

Doc. No.	3CF000073
制定日期	96年11月12日
改訂日期	96年11月12日
版次(修訂)	Ver. 01
頁 次	1 of 5
制定部門	晶粒廠

文件名稱	13*13 Blue GaN LED Chip Standard Specifications (C-C4XXFFXXX)
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修訂紀錄

修訂日期 生效日期	頁次	版次	制 修 記 要	修改者簽章
2007.11.12	All	01	新制定	陳育盛

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## 1. Scope

This specification sheet is only for CMLT C-C4□□FF□□□□ product.

## 2. Material Structure

Material structure : P-Type AlInGaN / MQW / N-Type AlInGaN / Sapphire

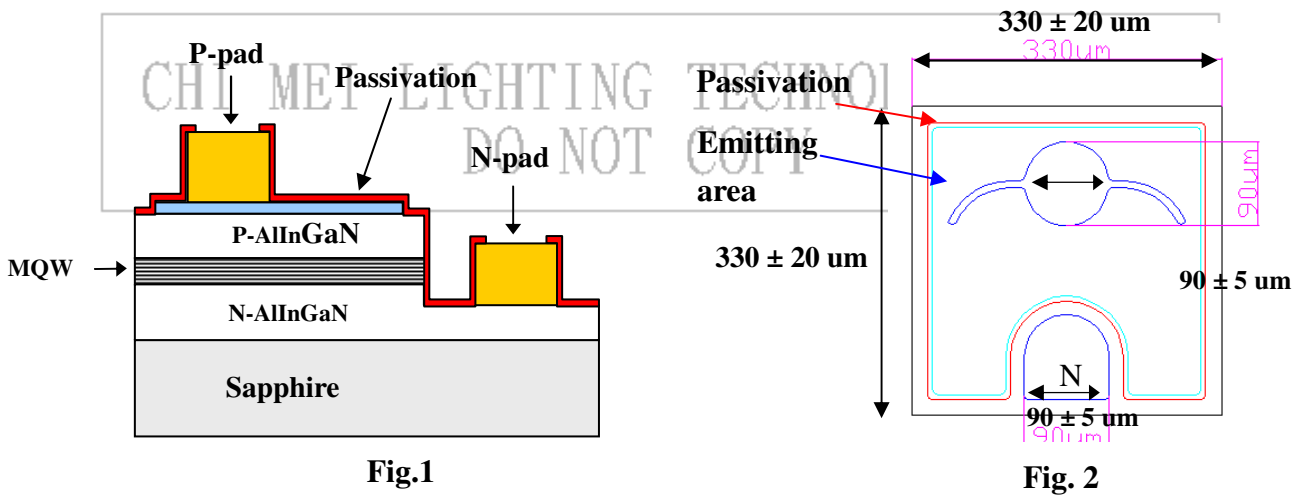
P electrode (anode) : Au alloy

N electrode (cathode) : Au alloy

Chip thickness :  $4 \pm 1$  mil

## 3. Chip Dimensions


Fig.1 is the representative plot for cross-sectional structure, and Fig.2 illustrates the corresponding layout configuration.



## 4. Electro-Optical Characteristics

Parameter	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V <sub>f</sub>	I <sub>f</sub> = 20 mA	2.9	3.2	3.5	V
Reverse Current	I <sub>r</sub>	V <sub>r</sub> = 5V	-	-	1.0	uA
Luminous Intensity	I <sub>v</sub>	I <sub>f</sub> = 20 mA	※	※	※	mcd
Dominant Wavelength	λ <sub>d</sub>	I <sub>f</sub> = 20 mA	※	-	※	nm
Peak Wavelength	λ <sub>p</sub>	I <sub>f</sub> = 20 mA	※	-	※	nm
Spectral Width at Half- maximum	Δ λ	I <sub>f</sub> = 20 mA		25		nm

※Refer to the bin table listed in the following

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**5. Product Type No. Explanation for C-C4XXFFXXXX**

Example : C - **C** **4X** **T** **FF** **1** **0** **00**  
 (A) (B) (C) (D) (E) (F) (G)

(A). Standard chip product

(B). Dominant Wavelength :  $430 \text{ nm} \leq \lambda_d < 490 \text{ nm}$  with 2.5 nm interval when sorting,  
 Other Wavelength are as follow table

43	$430 \text{ nm} \leq \lambda_d < 440 \text{ nm}$
44	$440 \text{ nm} \leq \lambda_d < 450 \text{ nm}$
45	$450 \text{ nm} \leq \lambda_d < 460 \text{ nm}$
46	$460 \text{ nm} \leq \lambda_d < 470 \text{ nm}$
47	$470 \text{ nm} \leq \lambda_d < 480 \text{ nm}$
48	$480 \text{ nm} \leq \lambda_d < 490 \text{ nm}$

(C). Luminous Intensity Grade : refer to the following table


<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>
0~10	10~12	12~14	14~17	17~20	20~23	23~26	26~30	30~35	35~40	40~46	46~53	53~60
<b>N</b>	<b>O</b>	<b>P</b>	<b>Q</b>	<b>R</b>	<b>S</b>	<b>T</b>	<b>U</b>	<b>V</b>	<b>W</b>	<b>X</b>	<b>Y</b>	<b>Z</b>
60~70	70~80	80~90	90~100	100~110	110~120	120~140	140~160	160~180	180~205	205~230	230~260	260~300

(D). Chip Dimension : ( 13 mil ) x ( 13 mil )

(E). Mask Version

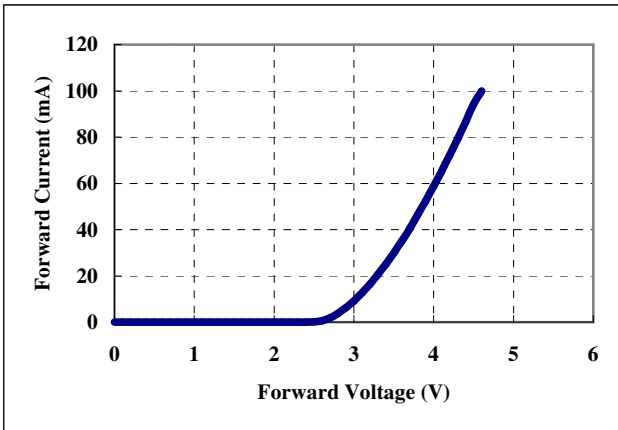
(F). Wavelength bin grade : **1** : 0~2.5nm, **2** : 2.5~5nm, **3** : 5~7.5nm, **4** : 7.5~10nm

(G). CMLT project code.

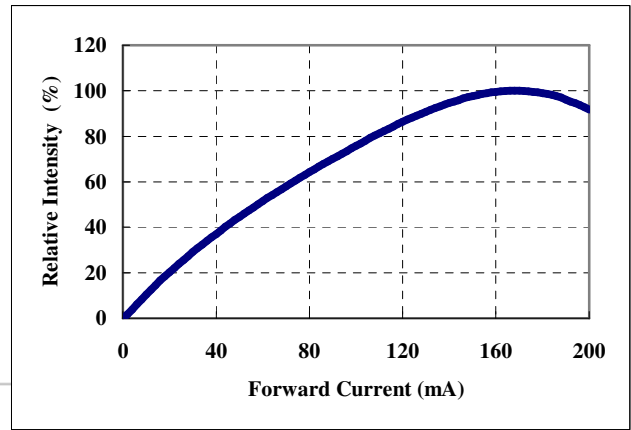
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## 6. Typical Electrical and Optical characteristic curves

**Fig.3 I-V curve at forward bias**



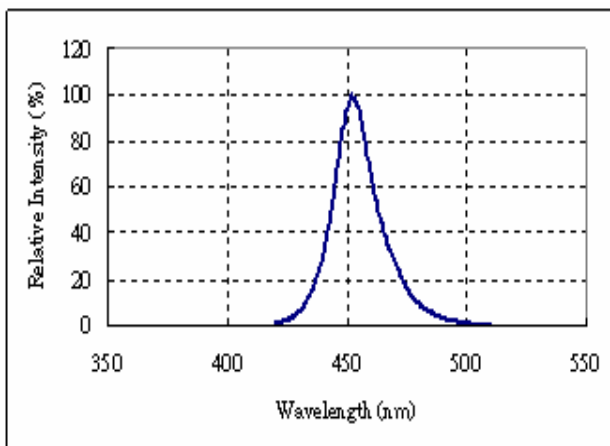
**Fig.4 Relative Intensity vs. Forward Current**




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**Fig.5 Photometric spectrum at room temperature**

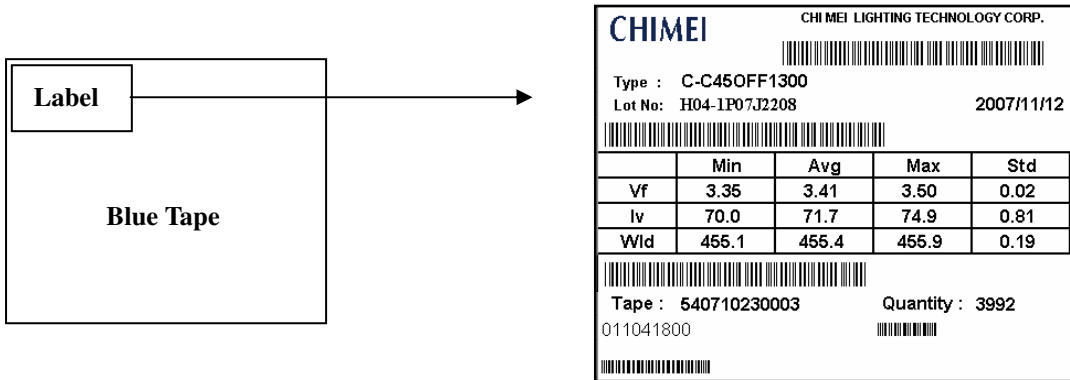
For reference : 450~ 460 nm



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### 7. Label Sheet

A label sheet containing the detailed manufacturing information, such as Lot. number, type number, chip quantity, electro-optical characteristics, is pasted at the upper-left corner on blue tape . Standard dimension of the blue tape is equal to  $(195 \pm 5\text{mm}) \times (195 \pm 5\text{mm})$ .



### 8. Inspection Process

All of the chips are sorted into an array form on the blue sheet after 100% testing for electro-optical characteristics. Furthermore, 100% chip appearance inspection by optical microscope was performed in the standard manufacturing flow.