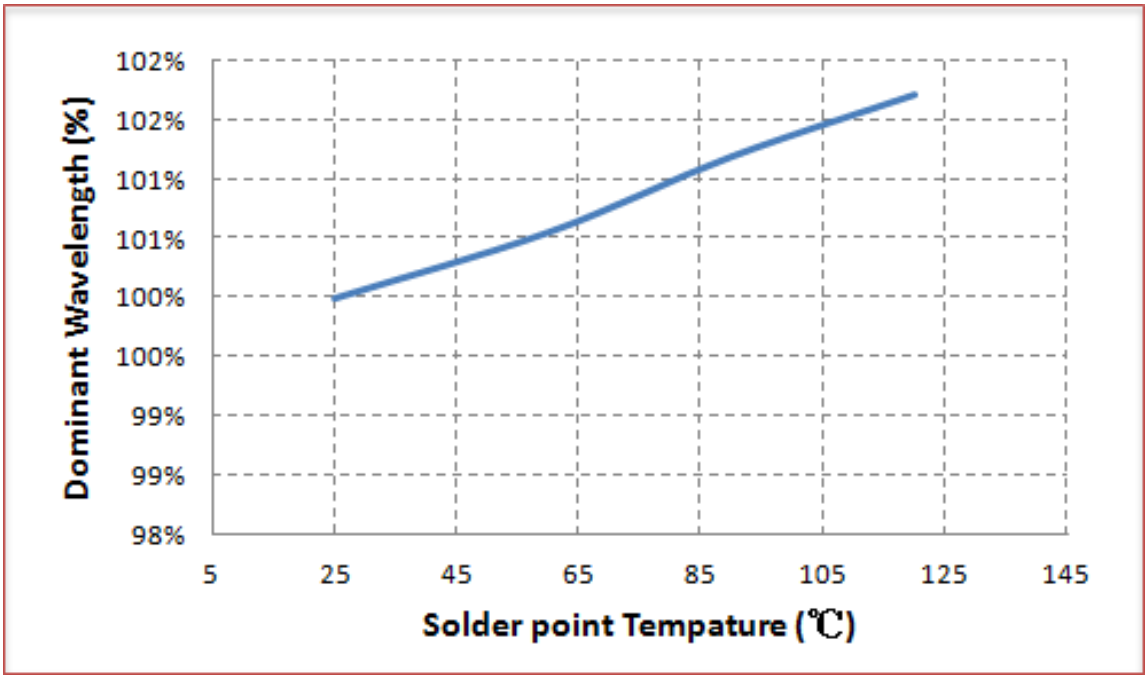
Soldering Temperature vs. Forward Voltage Shift, I_F=50mA



Soldering Temperature vs. Dominant Wavelength, I_F=50mA



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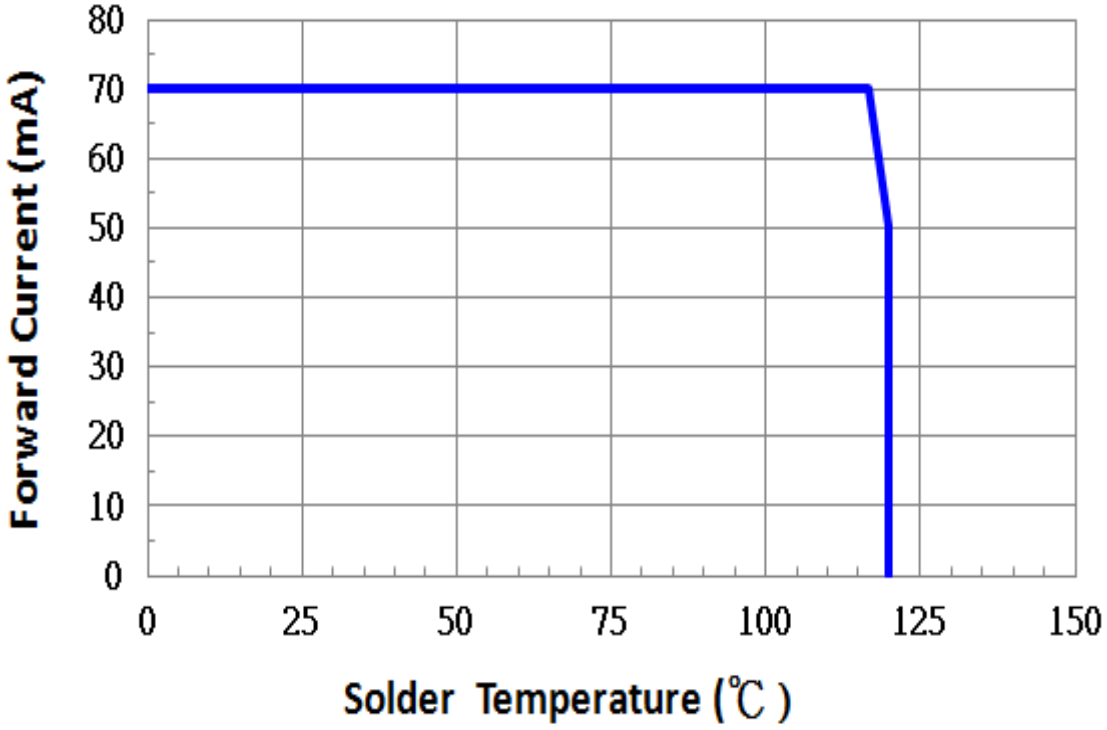
Derating Curve



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Reliability test

	Item	Reference Standard	Condition	Time/Cycle
1	Thermal shock	JESD22-A106	-40℃ to 125 ℃, 20 mins dwell, 5 min transfer time	1000 Cycles
2	Temperature Cycle	AEC-Q101 Rev. D	-55℃ to 125 ℃ 15 mins dwell at each high and low temperature extreme	1000 cycles
3	Power and Temperature Cycle	AEC-Q101 Rev. D	-40 ℃~ 125 ℃, IF=70mA, 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℃, 1000hrs	1000 hours
6	Low Temperature Storage	JESD22-A119	TA=-40℃, 1000hrs	1000 hours
7	High Temperature Operating Life	AEC-Q101 Rev. D	TA=105℃, IF=70mA	1000 hours
8	Low Temperature Operating Life	JESD22-A108	TA=-40℃, IF=70mA	1000 hours
9	Temperature Humidity Operating Life	AEC-Q101 Rev. D	85℃, RH=85%, 1000hrs, IF=70mA	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	50mA	ΔVf < 10 %
Luminous Flux	Iv	50mA	ΔIv < 20 %
Delta CIE	CIE-x ,CIE-y	50mA	△x,y <0.01

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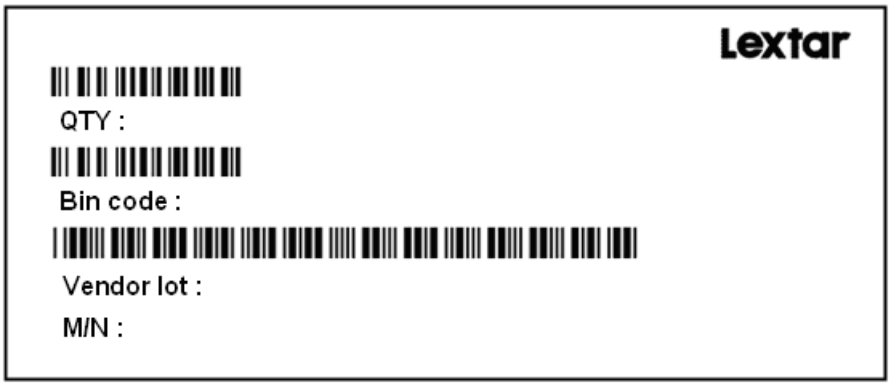
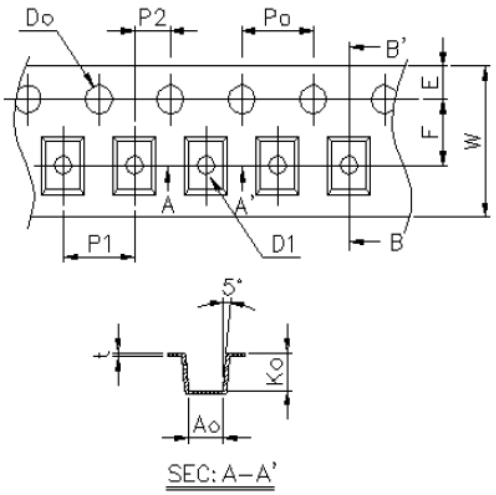
Packing

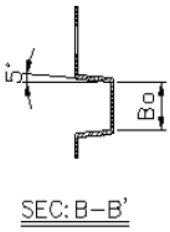
PC35R14
Product Specification

Label



Carrier Taping





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		

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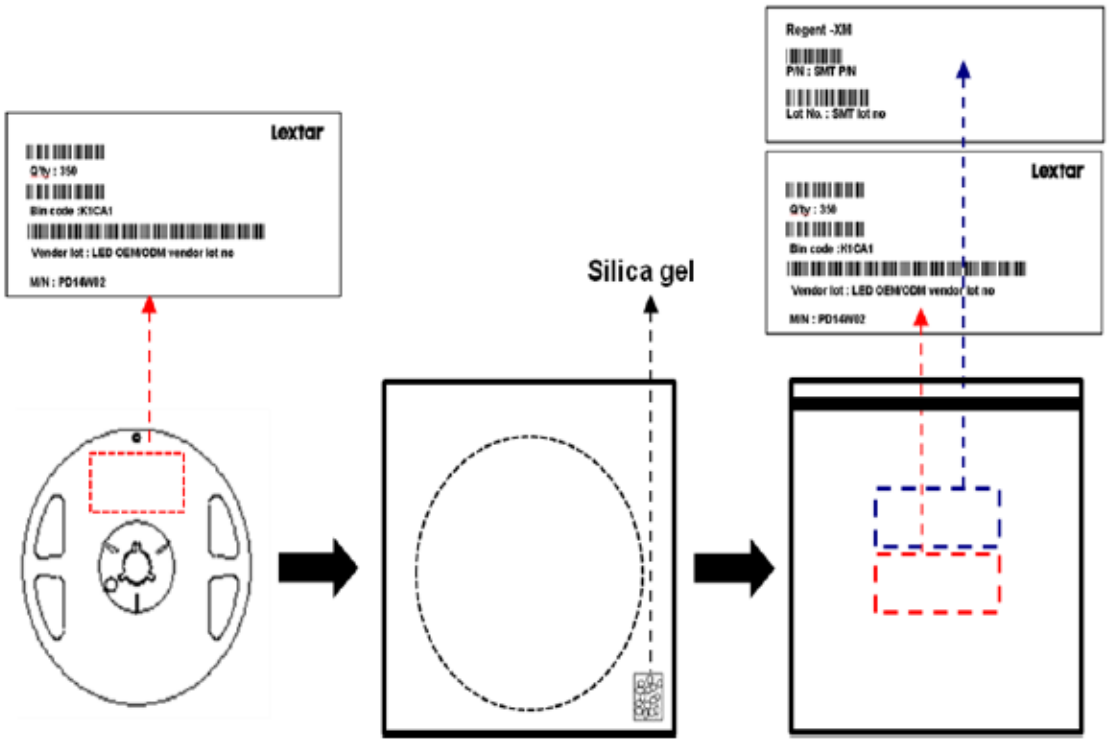
(Unit：mm)

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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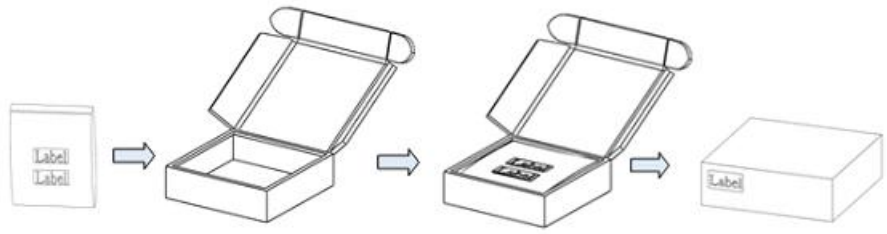
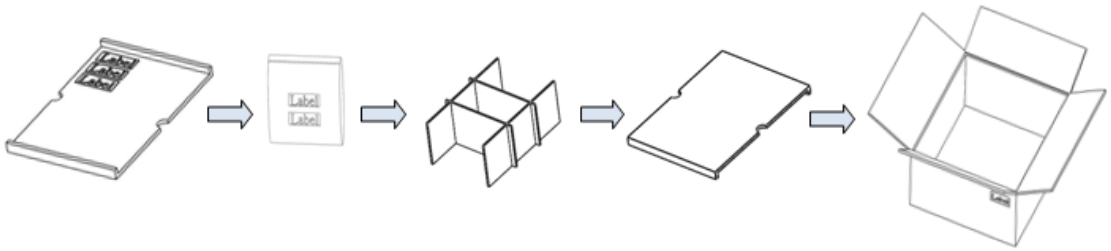
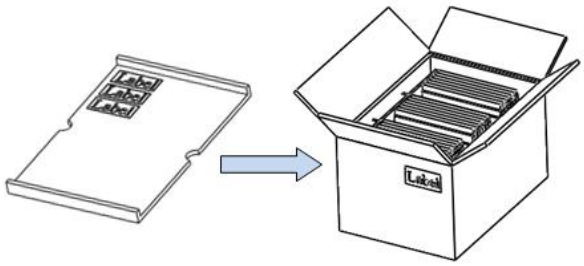
Small Box

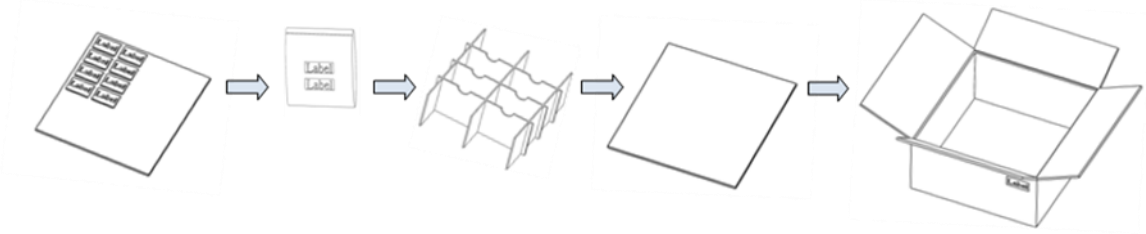


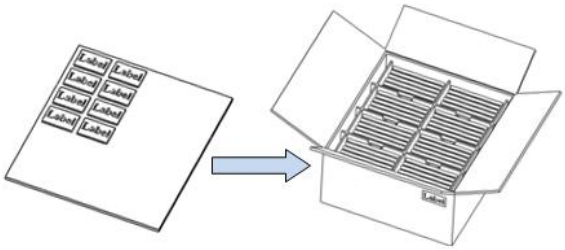
Medium Box





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.

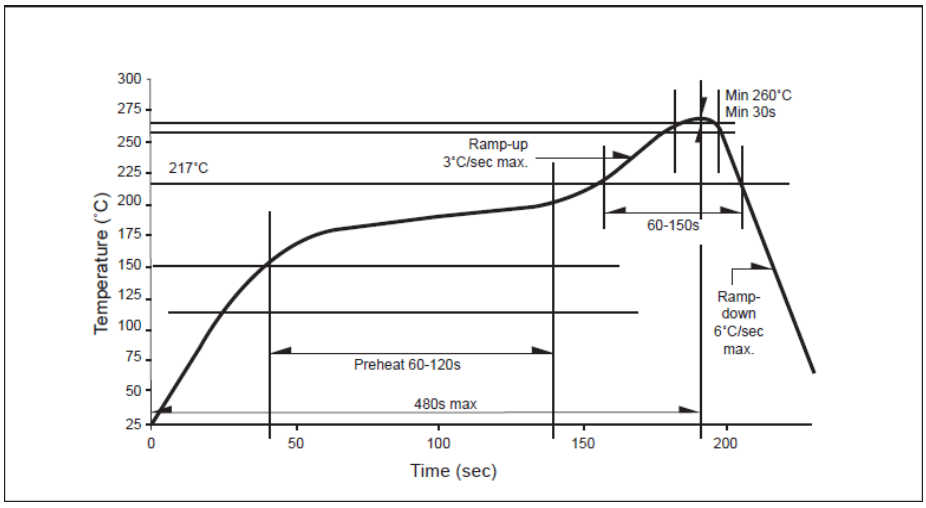
Storage

- 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
2017.01.03	NEW VERSION	Rudess	Rex
2017.05.03	Update packing reel Q'ty	Rudess	Bemore
2017.07.20	Update Features (Cu Alloy with Gold plated LF)	Bemore	Rex
2017.08.07	1. Update Reliability test – P.11 2. Soldering Notice and Conditions – P.15	Rudess	Bemore
2017.09.11	Update O.E. data – P.8~10	Rudess	Bemore
2017.12.12	Add CIE bin – P.5	Rudess	Bemore
2018.05.11	Update Reliability test – P.11	Rudess	Bemore
2018.10.19	Update de-rating curve– P.10	Rudess	Bemore
2018.12.05	Final version	Rudess	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.