



# PC30H08 V1

## Product Specification

## Approval Sheet

PC30H08 V1

Product Specification

RoHS

Product	White SMD LED
Part Number	PC30H08 V1
Issue Date	2019/01/31



### ■ Feature

- ✓ White SMD LED (L x W x H) of 3.0 x 1.4 x 0.65 mm
- ✓ ANSI Binning
- ✓ Dice Technology : InGaN
- ✓ Qualified according to JEDEC moisture sensitivity Level 3
- ✓ Environmental friendly ; RoHS compliance
- ✓ Packing : 16000 or 4000 pcs/reel

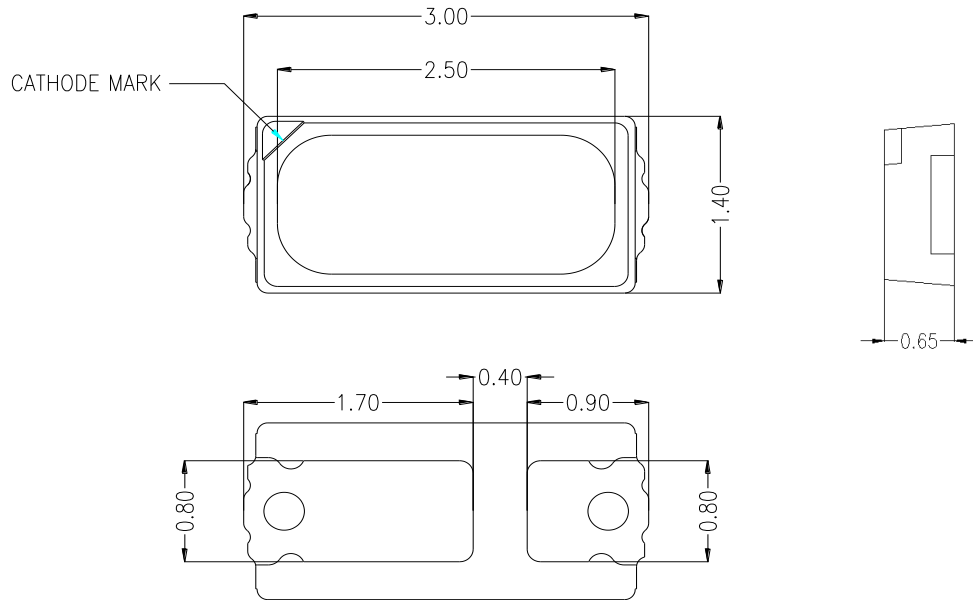
### ■ Applications

- ✓ Portable flashlight
- ✓ Reading lights
- ✓ Security / garden lighting
- ✓ General lighting
- ✓ Indoor and outdoor commercial lighting

## Outline Dimension

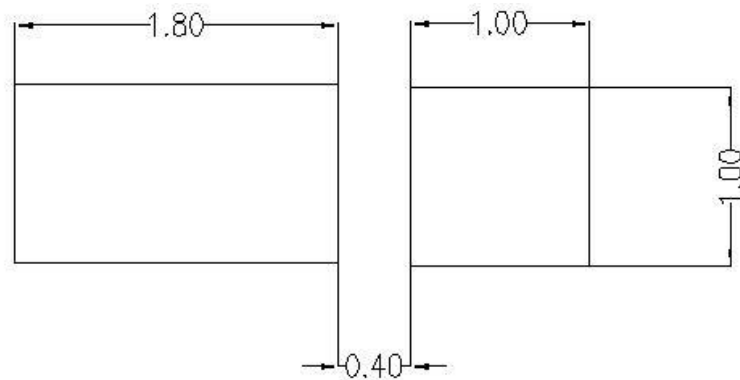
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Unit: mm, Tolerance:  $\pm 0.1$ mm

### Recommended Soldering Pad:



## Performance

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### ■ Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage <sup>(1)</sup>	V <sub>F</sub>	I <sub>F</sub> = 65 mA	2.8	2.92	3.4	V
Color Rendering Index <sup>(2)</sup>	Ra		80	-	-	-
View Angle	θ		-	120	-	deg
Thermal Resistance <sup>(3)</sup>	R <sub>th</sub>		-	42	-	°C/W

(1) The Forward Voltage tolerance is ±0.1V

(2) The CRI tolerance is ±2.

(3) Thermal resistance is calculated from junction to solder

### ■ Luminous Flux (Ta=25°C)

CCT	Condition	Rank
2600K~3700K	I <sub>F</sub> = 65 mA	TF , TG, TH
3700K~7000K		TG, TH, TI

\* The luminous flux tolerance is ± 5%

### ■ Absolute Maximum Ratings

Parameter	Symbol	value	Unit
DC Forward Current <sup>(1)</sup>	I <sub>F</sub>	150	mA
Power Dissipation	Pd	0.5	W
Pulse Forward Current <sup>(2)</sup>	I <sub>FP</sub>	200	mA
Storage Temperature	T <sub>s</sub>	-40 ~ 100	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ 85	°C
Junction Temperature	T <sub>J</sub>	120	°C
Soldering Temperature	T <sub>sol</sub>	260 (max. 5 sec)	°C
ESD withstand voltage	V <sub>ESD</sub>	2	kV

(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

## Ordering Code

**P C 3 0 H 0 8 1 - A 2 7 0 C 0 T F T H 0 5 - 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
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Item	Pos.	Code	Spec	
Model Name	1-8	PC30H081	PC30H08 V1	
CIE Center Point	9	A	ANSI 1931 ellipse bin on B.B.L	
CCT	10,11	27	27 = 2700K	
		30	30 = 3000K	
		35	35 = 3500K	
		40	40 = 4000K	
		50	50 = 5000K	
		57	57 = 5700K	
		65	65 = 6500K	
Ra	12	0	Ra > 80	
CIE Bin Group <sup>(1)</sup>	13,14	A0	27A	
		B0	27A,27B,27C,27D,27E	
		C0	27A,27B,27C,27D,27E,27F,27G,27H,27I	
IV Bin Group	15,16,	TFTH	Bin code : TF,TG,TH	
	17,18	TGTI	Bin code : TG,TH,TI	
Vf Bin Group	19,20	05	Bin code : 0,1,2,3,4,5	
Kitting	CIE <sup>(1)</sup>	21	0	No requirements.
Rules	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, 35, 40, 50, 57, 65 for different CCT requirements.

(2) Only under an agreement between customer and Lextar Electronics, kitting rules besides "0" can be supplied.

■ **Standard Ordering Code:**

CCT	Ordering Code <sup>(1)</sup>	CIE Bin Group	IV Bin Group	Vf Bin Group
2700K	PC30H081-A271A0TFTH05-000	A0	TF,TG,TH	0,1,2,3,4,5
	PC30H081-A271B0TFTH05-000	B0		
	PC30H081-A271C0TFTH05-000	C0		
3000K	PC30H081-A301A0TFTH05-000	A0	TF,TG,TH	0,1,2,3,4,5
	PC30H081-A301B0TFTH05-000	B0		
	PC30H081-A301C0TFTH05-000	C0		
3500K	PC30H081-A351A0TFTH05-000	A0	TF,TG,TH	0,1,2,3,4,5
	PC30H081-A351B0TFTH05-000	B0		
	PC30H081-A351C0TFTH05-000	C0		
4000K	PC30H081-A401A0TGTI05-000	A0	TG,TH,TI	0,1,2,3,4,5
	PC30H081-A401B0TGTI05-000	B0		
	PC30H081-A401C0TGTI05-000	C0		
5000K	PC30H081-A501A0TGTI05-000	A0	TG,TH,TI	0,1,2,3,4,5
	PC30H081-A501B0TGTI05-000	B0		
	PC30H081-A501C0TGTI05-000	C0		
5700K	PC30H081-A571A0TGTI05-000	A0	TG,TH,TI	0,1,2,3,4,5
	PC30H081-A571B0TGTI05-000	B0		
	PC30H081-A571C0TGTI05-000	C0		
6500K	PC30H081-A651A0TGTI05-000	A0	TG,TH,TI	0,1,2,3,4,5
	PC30H081-A651B0TGTI05-000	B0		
	PC30H081-A651C0TGTI05-000	C0		

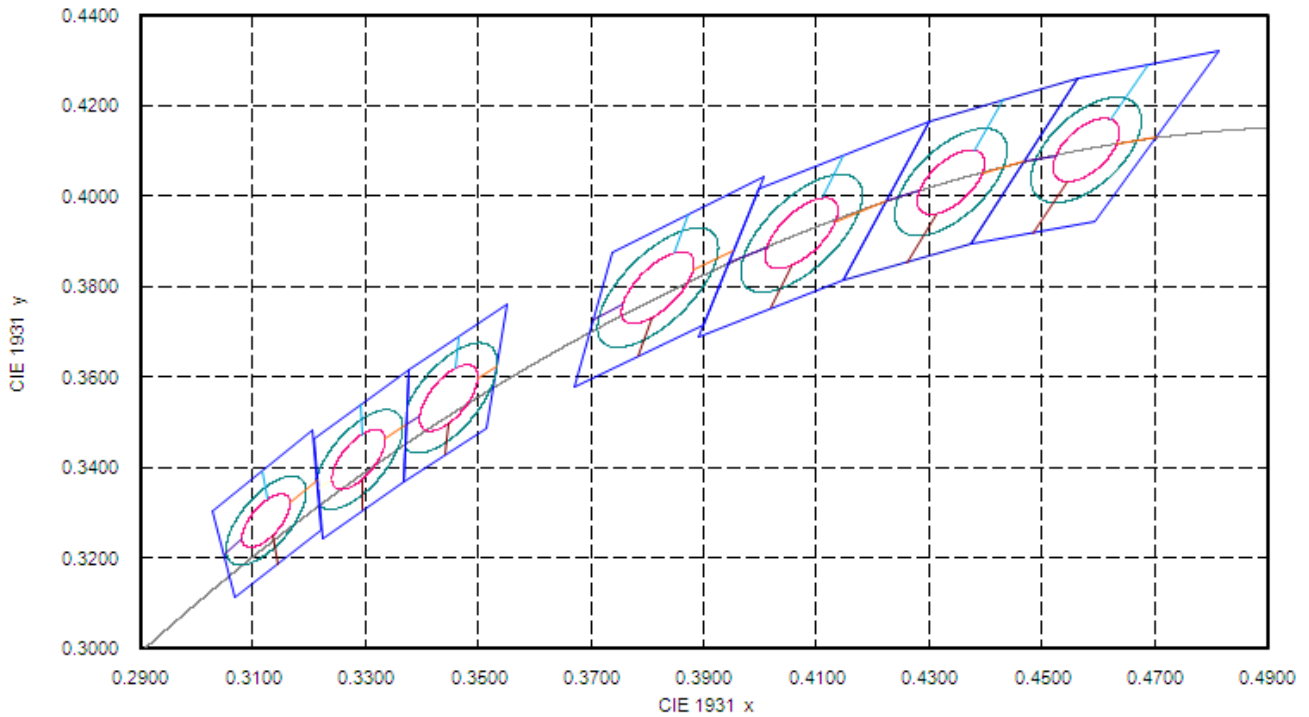
(1) Only under an agreement between customer and Lextar Electronics, Ordering codes not in "Standard Ordering Code Definitions" can be supplied.

**Binning**

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**Chromaticity Coordinates**



**Bin code definition**

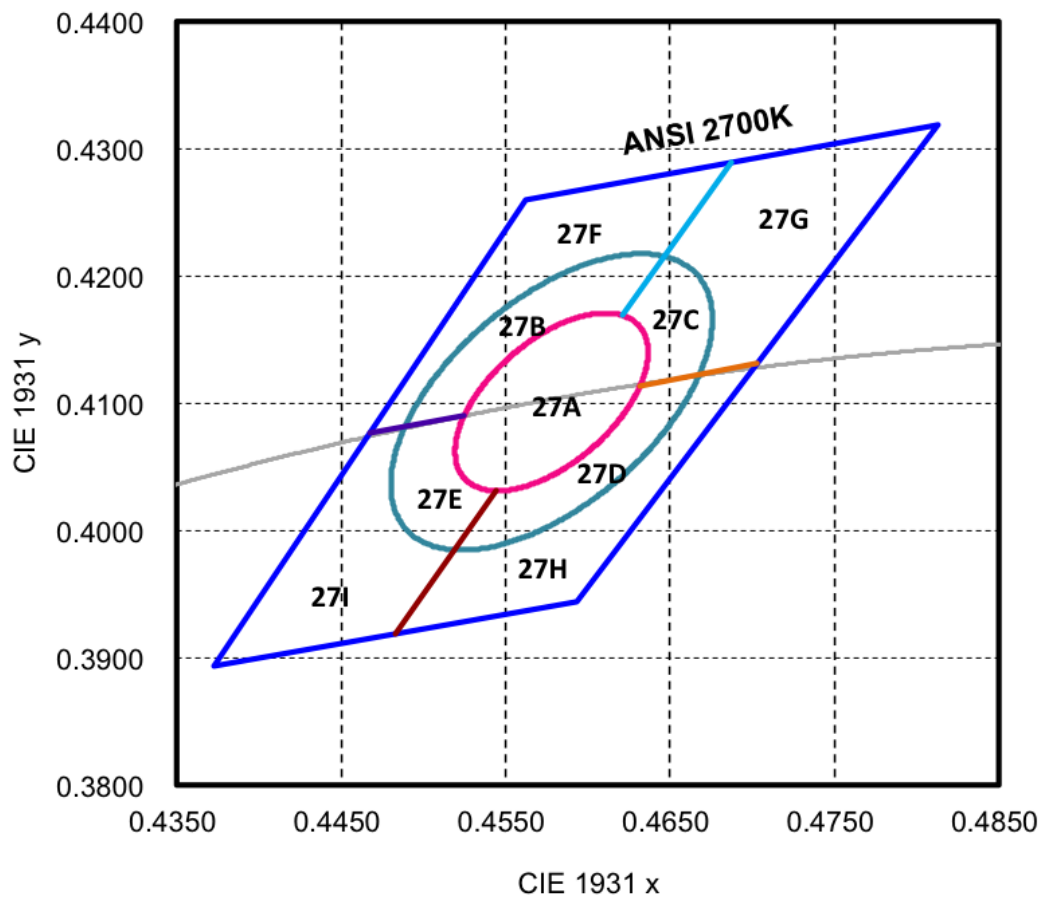
V <sub>F</sub> Rank	Luminous Flux Rank	CIE Rank
2	TE	27A

V <sub>F</sub> Rank	Condition	Min.	Max.
0	<b>I<sub>F</sub> = 65 mA</b>	2.8	2.9
1		2.9	3.0
2		3.0	3.1
3		3.1	3.2
4		3.2	3.3

Luminous Flux Rank	Condition	Min.	Max.	Unit
TD	$I_F = 65 \text{ mA}$	22	24	lm
TE		24	26	
TF		26	28	
TG		28	30	
TH		30	32	
TI		32	34	

■ Bin code definition

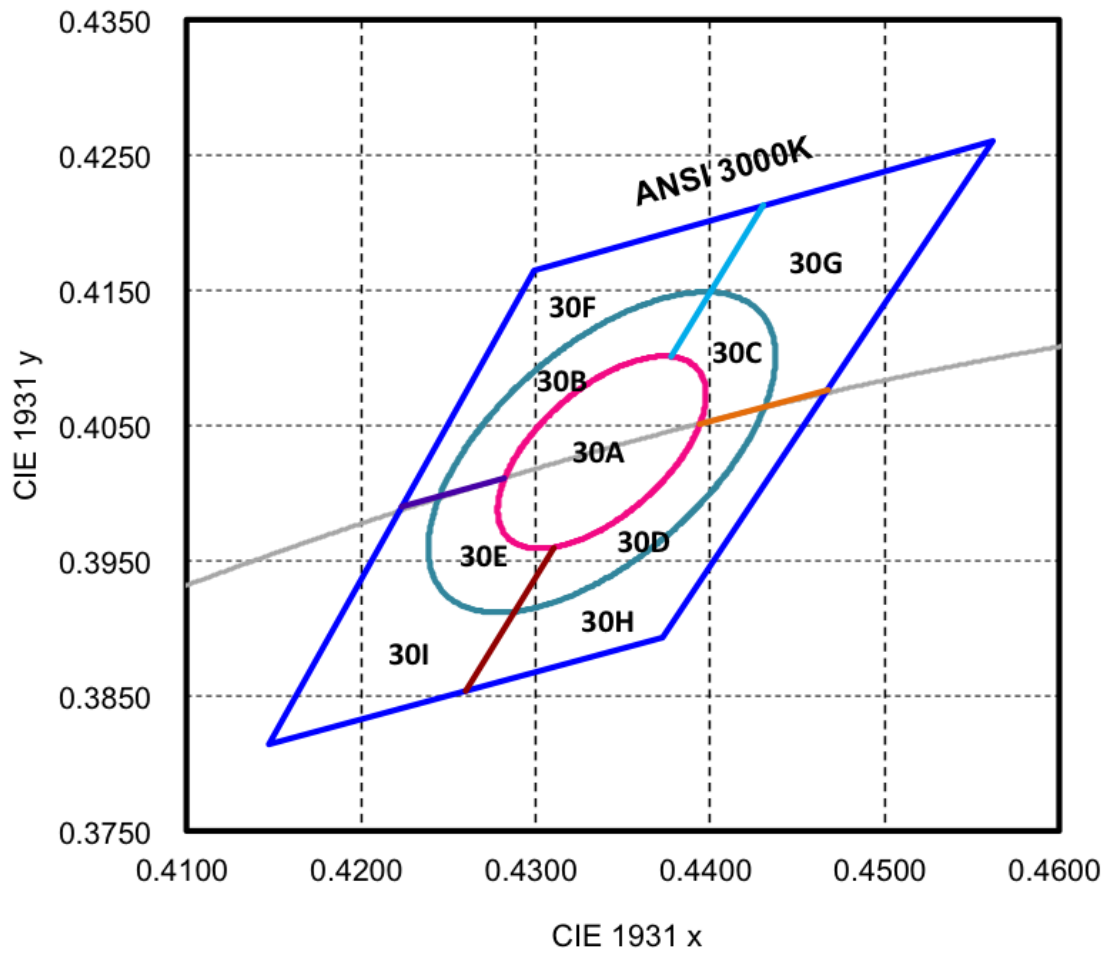
**2700K**



Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
2700K	Single 3-step MacAdam ellipse	(0.4578, 0.4101)	0.00810	0.00420	53.70°
2700K	Single 5-step MacAdam ellipse	(0.4578, 0.4101)	0.01350	0.00700	53.70°

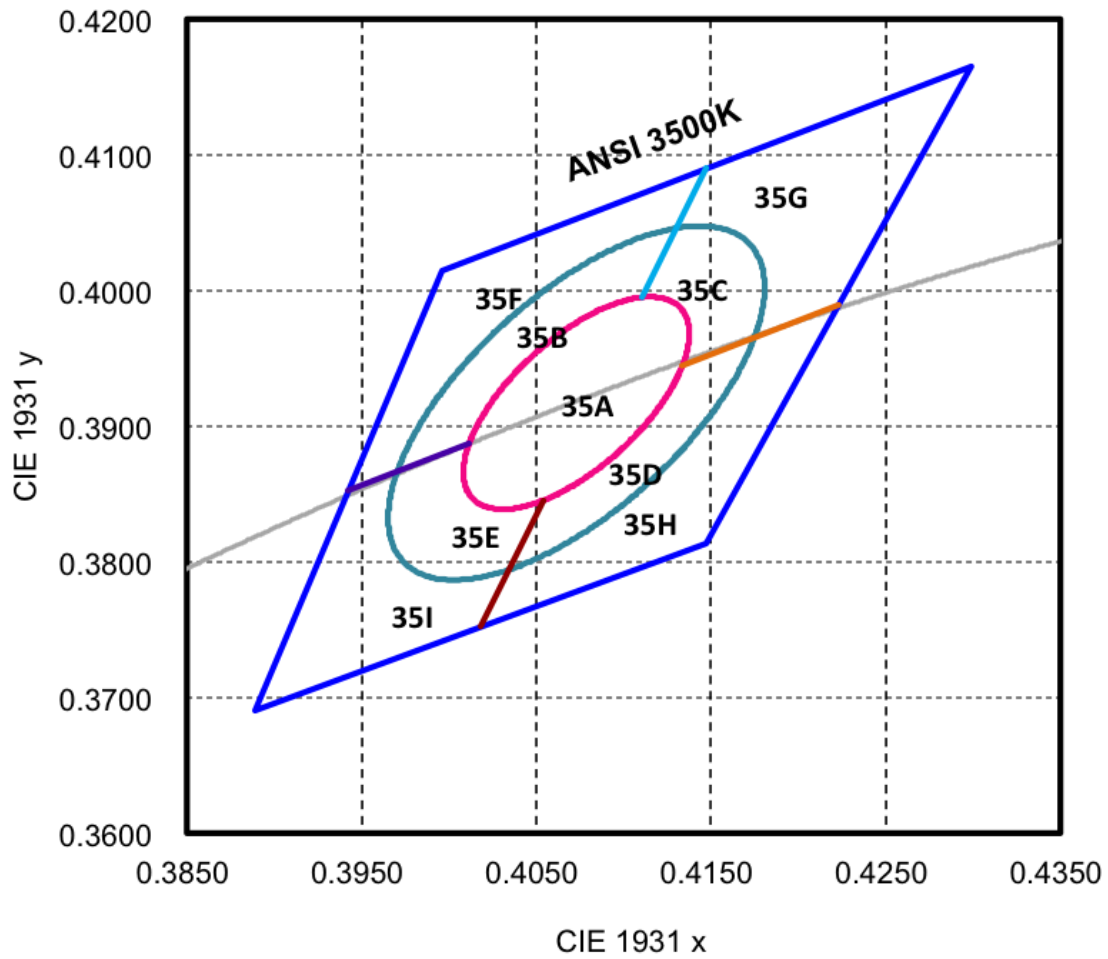


**3000K**



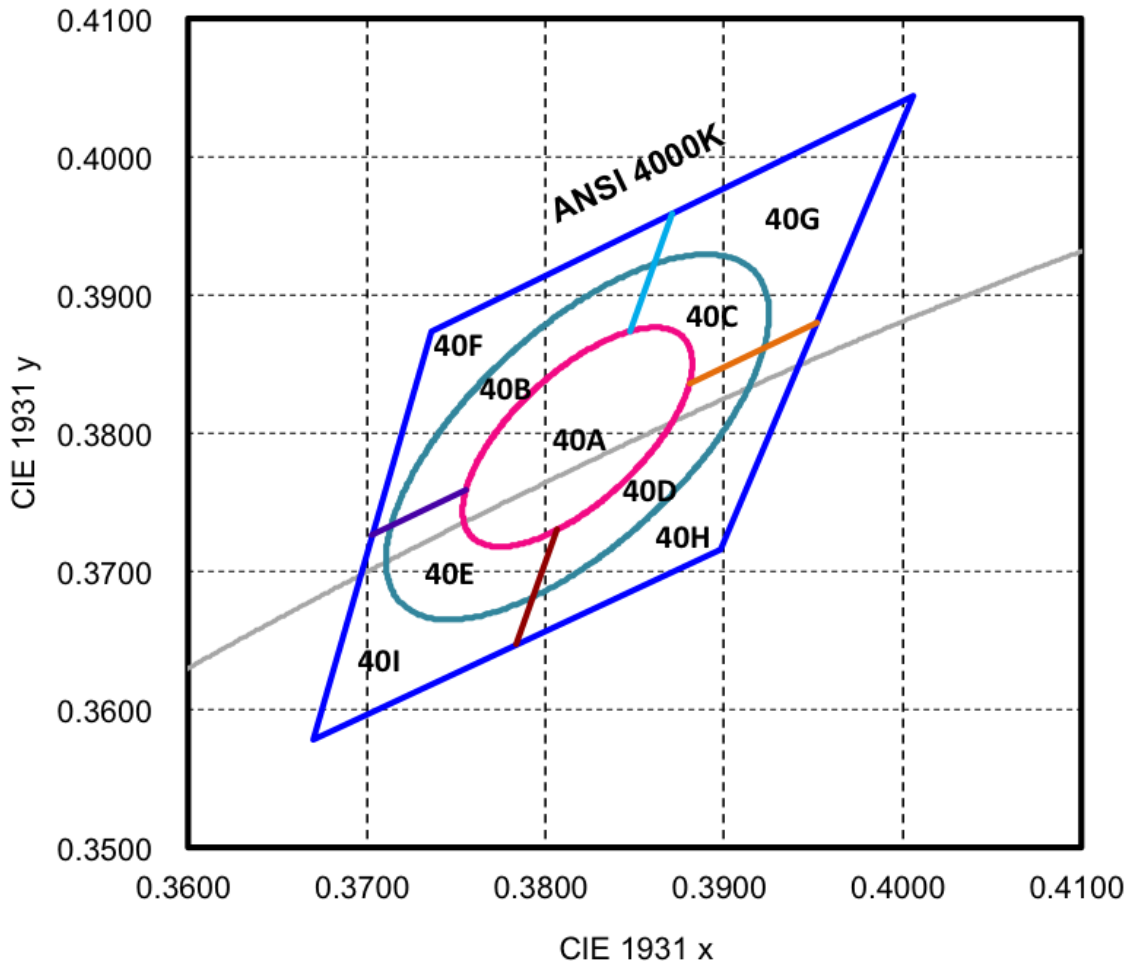
Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
3000K	Single 3-step MacAdam ellipse	(0.4338, 0.403)	0.00834	0.00408	53.22°
3000K	Single 5-step MacAdam ellipse	(0.4338, 0.403)	0.01390	0.00680	53.22°

**3500K**

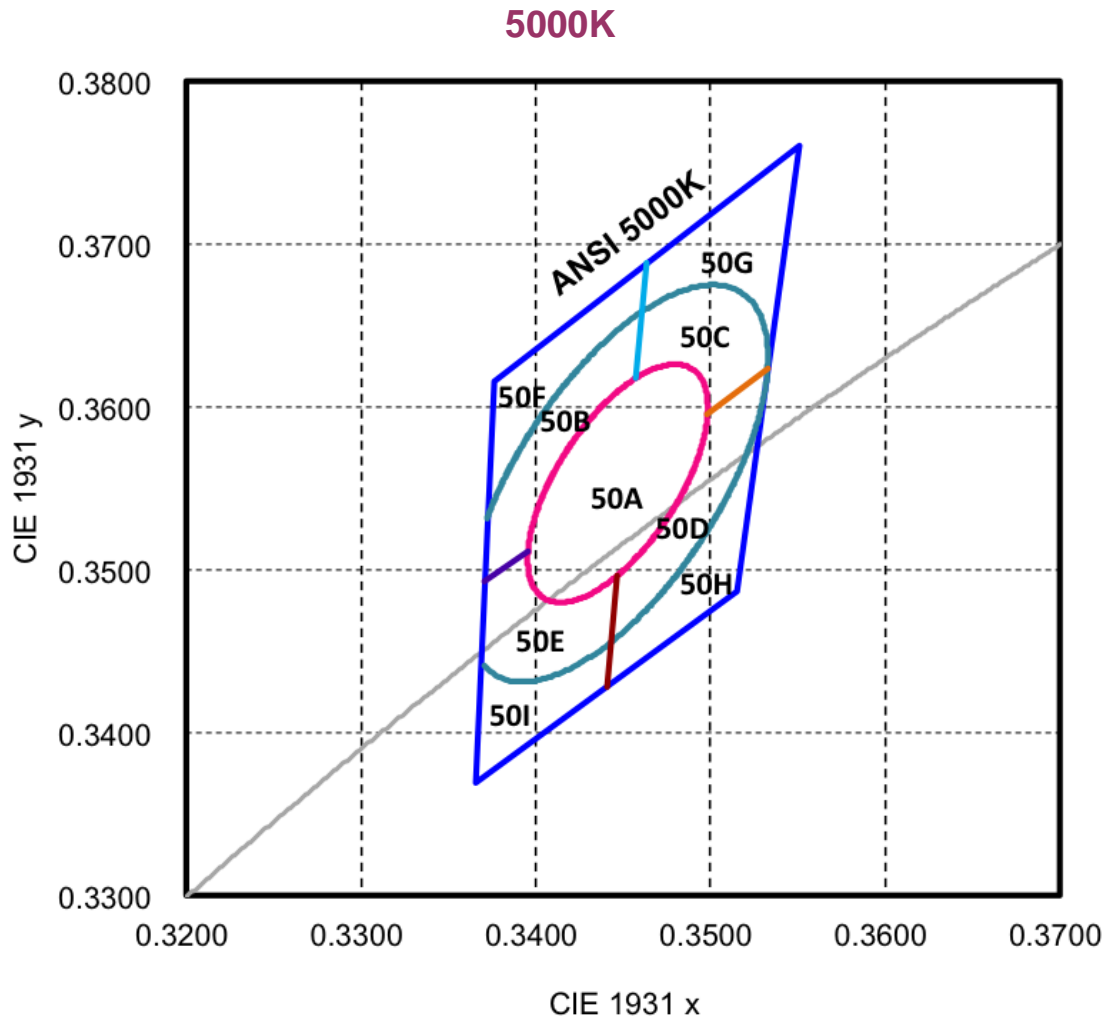


Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
3500K	Single 3-step MacAdam ellipse	(0.4073, 0.3917)	0.00927	0.00414	53.22°
3500K	Single 5-step MacAdam ellipse	(0.4073, 0.3917)	0.01545	0.00690	53.22°

**4000K**

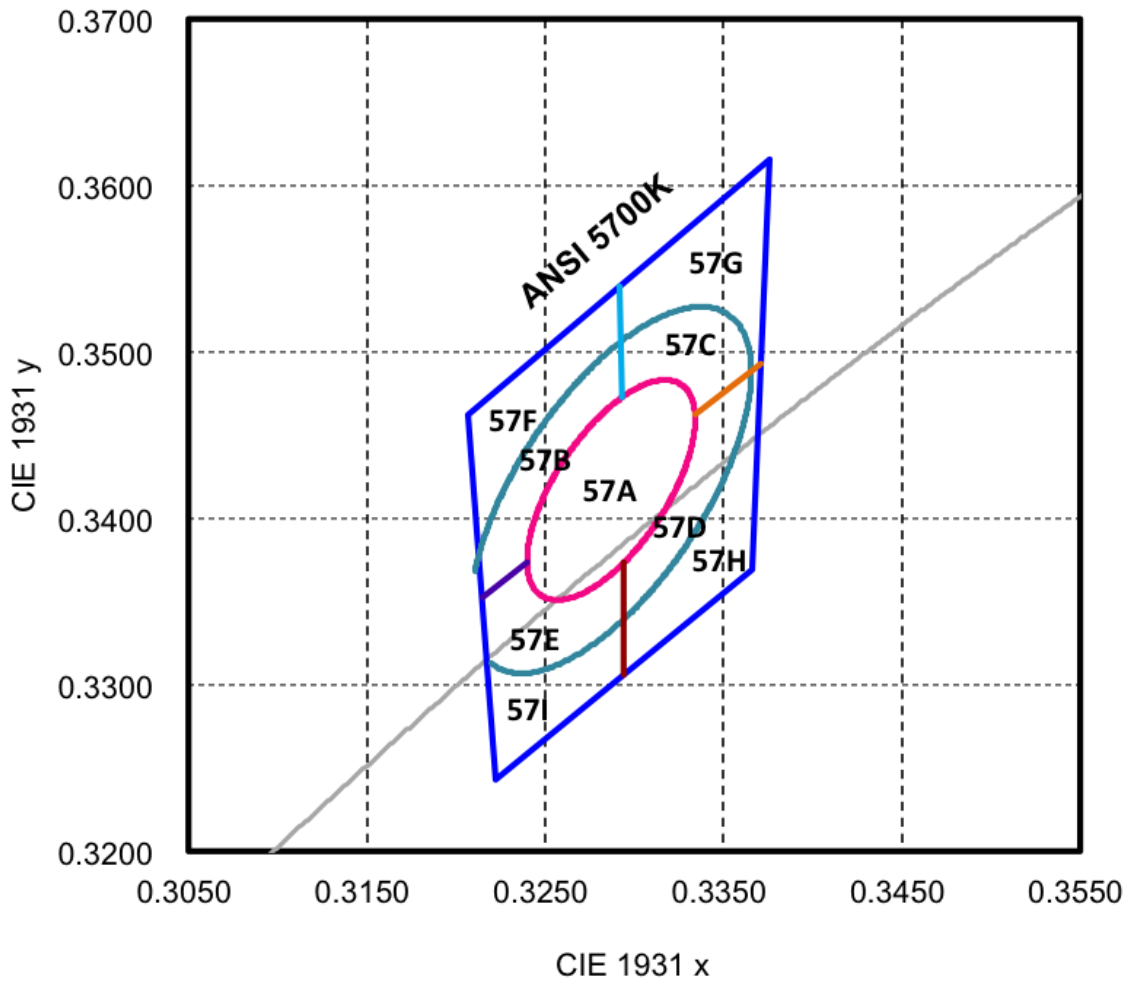


Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
4000K	Single 3-step MacAdam ellipse	(0.3818, 0.3797)	0.00939	0.00402	53.72°
4000K	Single 5-step MacAdam ellipse	(0.3818, 0.3797)	0.01565	0.00670	53.72°



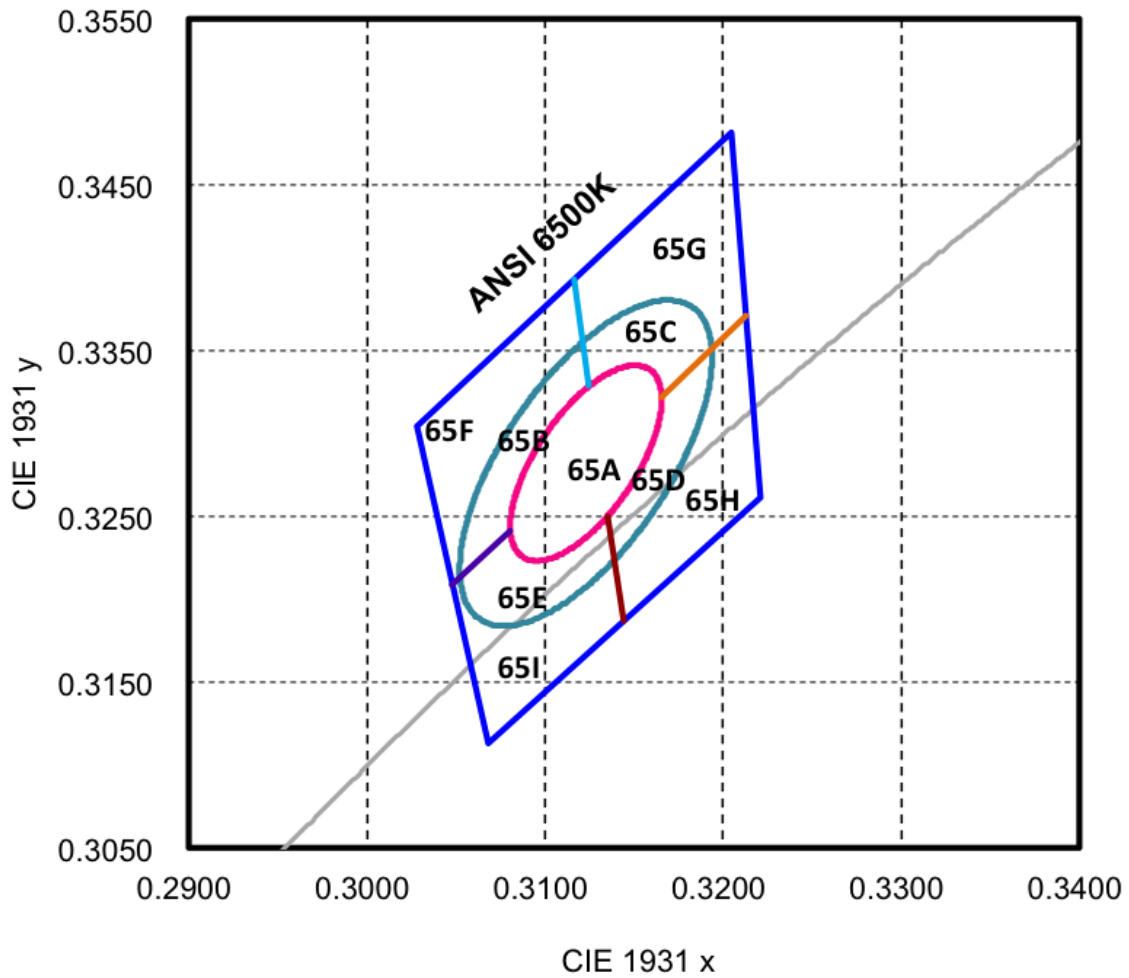
Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
5000K	Single 3-step MacAdam ellipse	(0.3447, 0.3553)	0.00822	0.00354	59.62°
5000K	Single 5-step MacAdam ellipse	(0.3447, 0.3553)	0.01370	0.00590	59.62°

**5700K**



Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
5700K	Single 3-step MacAdam ellipse	(0.3287, 0.3417)	0.00746	0.00320	59.09°
5700K	Single 5-step MacAdam ellipse	(0.3287, 0.3417)	0.01243	0.00533	59.09°

**6500K**



Nominal ANSI CCT	Color Space	Target Center Point (cx, cy)	Major Axis, a	Minor Axis, b	Ellipse Rotation Angle
6500K	Single 3-step MacAdam ellipse	(0.3123, 0.3282)	0.00669	0.00285	58.57°
6500K	Single 5-step MacAdam ellipse	(0.3123, 0.3282)	0.01115	0.00475	58.57°

Note:

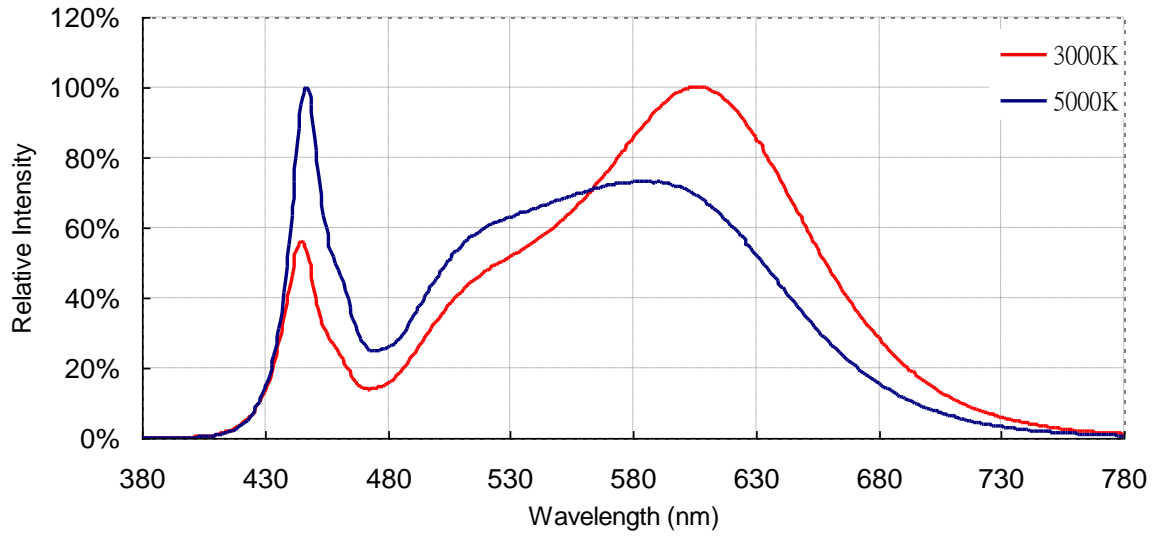
- (1) Correlated color Temperature is derived from the CIE 1931 Chromaticity diagram
- (2) Measurement tolerance is  $\pm 0.005$

## Characteristics

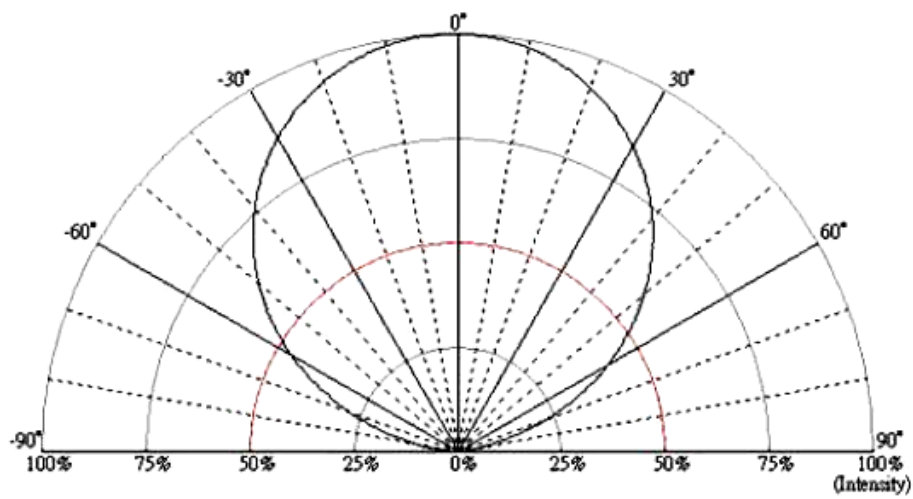
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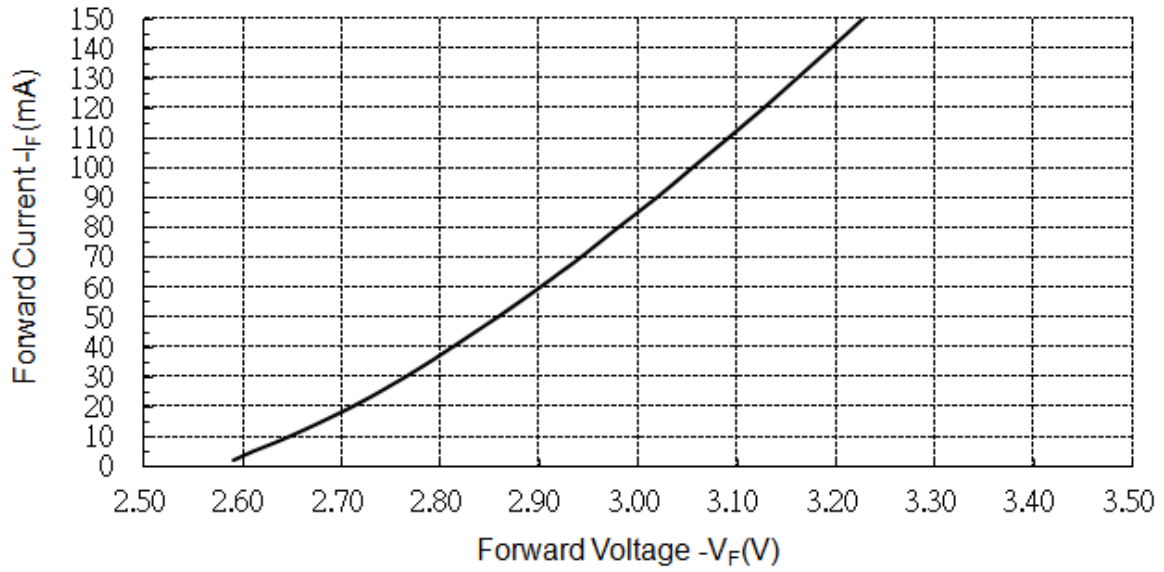
### Spectrum



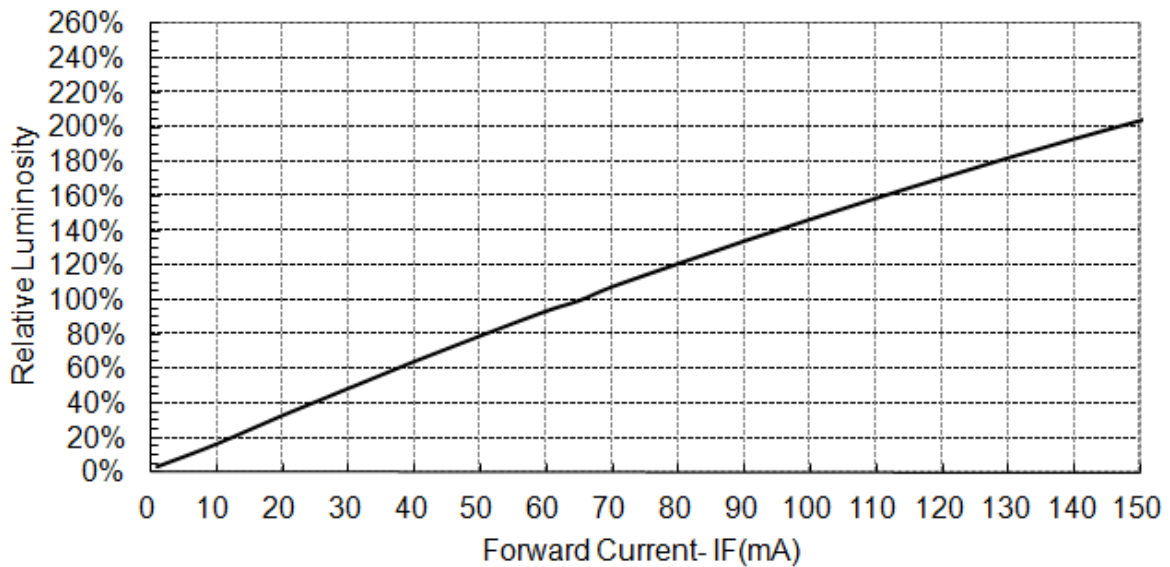
### Radiation Pattern



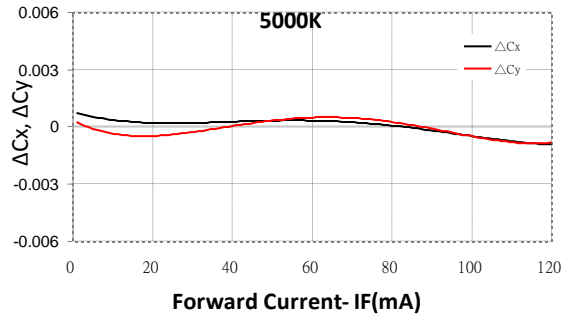
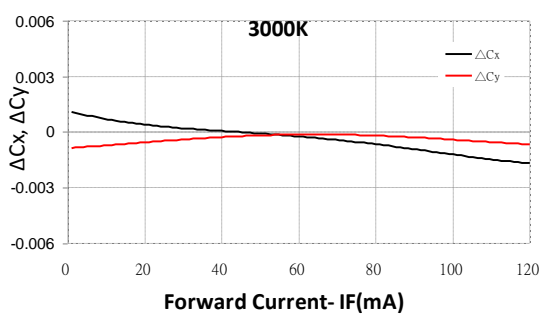
### ■ Forward Voltage vs. Forward Current



### ■ Forward Current vs. Relative Luminosity

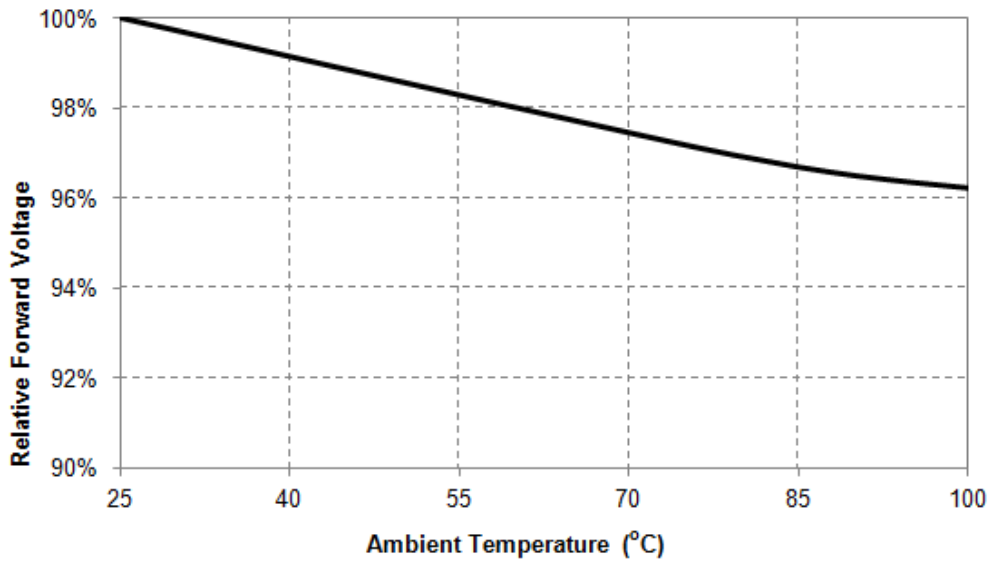


### ■ Forward Current vs. Chromaticity Coordinate

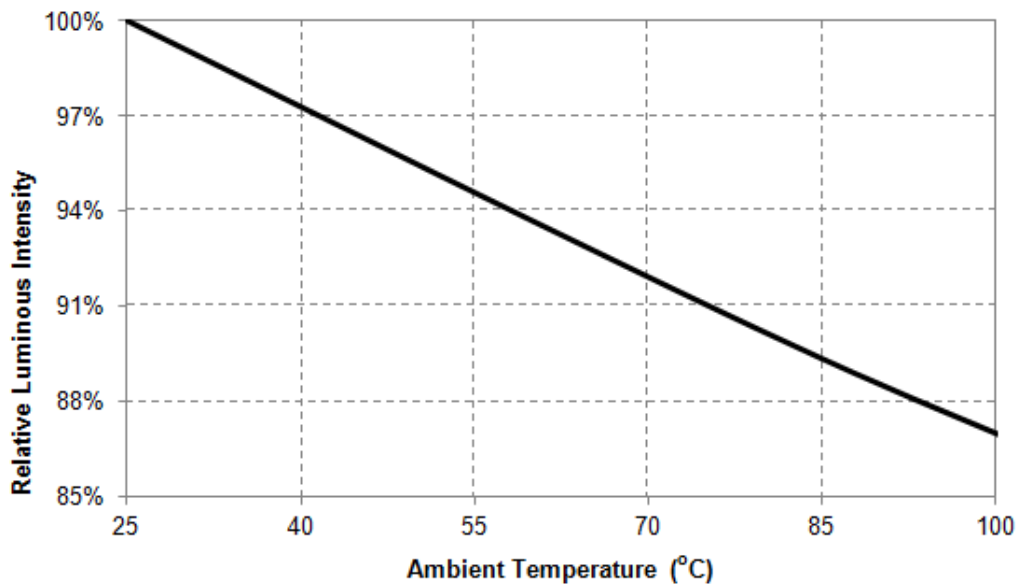




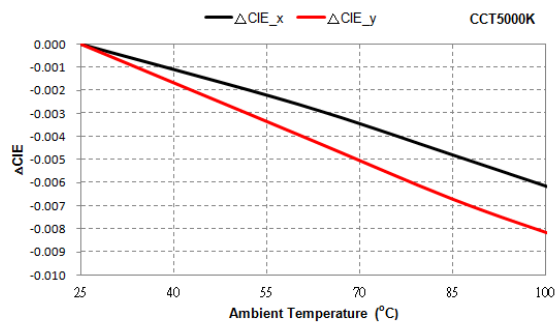
### ■ Relative Forward Voltage vs. Ambient Temperature



### ■ Relative Luminous Intensity vs. Ambient Temperature



### ■ Chromaticity vs. Ambient Temperature



**Reliability**

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**Reliability test**

Item	Condition	Time/Cycle
Steady State Operating Life of Low Temperature -40°C	-40°C Operating	1000 Hrs
Steady State Operating Life of High Temperature 60°C	60°C Operating	1000 Hrs
Steady State Operating Life of High Temperature 85°C	85°C Operating	1000 Hrs
Low temperature storage -40°C	-40°C Storage	1000 Hrs
High temperature storage 100°C	100°C Storage	1000 Hrs
Steady State Operating Life of High Humidity Heat 60°C 90%	60°C/90% Operating	1000 Hrs
Resistance to soldering heat on PCB (JEDEC MSL3)	pre-store@60°C, 60%RH for 52hrs Tslid max.=260°C 10sec	1 cycle 3 Times
Thermal shock	-40°C/20minr ~5minr ~ 100°C/20min	300 Cycles

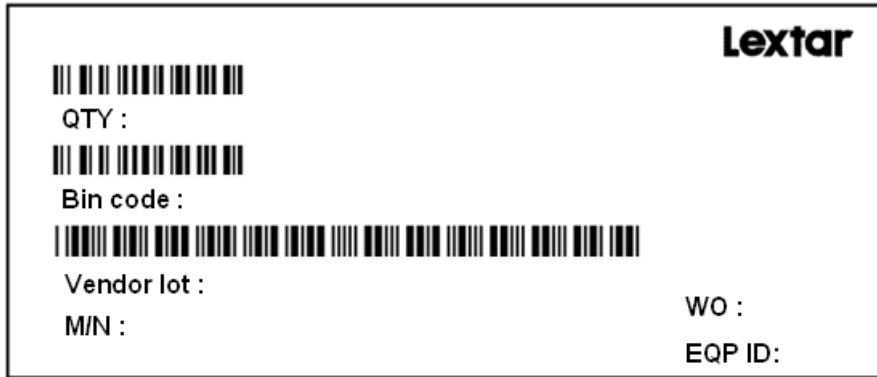
**Judgment Criteria**

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	Vf	65 mA	$\Delta V_f < 10 \%$
Luminous Flux	Iv	65 mA	$\Delta I_v < 10 \%$

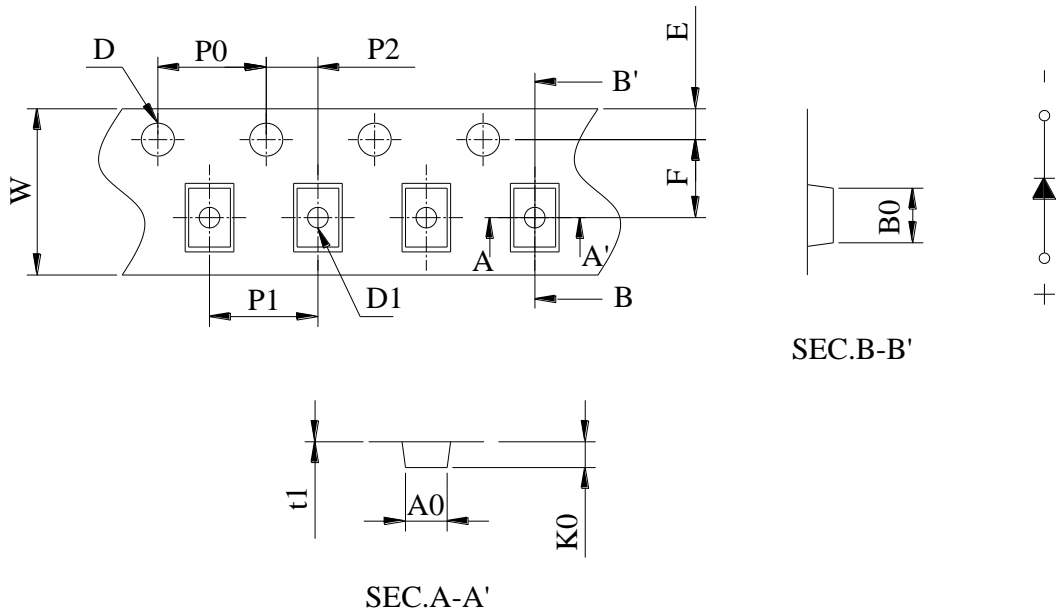
Packing

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■ Reel Label

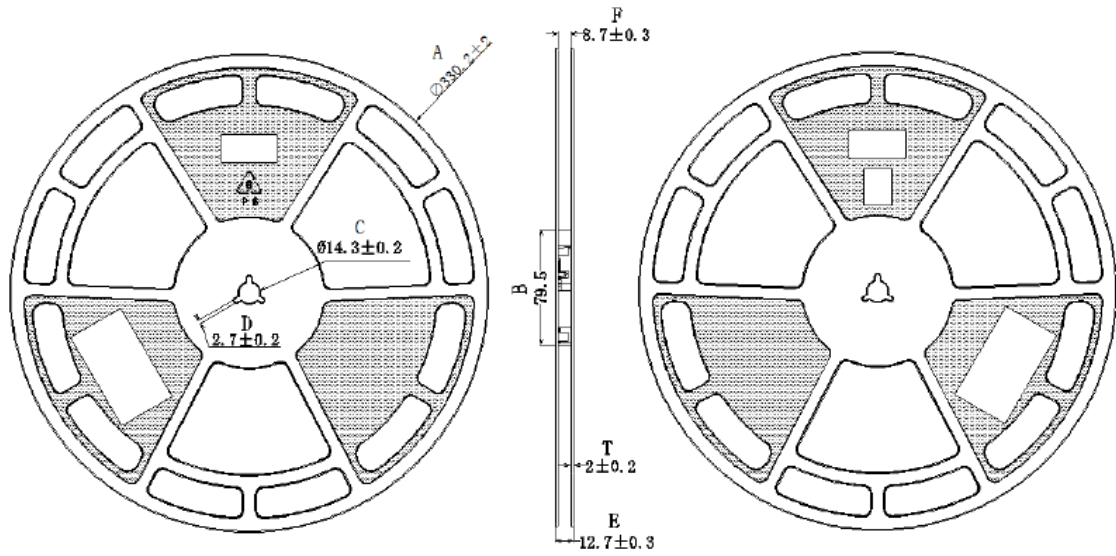


■ Carrier Tape Dimension



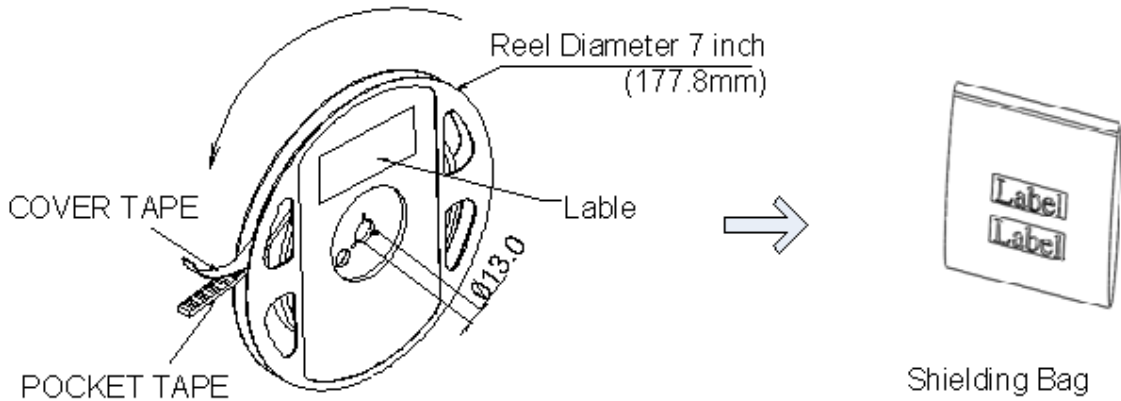
Item	Spec	Tol.(+/- )	Item	Spec	Tol.(+/- )
W	8.00	±0.1	P2	2.00	±0.05
E	1.75	±0.1	P0 x 10	40.00	±0.2
F	3.50	±0.05	t1	0.23	±0.05
D	1.50	+0.1,-0	A0	1.55	±0.1
D1	1.00	±0.1	B0	3.20	±0.1
P0、P1	4.00	±0.1	K0	0.95	±0.1

■ **Package**



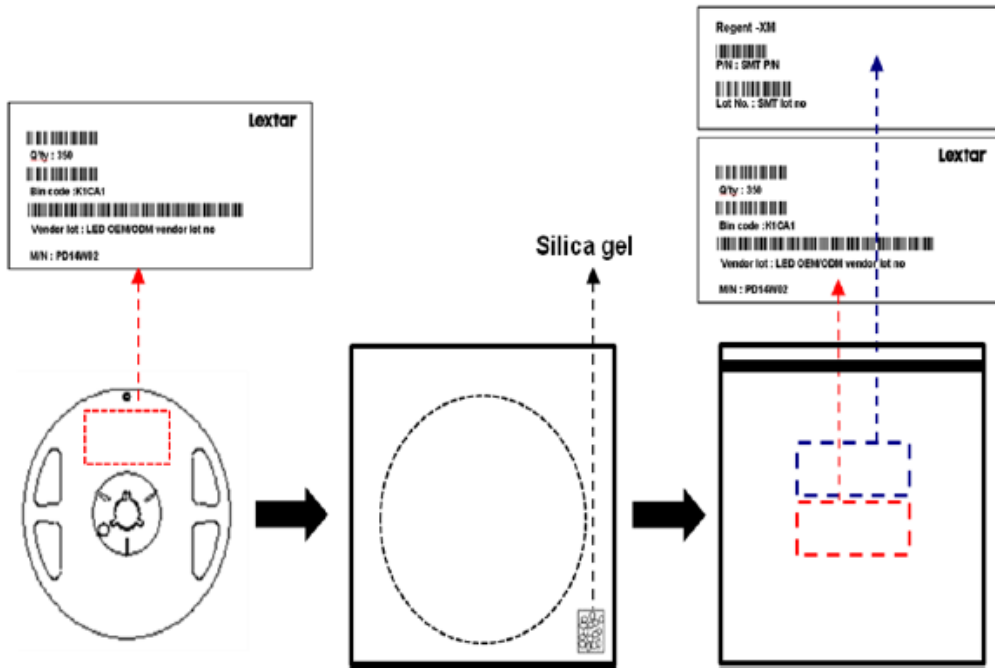
A±2	B±0.2	C±0.2	D±0.2	E±0.3	F±0.3	T±0.2
Ø330.2	Ø79.5	Ø14.3	2.7	12.7	8.7	2

13 inch Anti-Static Reel  
 USER REED DIRECTION



7 inch Anti-Static Reel

■ **Shield Bag Taping**



■ **Packing Box**

Type	Large Box	
Dimension	465X257X255mm	
Maximum Reels	13"X8mm Reel	16/R
Minimum Reels	7"X8mm Reel	8/R

## Precautions

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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.

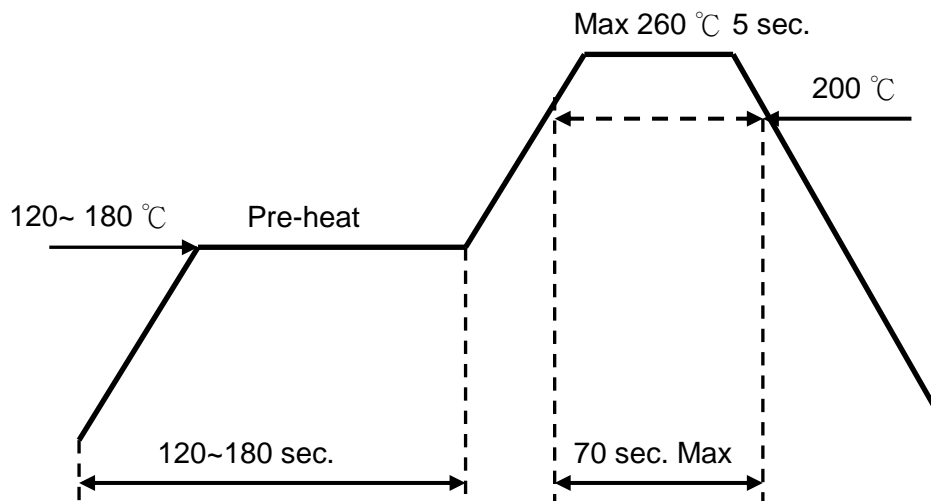
### ■ Storage

- Before opening the package, the LEDs should storage under 30°C, 70% RH.
- After opening the package bag, the LEDs should be keep under 30°C, 70% RH. Recommend to use within 168 hours. 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°C, 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 °C max , 3 sec. max.  
Reflow soldering: Pre-heat 180 °C max , 180 sec. max.  
Peak 260°C max , 5 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.

### ■ Use Applications

- The products are not intended to any application which is not specified in this document. For other application, please be noted that a different product may be required. If you have any concerns, please contact us before using the products in your desired application. This specification guarantees the quality and performance of the products as an individual component. Do not use the products beyond the use case and use environment that the specification has described in this document. We assume no responsibility and liability for any lost and damage resulting from the use or operation of the products which do not comply with any absolute maximum ratings, warnings, restrictions and instructions recited

in these specification sheets or other forms of notices from us or resulting from the use or operation of the products under non-standard environment or operations.

## ■ Cautions

- All measurement data is taken from standard laboratory procedures on each discrete product. The procedure does not work on any product integrating components and materials not provided by us. The measurement is provided for your reference and evaluation on your integrated products only. Therefore the products should always be cautiously used with other parts on your own. It is your or your customer's responsibility to perform sufficient tests under your expected environment prior to use the products with other parts to ensure that the lifetime and other quality characteristics required for the actual use in real life are met. During your tests, it is recommended to actively consult with us instantly while there is any concern or inconsistency about the discrete LED. Caution: While using under non-standard environment, application or non-approval operations, be aware of malfunctions or damages leads to risks of life or health.
- You will not reverse engineer, disassemble or otherwise attempt to extract knowledge/design information from the products. In the case of any incident or quality concern that appears to be in breach of these specifications, the products in question must be reported to our local sales representatives for further instructions. Please ensure that the products in question are not disassembled or removed from the PCBs(if any). The determination of whether the products in question are defective and are required for any corrective action thereafter shall be made by us in accordance with our cause analysis procedure. If you do not agree with our cause analysis result, you may request us to send the products in question to a mutually agreed third party for inspection. The cost of such third party inspection shall be borne by you unless it is determined by such third party that said quality issue is solely attributable to us. In the above case, our sole and exclusive obligation shall be, either to repair, replace or refund the products in question.
- All previous negotiation and agreements not specifically incorporated herein are superseded and rendered null and void. We assume no



liability with respect to defects and/or issues of the products caused by:

- (a.) alternation, modification, change, repair and attempt to repair of the products by a party other than us;
- (b.) not caused by our negligent, gross negligent, reckless, or other improper use of the LEDs;
- (c.) installation, operation, or maintenance of the products by a party other than us and not in a manner described in the instruction manual, if applicable; and
- (d.) combination of a product not supplied by us.

■ **DISCLAIMERS:**

- REPAIR, REPLACE OR REFUND OF THE PRODUCTS SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY FOR THE PRODUCTS. WE EXPRESSLY EXCLUDE ALL EXPRESS WARRANTIES IN RELATION TO THE PRODUCTS INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
- BOTH PARTIES AGREE THAT BEFORE YOUR CONSENT TO THE DOCUMENT, WE RESERVE RIGHTS TO MODIFY AND DISCARD THE FORMER VERSION OF THE DOCUMENT AND THE CONSENT IN THIS CLAUSE INCLUDING A WRITTEN COSENT OR BEGINNING AN ACTUAL PERFORMANCE ON DEALINGS.

## Revision History

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Date	Contents	Writer	Approved
2019.01.31	New version	Lily Dai	Ching Chen
2019.05.28	Update	Lily Dai	Ching Chen
2019.09.04	Update	Lily Dai	Ching 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.