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

Lextar

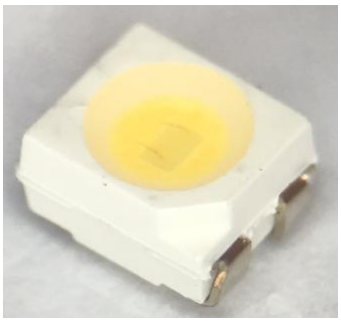
PC35H19 V3
Product Specification

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

Approval Sheet

PC35H19
Product Specification

Product	White SMD LED
Part Number	PC35H19 V3
Issue Date	2018/12/25



Features

- ✓ White 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 : GaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 2
- ✓ Cu Alloy with Gold plated lead frame
- ✓ Environmental friendly ; RoHS compliance
- ✓ ESD protection
- ✓ Packing : 2,000 / 1,000 / 500 pcs/reel

Applications

- ✓ Daytime running light
- ✓ Automotive lighting
- ✓ Position light
- ✓ Ambient light
- ✓ Map light

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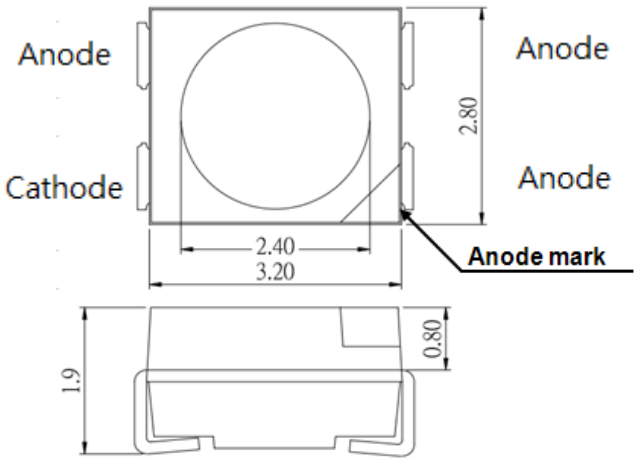
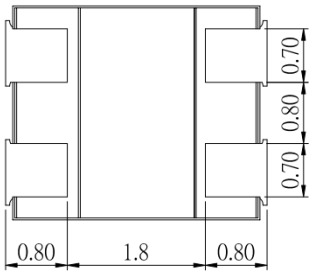
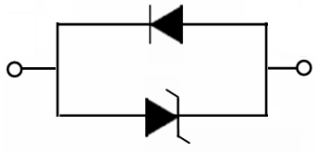
Package Dimension

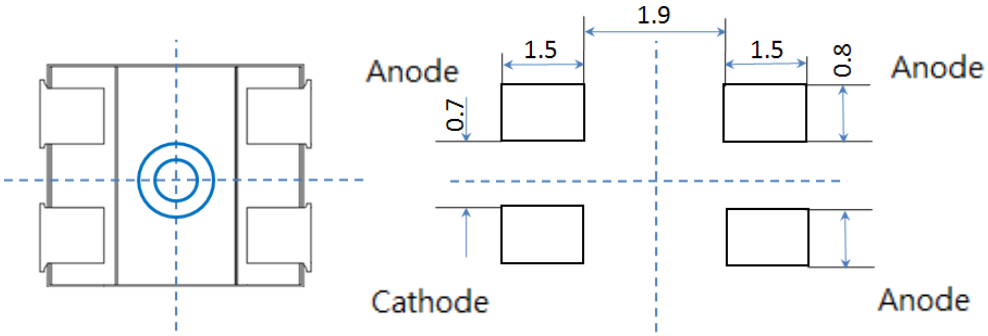






Unit: mm, Tolerance: ±0.1mm

Recommended Soldering Pad



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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 50 mA	2.7	3.0	3.3	V
Luminous Flux	Iv		13.7	17	22.8	lm
Color	CCT		5000	-	6500	K
View Angle	θ		120			deg
Thermal Resistance	Rth		45			℃/W

* The Forward Voltage tolerance is ±0.05V

* The luminous intensity tolerance is ± 8%

* Tolerance of measurements of the Chromaticity Coordinate is ±0.005.

Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current(1)	I_F	70	mA
Power Dissipation	P_D	0.20	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}	8000	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 us

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Bin code Definition

V_F Rank	Luminous Flux Rank	CIE Rank
A	VS	R5703

Forward Voltage Definition Group

V_F Rank	Condition	Min. (V)	Max. (V)
A	I_F = 50 mA Tj=25℃	2.70	2.90
B		2.90	3.10
C		3.10	3.30

Luminous Intensity Definition Group

Luminous Intensity Rank	Condition	Min. Iv (lm)	Max. Iv (lm)
VS	I_F = 50 mA Tj=25℃	13.7	15.2
VT		15.2	19
VU		19	22.8

CIE Rank

CIE Rank	X1	Y1	X2	Y2	X3	Y3	X4	Y4
R5001	0.3470	0.3773	0.3463	0.3687	0.3552	0.3760	0.3565	0.3851
R5002	0.3463	0.3687	0.3456	0.3601	0.3539	0.3669	0.3552	0.3760
R5003	0.3456	0.3601	0.3448	0.3514	0.3526	0.3578	0.3539	0.3669
R5004	0.3448	0.3514	0.3440	0.3428	0.3514	0.3487	0.3526	0.3578
R5005	0.3440	0.3428	0.3432	0.3342	0.3502	0.3396	0.3514	0.3487
L5001	0.3379	0.3698	0.3376	0.3616	0.3463	0.3687	0.3470	0.3773
L5002	0.3376	0.3616	0.3373	0.3534	0.3456	0.3601	0.3463	0.3687
L5003	0.3373	0.3534	0.3369	0.3451	0.3448	0.3514	0.3456	0.3601
L5004	0.3369	0.3451	0.3366	0.3369	0.3440	0.3428	0.3448	0.3514
L5005	0.3366	0.3369	0.3363	0.3287	0.3432	0.3342	0.3440	0.3428
R5701	0.3291	0.3617	0.3292	0.3539	0.3376	0.3616	0.3379	0.3698
R5702	0.3292	0.3539	0.3293	0.3461	0.3373	0.3534	0.3376	0.3616
R5703	0.3293	0.3461	0.3293	0.3384	0.3369	0.3451	0.3373	0.3534
R5704	0.3293	0.3384	0.3294	0.3306	0.3366	0.3369	0.3369	0.3451

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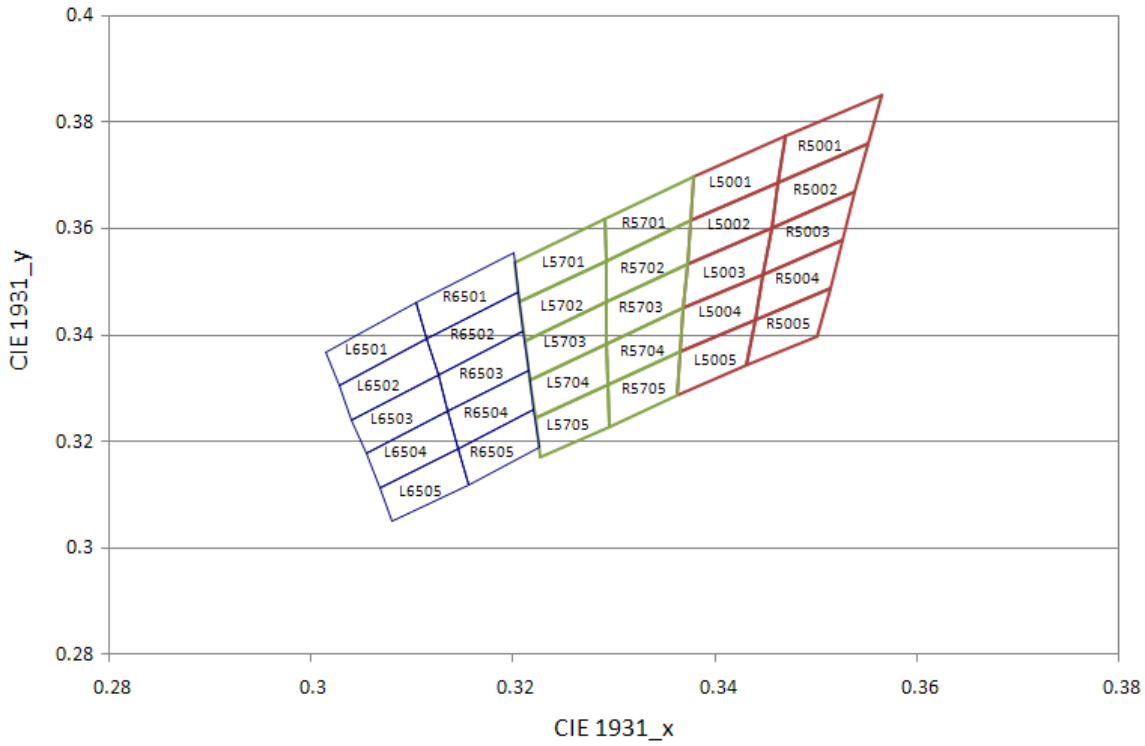
R5705	0.3294	0.3306	0.3295	0.3228	0.3363	0.3287	0.3366	0.3369
L5701	0.3202	0.3535	0.3207	0.3462	0.3292	0.3539	0.3291	0.3617
L5702	0.3207	0.3462	0.3212	0.3389	0.3293	0.3461	0.3292	0.3539
L5703	0.3212	0.3389	0.3217	0.3316	0.3293	0.3384	0.3293	0.3461
L5704	0.3217	0.3316	0.3222	0.3243	0.3294	0.3306	0.3293	0.3384
L5705	0.3222	0.3243	0.3227	0.3170	0.3295	0.3228	0.3294	0.3306
R6501	0.3104	0.3462	0.3115	0.3393	0.3206	0.3481	0.3201	0.3554
R6502	0.3115	0.3393	0.3126	0.3324	0.3211	0.3408	0.3206	0.3481
R6503	0.3126	0.3324	0.3136	0.3256	0.3216	0.3334	0.3211	0.3408
R6504	0.3136	0.3256	0.3146	0.3187	0.3221	0.3261	0.3216	0.3334
R6505	0.3146	0.3187	0.3156	0.3118	0.3226	0.3188	0.3221	0.3261
L6501	0.3015	0.3368	0.3028	0.3304	0.3115	0.3393	0.3104	0.3462
L6502	0.3028	0.3304	0.3041	0.3240	0.3126	0.3324	0.3115	0.3393
L6503	0.3041	0.3240	0.3055	0.3177	0.3136	0.3256	0.3126	0.3324
L6504	0.3055	0.3177	0.3068	0.3113	0.3146	0.3187	0.3136	0.3256
L6505	0.3068	0.3113	0.3081	0.3049	0.3156	0.3118	0.3146	0.3187

* 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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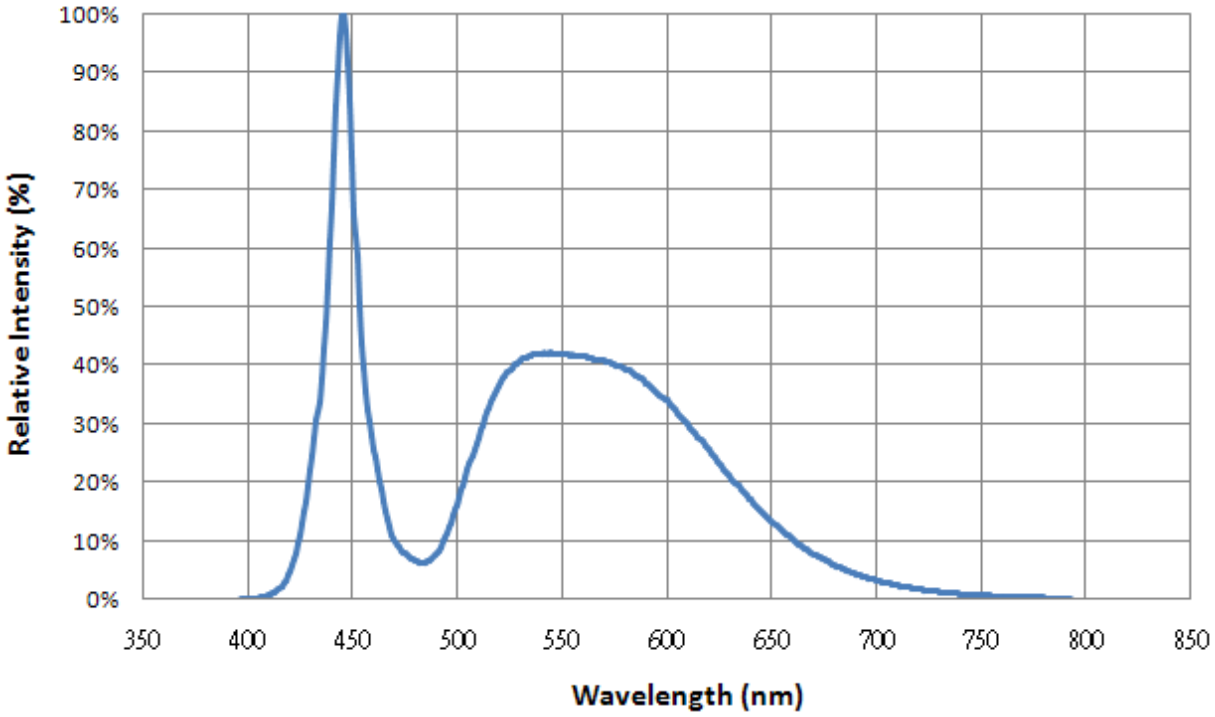
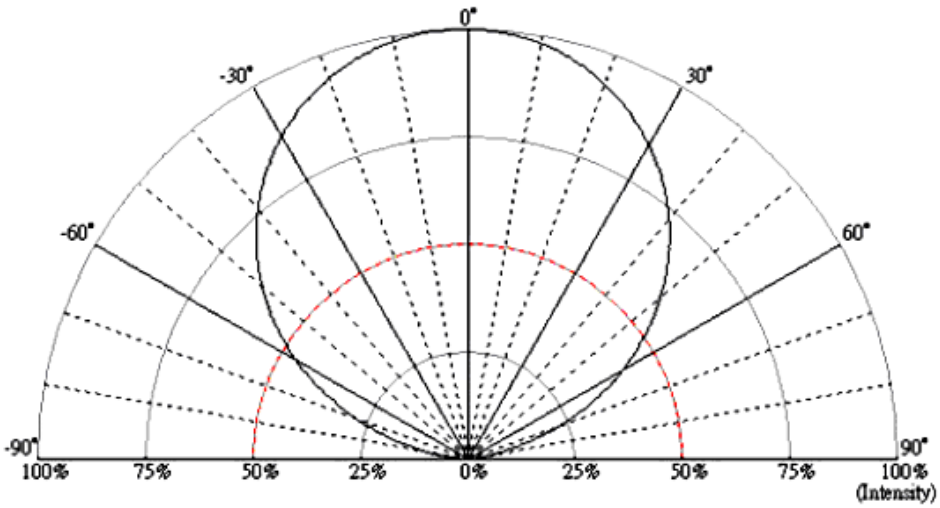
Spectrum



Radiation Pattern



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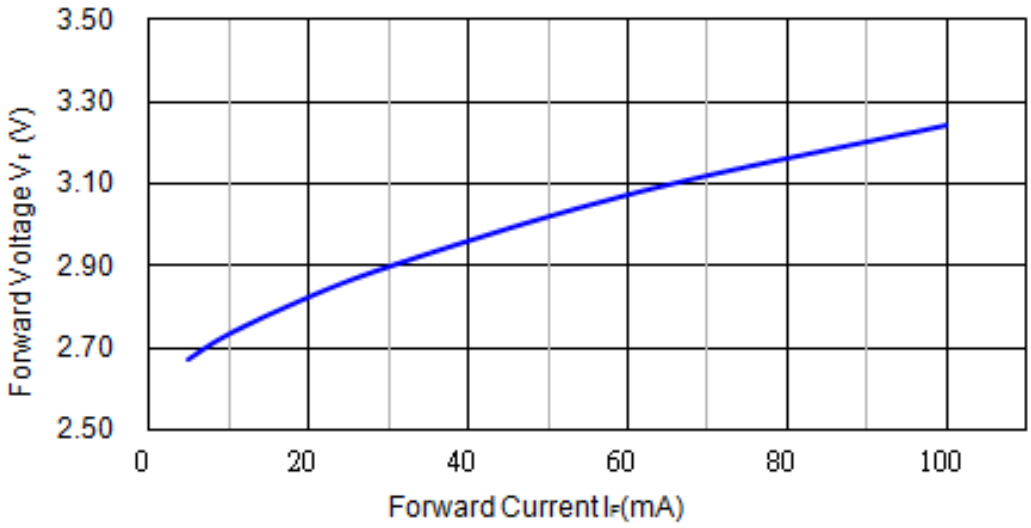
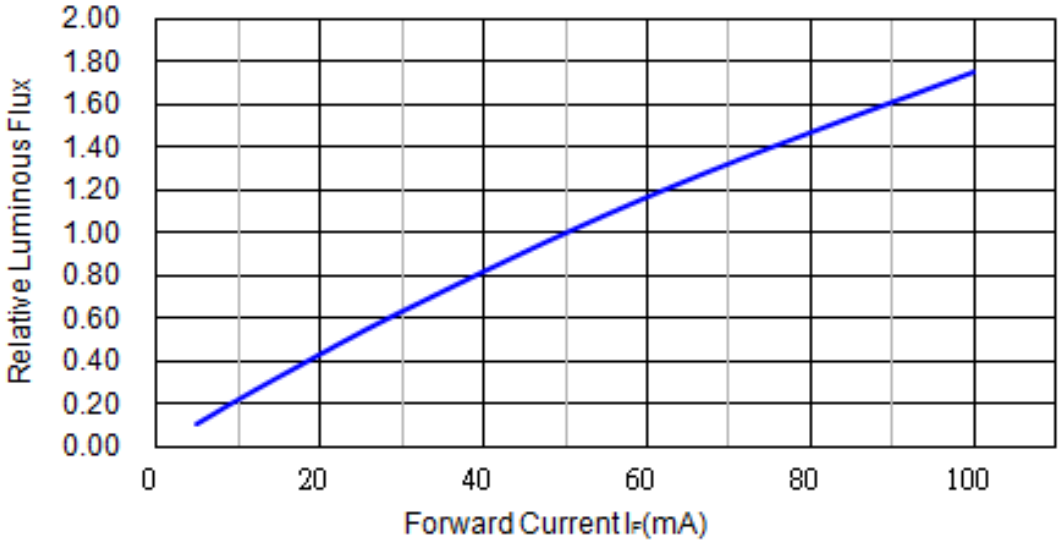
Forward Current vs. Forward Voltage , Ta=25℃



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



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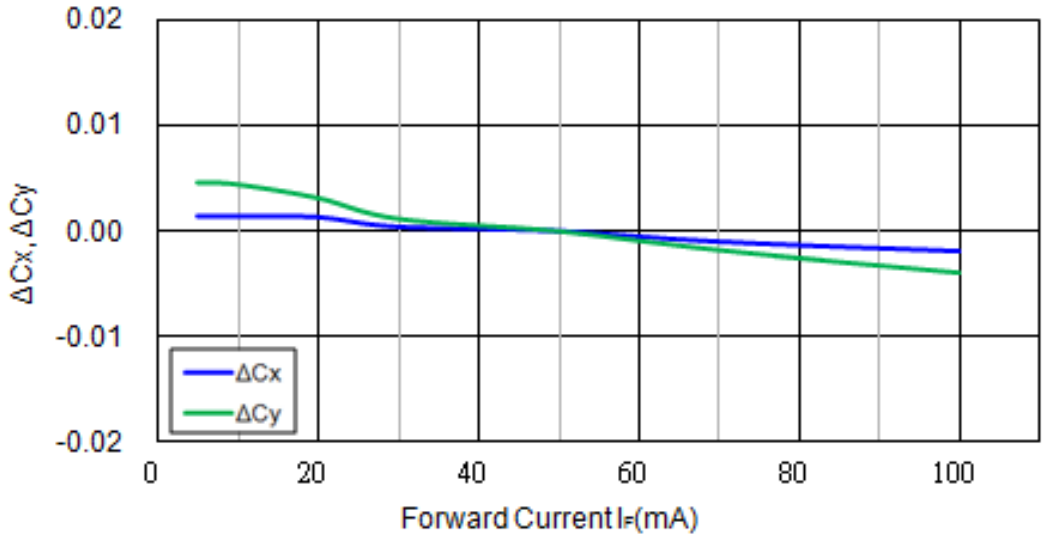
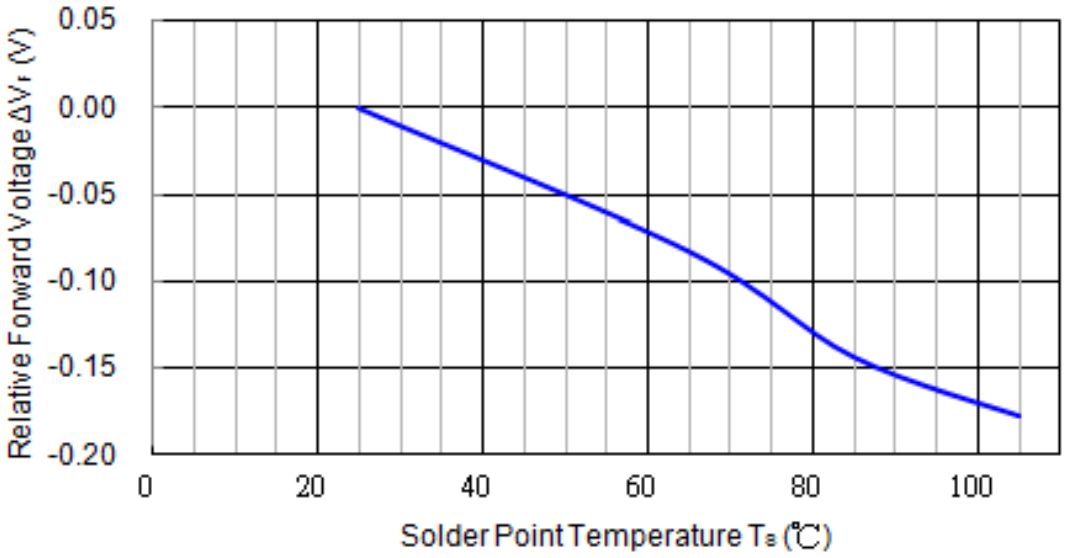
Forward Current vs. Relative CIE coordinate, Ta=25℃



Forward Voltage vs. Soldering Temperature



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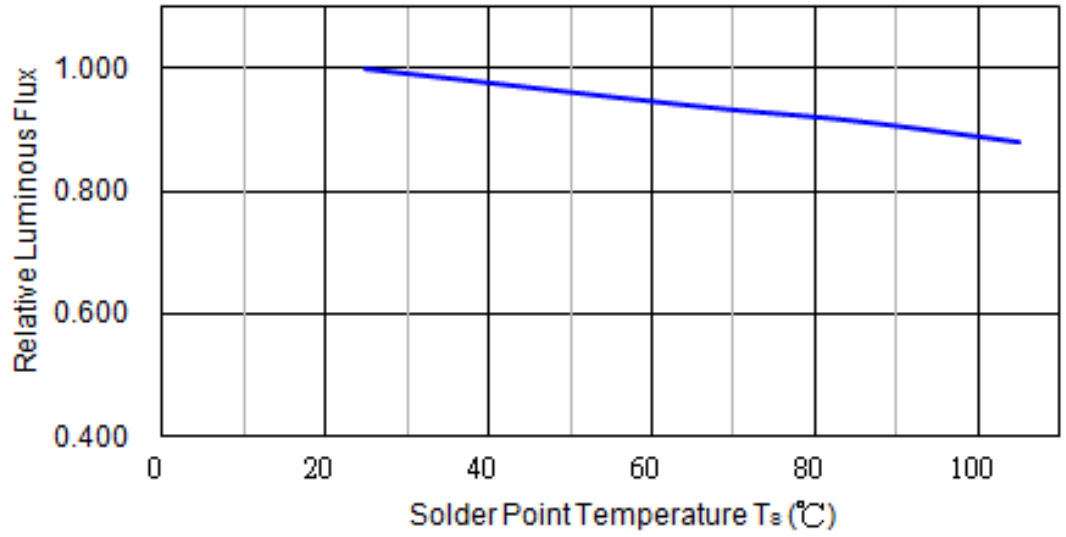
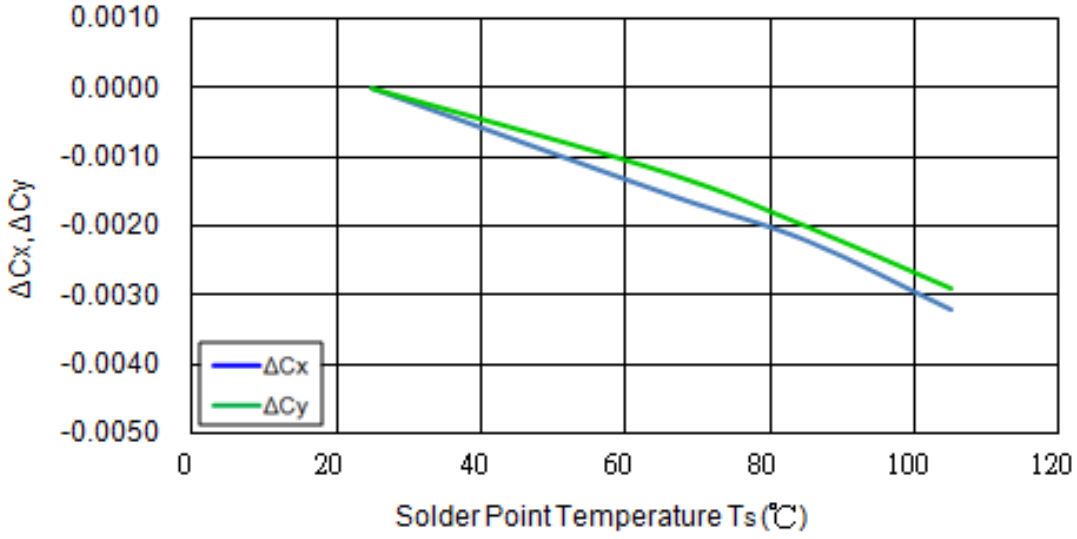
Relative Luminance vs. Soldering Temperature



Chromaticity vs. Soldering Temperature



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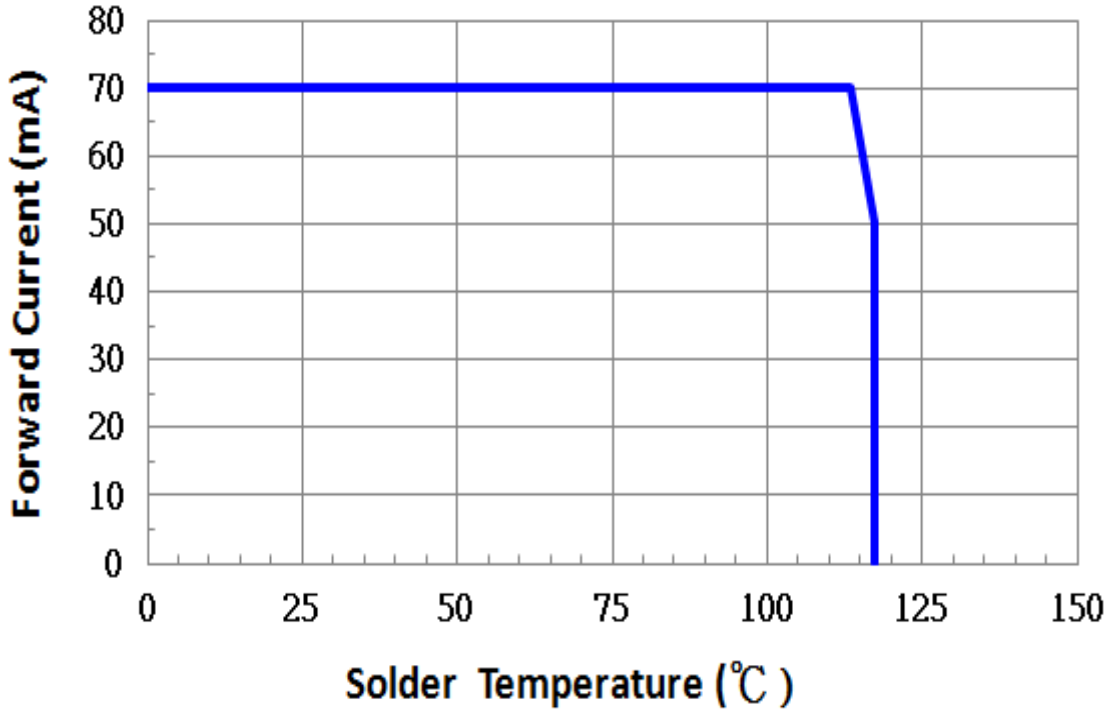
De-rating Curve



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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 ℃~ 25 ℃, 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 Temperture 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 8 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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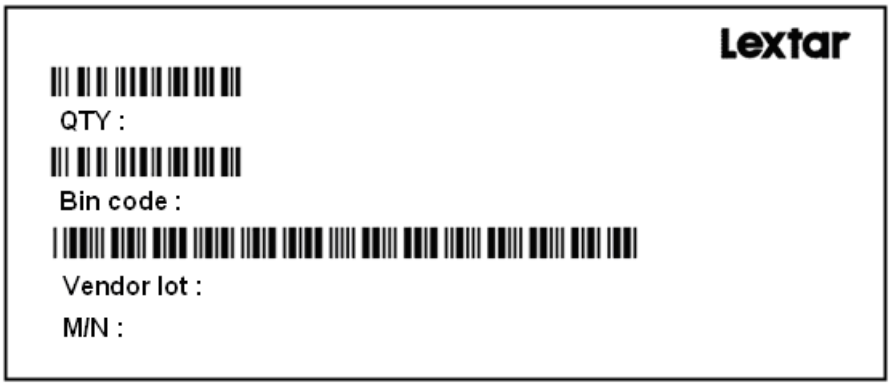
Lextar

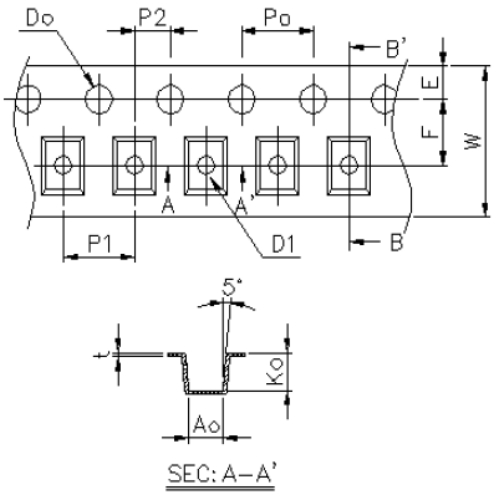
Packing

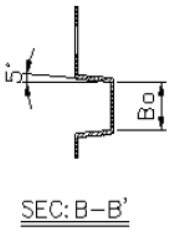
PC35H19
Product Specification

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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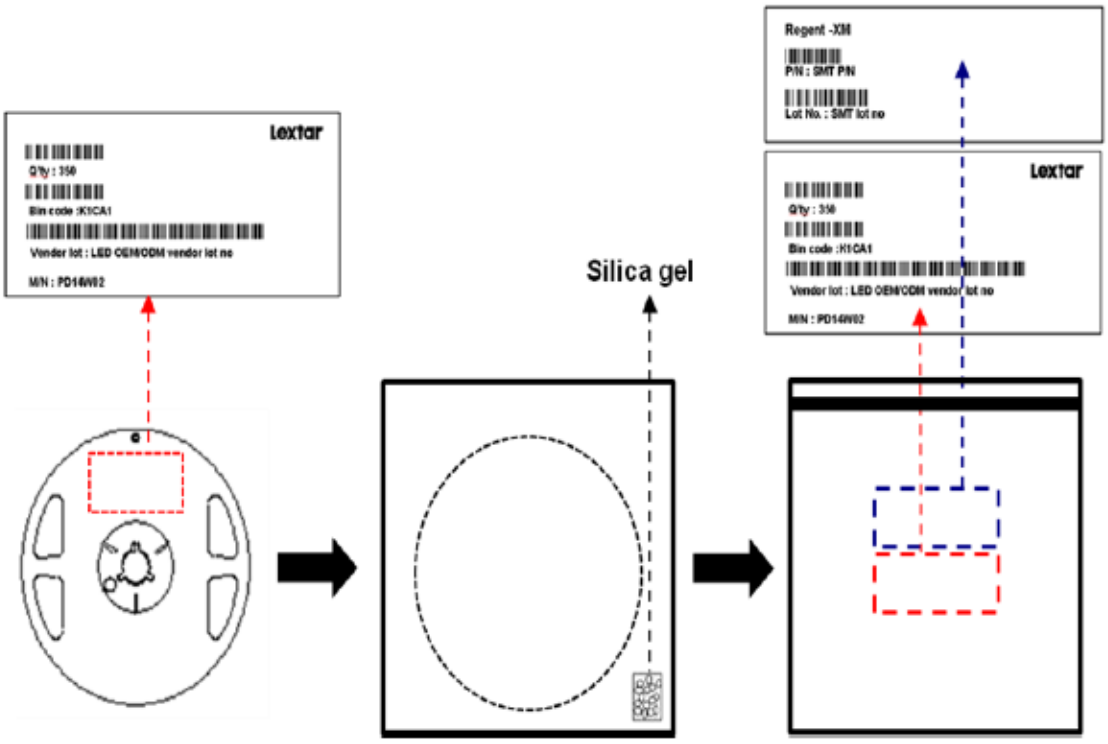
(Unit：mm)

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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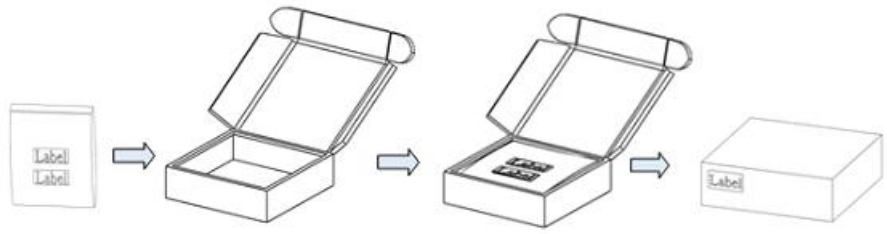
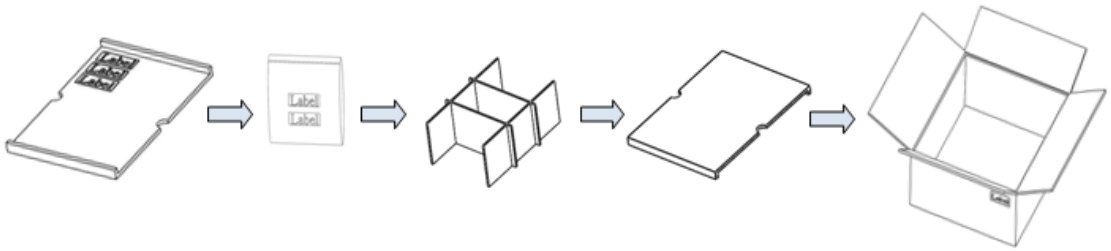
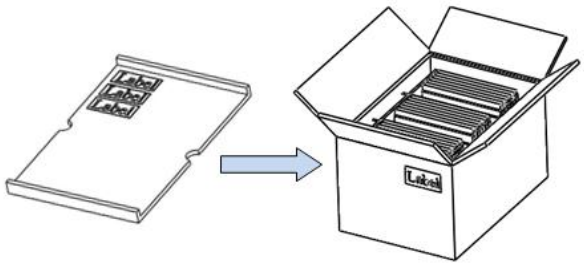
Small Box

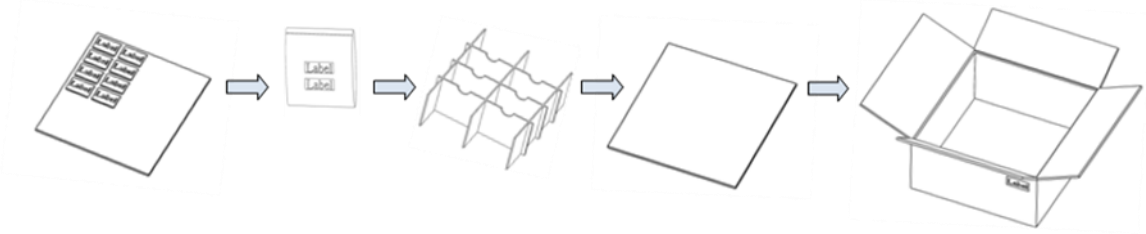


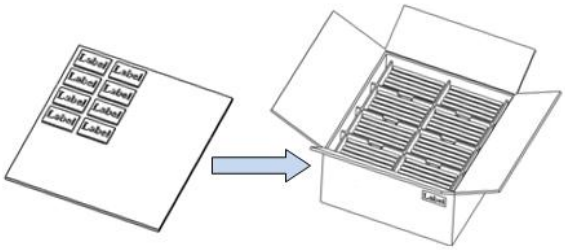
Medium Box





Large Box





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Safety Precautions

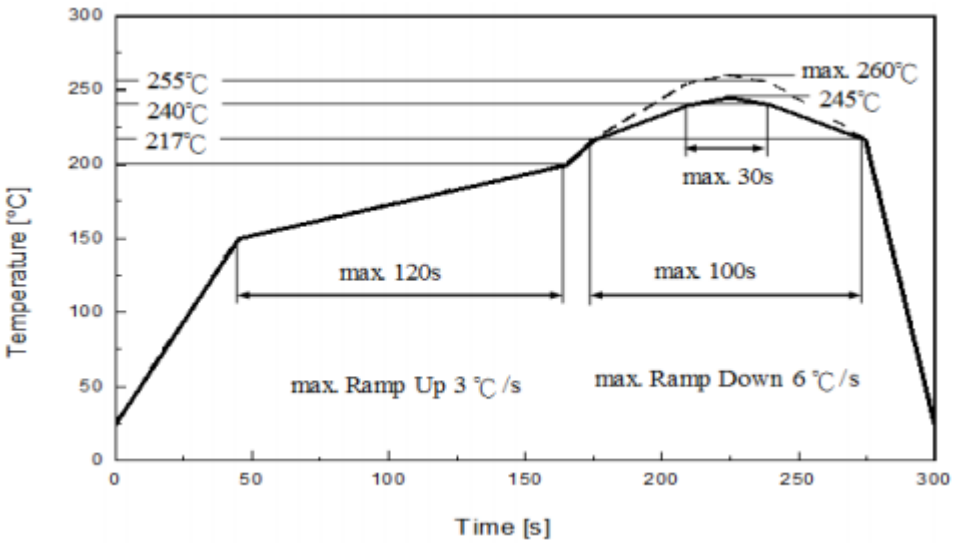
- The LED light output is too strong for human eyes without shield. Prevent eye contact directly more than seconds.
- Ensure operating under maximum rating.

Storage

- Before opening the package, the LEDs should be kept at 40°C, 90% RH environment or less , and should be used within one year.
- After opening the package bag,
  The LEDs should be kept at 30°C, 60% RH environment or less.
  The LEDs should be soldered within 12 months (1 year).
  If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel).
- If the package is over storage time, the LEDs should be pre-bake 65 ± 5 °C / 12 hrs before use. (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
2018.05.28	NEW VERSION	Rudess	Bemore
2018.10.08	Update O.E. data – P.7~11	Rudess	Bemore
2018.12.25	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.