



**COTCO LUMINANT DEVICE (HUIZHOU) LTD.**

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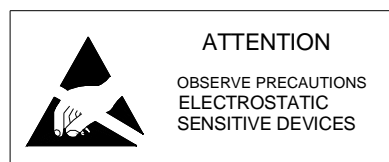
## **SPECIFICATION FOR COTCO LED LAMP**

Document No : SPE/LD-300CBL2-C5-MT  
Model No: LD-300CBL2-C5-MT  
Rev. No : 04  
Date: 2006-08-29

### Description:

3 x 3mm, QFN Type,  
High Power Blue LED For Illumination,  
Clear Compound Encapsulated.

\*This specification is only for MT  
Dice Material: InGaN



For part availability and ordering information please call Toll Free: 800.984.5337  
Website: [www.marktechopto.com](http://www.marktechopto.com) | Email: [info@marktechopto.com](mailto:info@marktechopto.com)

## Features

- High luminous flux output for illumination
- Exposed pad design for excellent heat transfer
- Designed for high current operation
- Reflow soldering applicable

## Absolute Maximum Ratings at Ta = 25°C (on metal core PCB)\*

Items	Symbol	Absolute maximum Rating	Unit
Forward Current	$I_F$	100	mA
Peak Forward Current**	$I_{FP}$	150	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	0.48	W
Operation Temperature	$T_{opr}$	-40 ~ +85	°C
Storage Temperature	$T_{stg}$	-40 ~ +85	°C
Junction Temperature	$T_j$	+110	°C
Junction-to- Ambient***	$\theta_{ja}$	135	°C/W
Junction-to-Case***	$\theta_{jc}$	70	°C/W

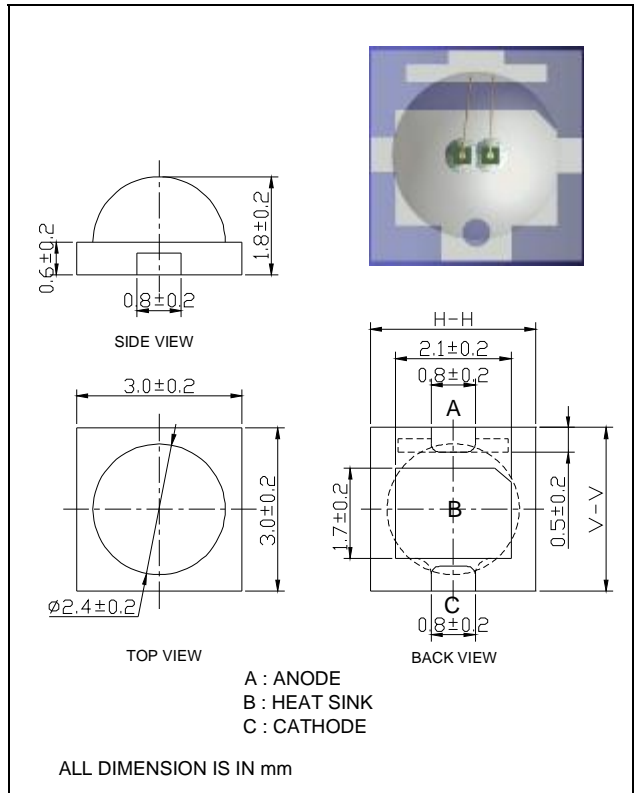
\*Metal core PCB defines as good heat transmission substrate (thickness of 1.7mm Al-based PCB in 12x12mm,  $\theta_{jc} < 40^\circ\text{C/W}$  could do)

\*\* Where pulse width  $\leq 0.1\text{msec}$ , duty cycle  $\leq 1/10$  \*\*\* Rth test condition: mounted on 1.7mm Al-based PCB in size of 12x12mm

## Typical Electrical & Optical Characteristics at Ta = 25°C (on metal core PCB)\*

Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F = 100\text{mA}$		4.0	4.8	V
Reverse Current	$I_R$	$V_R = 5\text{V}$	---	---	10	$\mu\text{A}$
Luminous Flux	lumen	$I_F = 100\text{mA}$	1	2.3	---	lm
Dominant Wavelength	$\lambda_D$	$I_F = 100\text{mA}$	460	470	476	nm
50% Power Angle	$2\theta_{\frac{1}{2}} \text{ H-H}$	$I_F = 100\text{mA}$	---	125	---	deg
	$2\theta_{\frac{1}{2}} \text{ V-V}$	$I_F = 100\text{mA}$	---	115	---	deg

## Package Outline



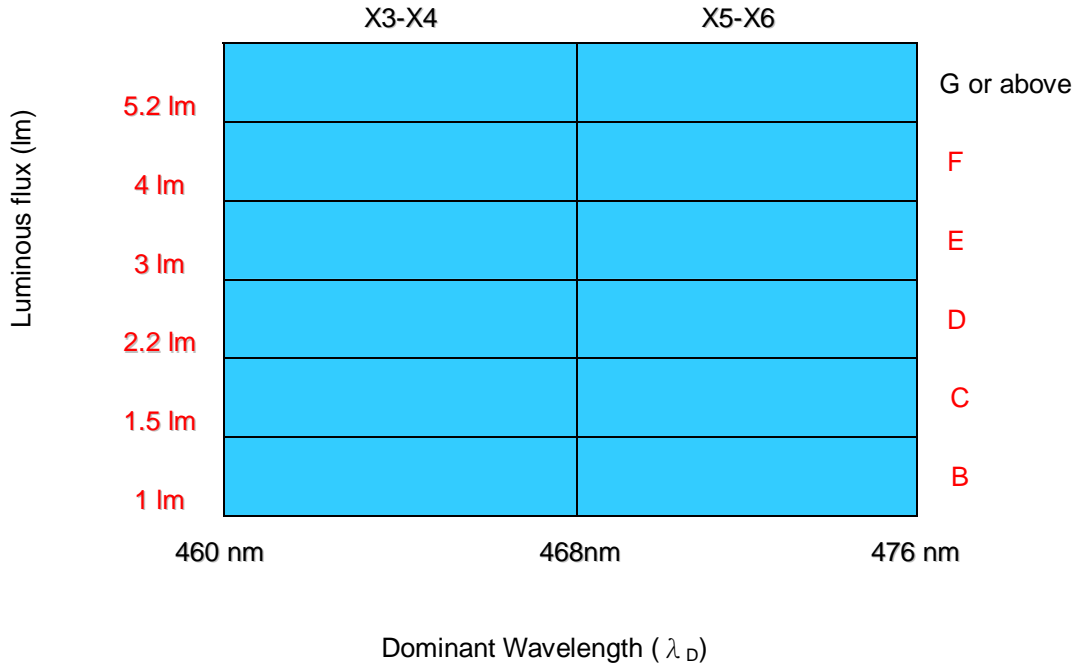
### Ranks Combination ( $I_F = 100mA$ )

Lamps are sorted to Luminous flux – $lm$ ,  $V_F$  & Dominant Wavelength –  $\lambda_D$  bins shown.

Orders for LD-300CBL2-C5-MT may be filled with any or all bins contained as below.

All Luminous flux– $lm$ ,  $V_F$  & Dominant Wavelength –  $\lambda_D$  values shown and specified are at  $I_F=100mA$ .

**\*B+**



\*B+ indicates Luminous Flux is at B bin or above.

### Forward Voltage ( $V_F$ )

Rank	V5a	V5b	V6a	V6b	V7a	V7b	V8a	V8b
Voltage	3.2-3.4V	3.4-3.6V	3.6-3.8V	3.8-4.0V	4.0-4.2V	4.2-4.4V	4.4-4.6V	4.6-4.8V

### Wavelength Voltage ( $W_d$ )

Rank	X3	X4	X5	X6
Wavelength (nm)	460-464nm	464-468nm	468-472nm	472-476nm

### Important Notes:

- 1) All ranks will be included per delivery; rank ratio will be based on Dices distribution.
- 2) Pb content < 1000PPM.
- 3) Tolerance of measurement of luminous flux is  $\pm 10\%$
- 4) Tolerance of measurement of dominant wavelength is  $\pm 1nm$ .
- 5) Tolerance of measurement of  $V_f$  is  $\pm 0.1 V$ .
- 6) Packaging methods are available for selection, please refer to PACKAGING STANDARD.
- 7) Please refer to LED LAMP RELIABILITY TEST STANDARD for reliability test conditions.
- 8) Please refer to APPLICATION NOTES for Application Notes.

**Graphs**

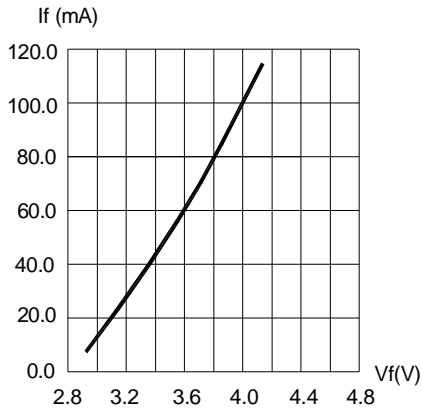


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

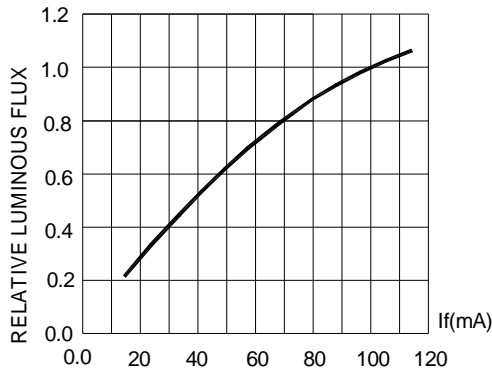


FIG.2 FORWARD CURRENT.

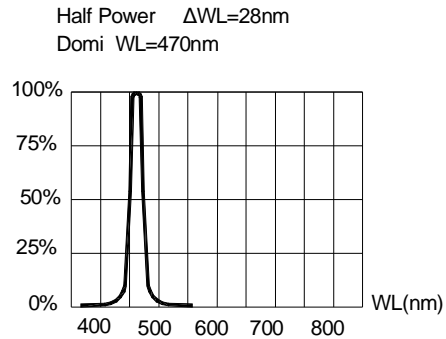


FIG.3 RELATIVE LUMINOUS FLUX VS. WAVELENGTH.

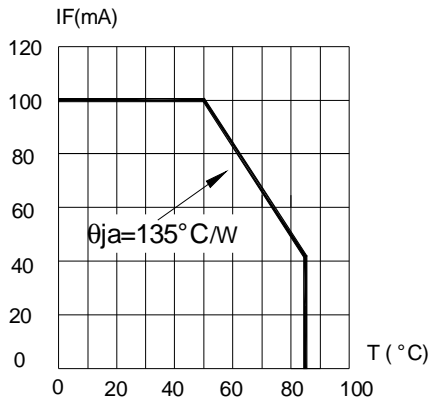


FIG.4 MAXIMUM FORWARD DC CURRENT VS TEMPERATURE. DERATING BASED ON  $T_{jmax}=110\text{ }^{\circ}\text{C}$

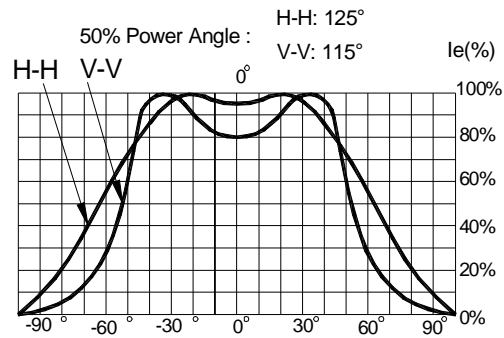


FIG.5 FAR FIELD PATTERN

Items	Signatures	Date	Revision History		
			Rev.No	Date	Change Description
Prepared by	WangFJ	2006-08-29			
Checked by	WangXM	2006-08-29	02	2006-05-17	Change VF MAX from 4.4V to 4.8V
Approved by	David	2006-08-29	03	2006-08-11	Added a lumen bin: 3-5 lm
FCN#	FCN20060297		04	2006-08-29	Change lumen bin range and rank from A,B to B,C,D,E,F

Data is subject to change without prior notice.

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