

Customer :

# Specification for Approval

Part Name : WA25MFF-XX70D

Customer : \_\_\_\_\_ 2013. . . .

Checked	Checked	Approved	Remark
/	/	/	

WOOREE E & L Co., Ltd. \_\_\_\_\_ 2013. . . .

Designed	Checked	Approved
/	/	/

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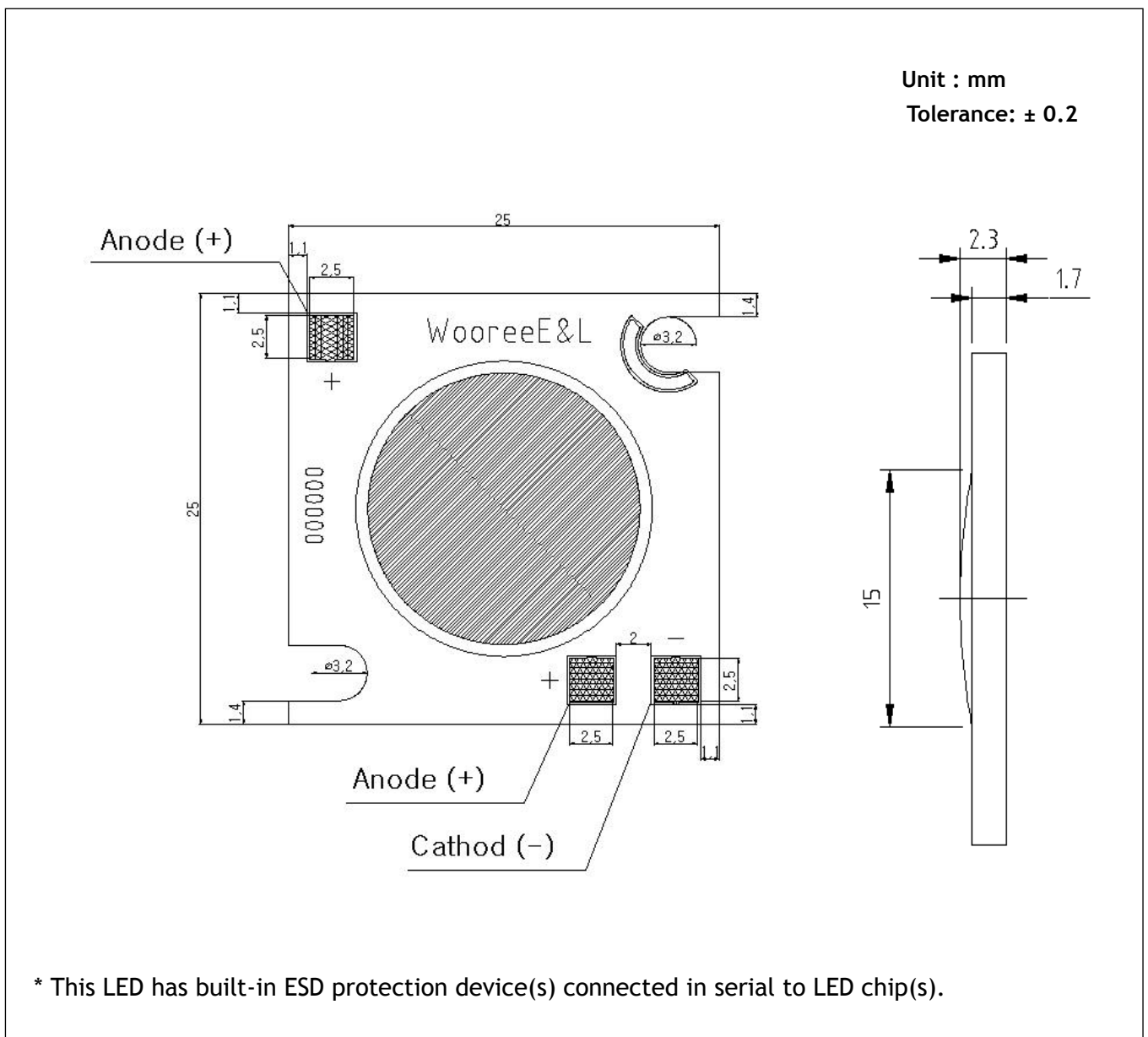
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## 1. Features

- Package size is 25.0 \* 25.0\* 2.3t (mm)
- Lead (Pd) free product - RoHS compliant
- View angle ( $\Delta\theta$  :  $120^\circ \times 120^\circ$ ) for uniform illuminance
- Low thermal resistance  $R_{th,j-s} < 3 \text{ }^\circ\text{C/W}$
- High-power LED in COB technology
- Application : Substitution for Incandescent lamp / Down Light / Signal lamp  
Other applications

## 2. Outline Dimension



### 3. Absolute maximum ratings

Item	Symbol	Absolute Maximum Ratings	Unit
Forward Current	$I_F$	150	mA
Power dissipation	$P_d$	12	W
Operating Temperature	$T_{opr}$	-30 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +100	°C
Junction Temperature	$T_J$	120	°C

\*1. Pulse Width ≤ 10msec, Duty ≤ 10%

### 4. Electrical/Optical characteristics

( $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	Value			Unit	
			Min	Typ	Max		
Luminous Flux*1-1)	lm	$I_F=120\text{mA}$	3000K	1110	1170	1260	lm
			5000K	1170	1260	1350	
			5700K	1170	1260	1350	
Forward Voltage *1-2)	$V_f$	$I_F=120\text{mA}$	90	95	102	V	
Color Temperature *1-3) [CIE 1931 Coordinates]	CCT	$I_F=120\text{mA}$	3000K	2870	3045	3220	K
			5000K	4734	5008	5282	
			5700K	5300	5655	6010	
Viewing Angle	$2\theta_{1/2}$	$I_F=120\text{mA}$	-	120	-	Deg.	
Color Rendering Index	$R_a$	$I_F=120\text{mA}$	72	-	-	-	
Thermal Resistance	$R_{th,j-s-2}$			3		°C/W	

\*1. Equipment measured tolerance

1) Luminous Flux is  $\pm 10\%$

2) Forward voltage is  $\pm 7\%$

3) Color Temperature is  $3045\pm 175\text{K}$  (3000K) /  $5008\pm 274\text{K}$  (5000K) /  $5655\pm 355\text{K}$  (5700K)

\*2.  $R_{th,j-s}$  is Thermal Resistance (Junction - Slug)

## 5. Ranks

### (1) Forward Current

(Ta=25℃)

Rank	Condition	Value	Unit
0	I <sub>F</sub> =120mA	90 - 93	V
1		93 - 96	
2		96 - 99	
3		99 - 102	

### (2) Luminous Flux

(Ta=25℃)

Rank	Condition	3000K	5000K	5700K
110	I <sub>F</sub> =120mA Unit : lm	1110 - 1140		
140		1140 - 1170		
170		1170 - 1200	1170 - 1200	1170 - 1200
200		1200 - 1230	1200 - 1230	1200 - 1230
230		1230 - 1260	1230 - 1260	1230 - 1260
260			1260 - 1290	1260 - 1290
290			1290 - 1320	1290 - 1320
320			1320 - 1350	1320 - 1350

### (3) Chromaticity coordinates

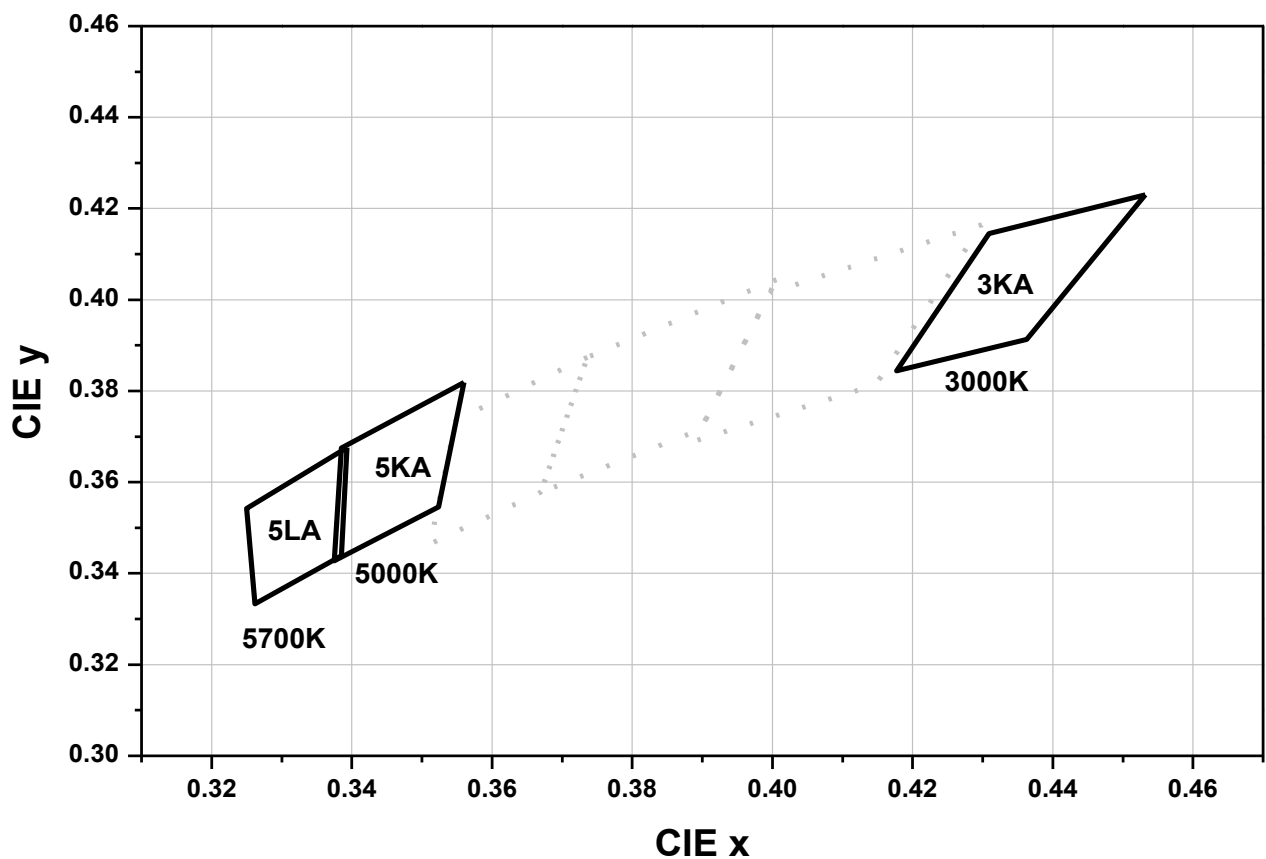
( $I_F=120\text{mA}$ ,  $T_a=25^\circ\text{C}$ )

3000K		5000K		5700K	
3KA		5KA		5LA	
Cx	Cy	Cx	Cy	Cx	Cy
0.4532	0.4230	0.3560	0.3819	0.3393	0.3676
0.4309	0.4145	0.3385	0.3675	0.3250	0.3542
0.4177	0.3844	0.3375	0.3428	0.3262	0.3333
0.4363	0.3913	0.3524	0.3546	0.3385	0.3439
0.4532	0.4230	0.3560	0.3819	0.3393	0.3676

\* Luminous Intensity follow the CIE1931

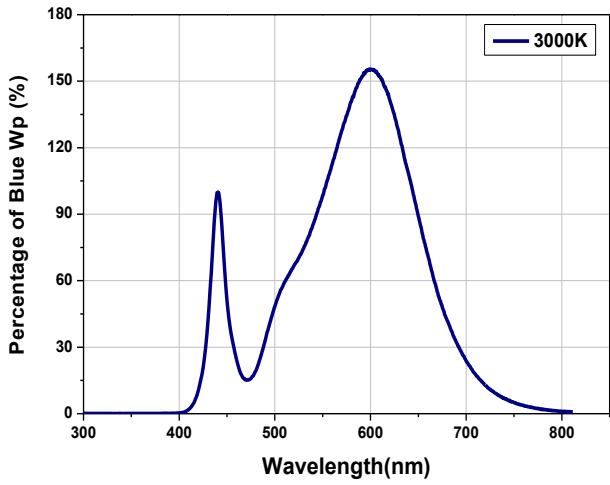
### (4) Chromaticity Coordinates Diagram

( $I_F=120\text{mA}$ ,  $T_a=25^\circ\text{C}$ )

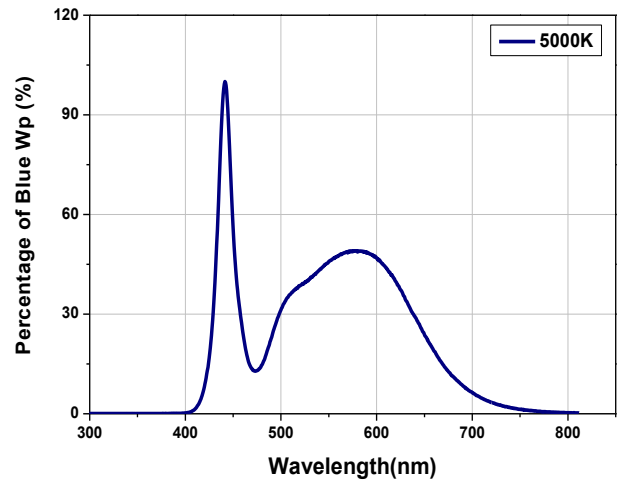


## 6. Color Spectrum

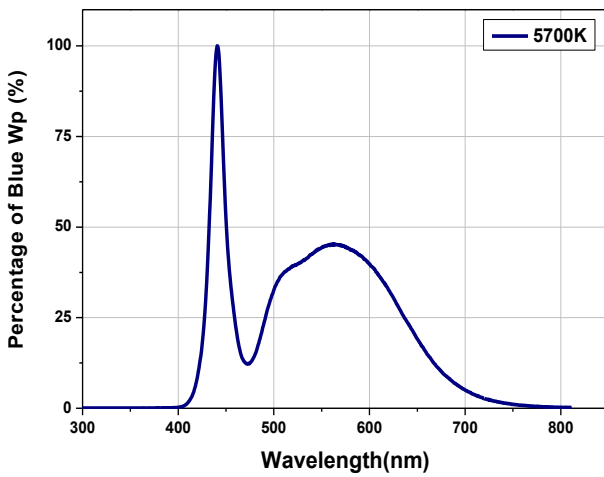
( $I_F=120\text{mA}$ ,  $T_a = 25^\circ\text{C}$ )



3000K



5000K

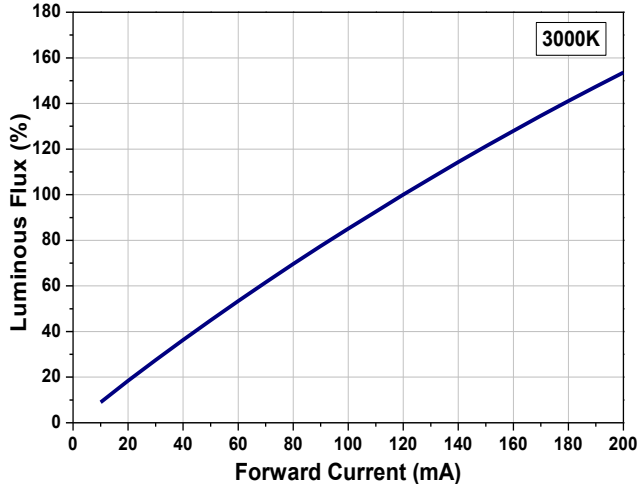


5700K

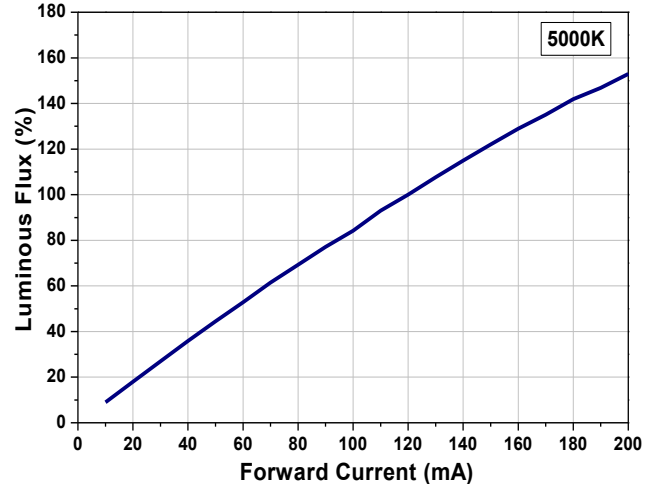
# 7. Characteristic Diagrams

## (1) Luminous Flux vs. Forward current

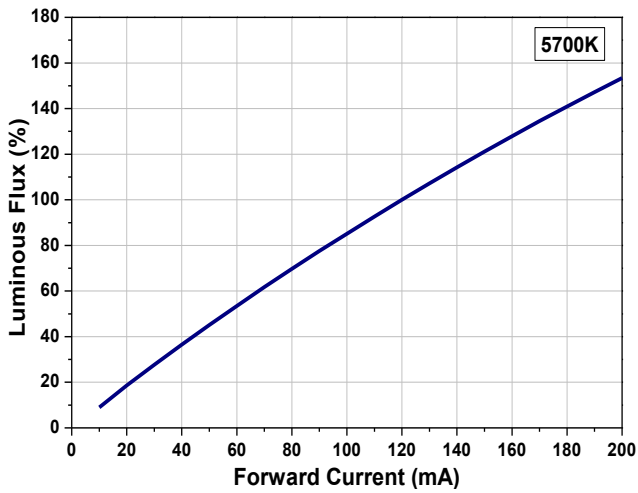
(Ta = 25°C)



3000K



5000K

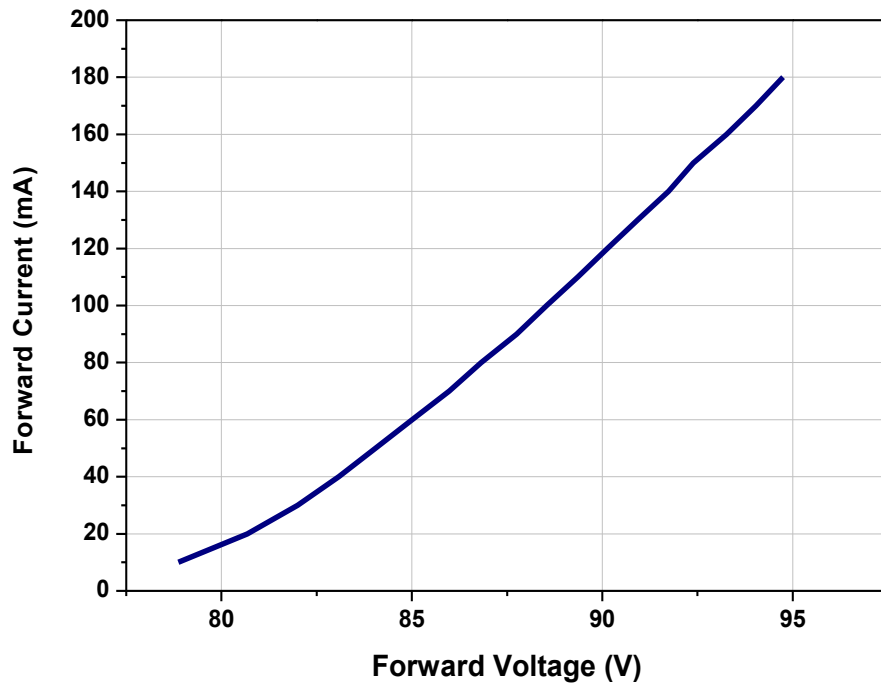


5700K

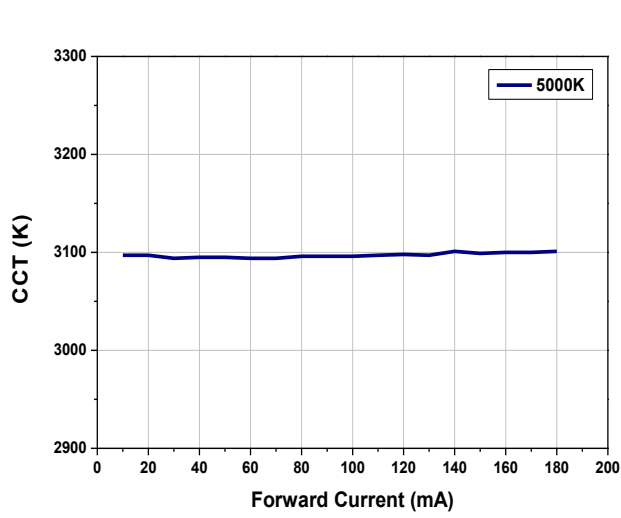


## (2) Forward Current vs. Forward Voltage

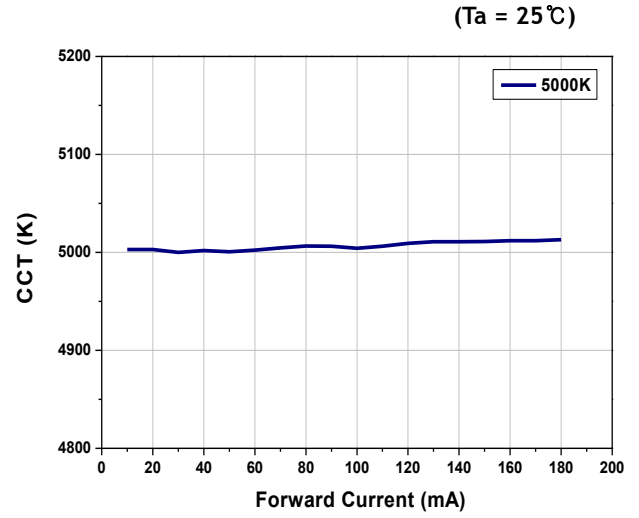
(Ta=25°C)



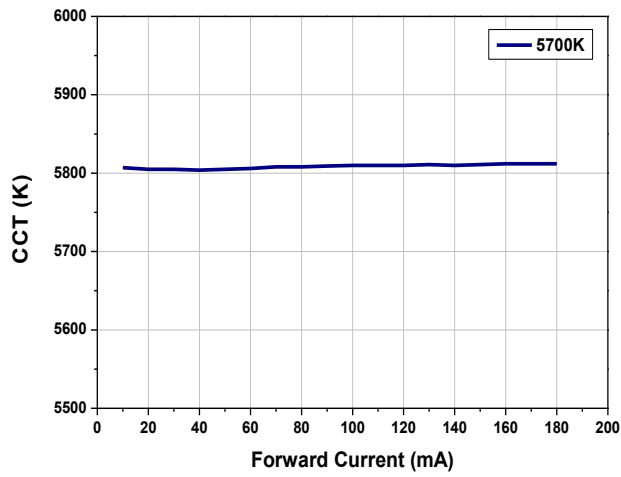
### (3) CCT vs. Forward Current



**3000K**



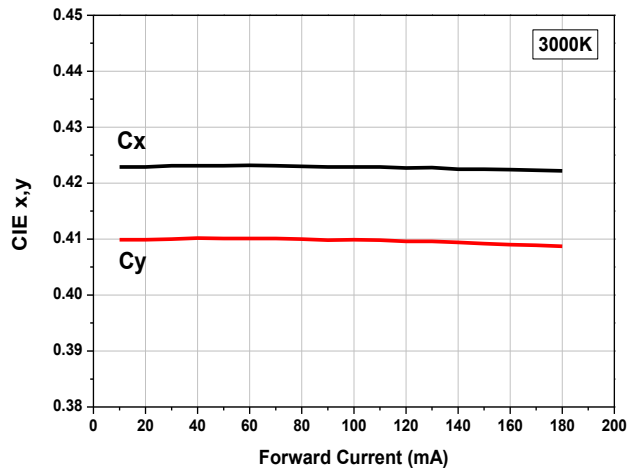
**5000K**



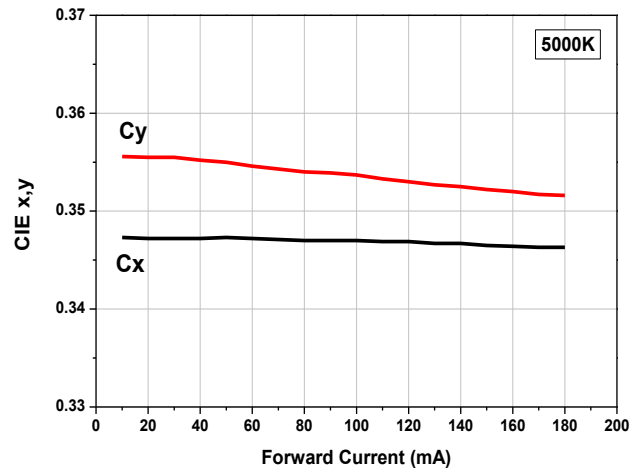
**5700K**

#### (4) CIE x,y vs. Forward Current

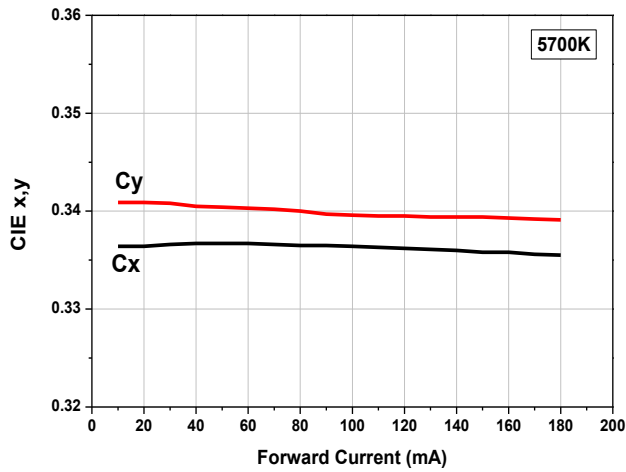
(Ta = 25°C)



3000K



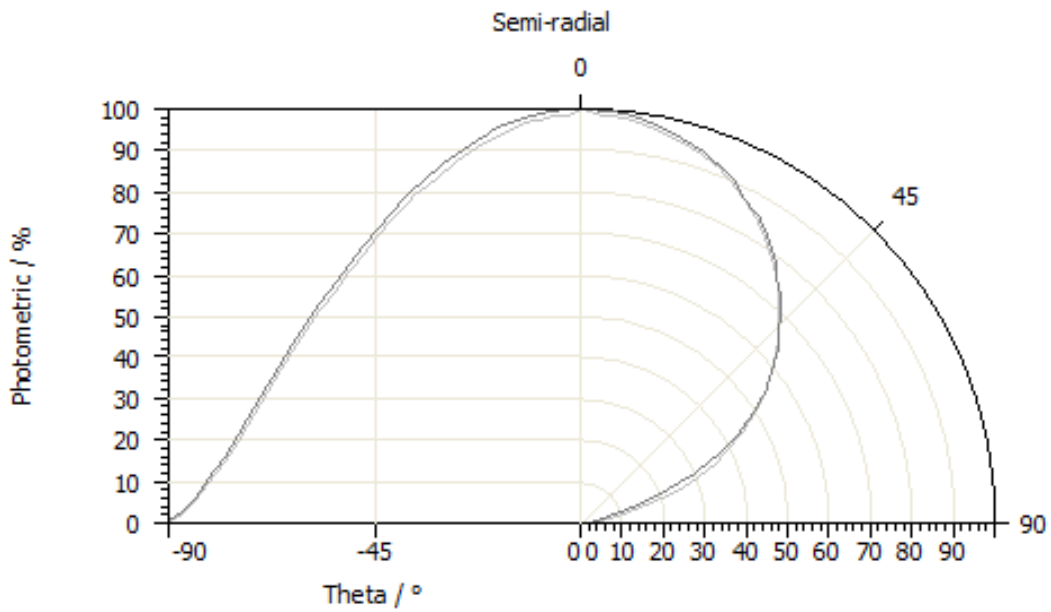
5000K



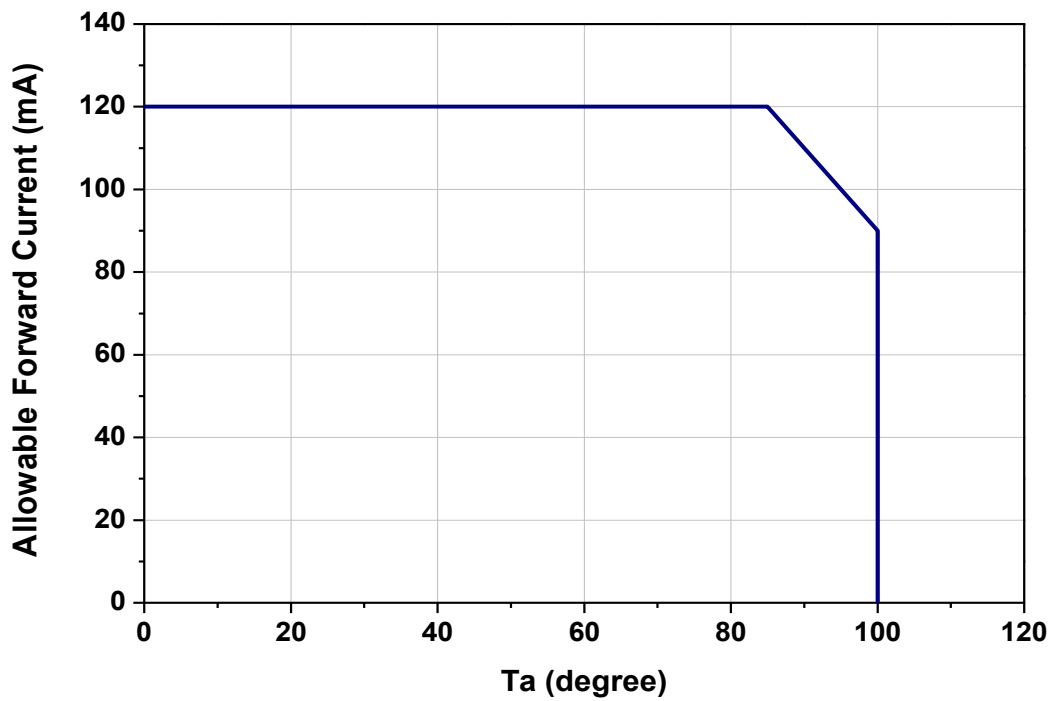
5700K

(5) Radiation Pattern

( $I_f=120\text{mA}$ ,  $T_a=25^\circ\text{C}$ )



(6) Derating curve



## 8. Reliability

### (1) Test items and results

NO	Test Item	Standard Test Method	Test Conditions	Note	Number of Damaged
1	Temperature Cycle	JEITA ED-4701 100 105	-40℃ ~ 25℃ ~ 100℃ ~ 25℃ 30min. 5min. 30min. 5min	200 cycles	0/10
2	High Temperature Storage	JEITA ED-4701 200 201	Ta=100℃	1000 hrs	0/10
3	Temperature Humidity Storage	JEITA ED-4701 100 103	Ta=85℃, RH=85%	1000 hrs	0/10
4	Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40℃	1000 hrs	0/10
5	Steady State Operating Life	-	Ta=25℃, I <sub>F</sub> =120mA	1000 hrs	0/10
6	Steady State Operating Life of High Temperature	-	Ta=85℃, I <sub>F</sub> =120mA	1000 hrs	0/10
7	Steady State Operating Life of High Humidity Heat	-	Ta=85℃, RH=85%, I <sub>F</sub> =120mA	1000 hrs	0/10
8	Electro-Static Discharge Threshold	ESD (HBM)	1500Ω, 100pF (Forward/ Reverse)	6KV	0/10

### (2) Criteria for judging the damage

ITEM	Symbol	Test Condition	Criteria for Judgement	
			Min.	Max.
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =120mA		USL *1 × 1.1
Luminous Flux	lm	I <sub>F</sub> =120mA	LSL*2 × 0.7	

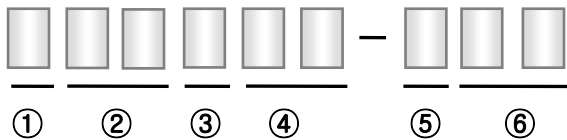
\*1) U.S.L.: Upper Standard Level      \*2) L.S.L.: Lower Standard Level

## 9. Packing

### (1) Label Information

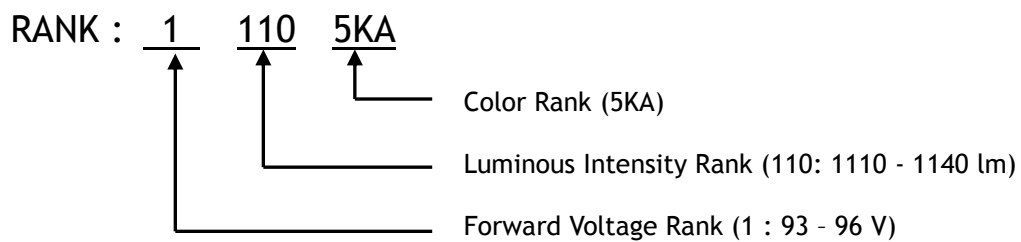


### (2) Lot Number



- ① WOOREE LED Initial
- ② Year (10 for 2010, 11 for 2011)
- ③ Month (A for Jan., B for Feb., ... , N for Dec.)
- ④ Day (01 for 1, ..., 31 for 31)
- ⑤ Product Number ( 0 , 1 ) : Normal Lot : “ 0 “ , Merge Lot : “1”
- ⑥ Product Number (01,02,03, ... ,99)

### (3) Rank Code description



## 10. Revision History

Spec NO.			
Title	Specification for Approval		
Times	Date	Summary of revision	Remarks
1		INITIAL ISSUE	R(0)