



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

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## **SPECIFICATION FOR COTCO LED LAMP**

Document No: SPE/LM1- PBL1-01-N1  
Model No : LM1- PBL1-01-N1  
Rev. No : 03  
Date: 2005-11-11

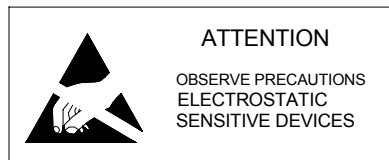
Description:

120 Degree 3.2 x 2.7mm SMT-LED in Blue  
Color with Water Transparent

Dice Material: InGaN

Confirmed  
By Customer: \_\_\_\_\_

Date: \_\_\_\_\_



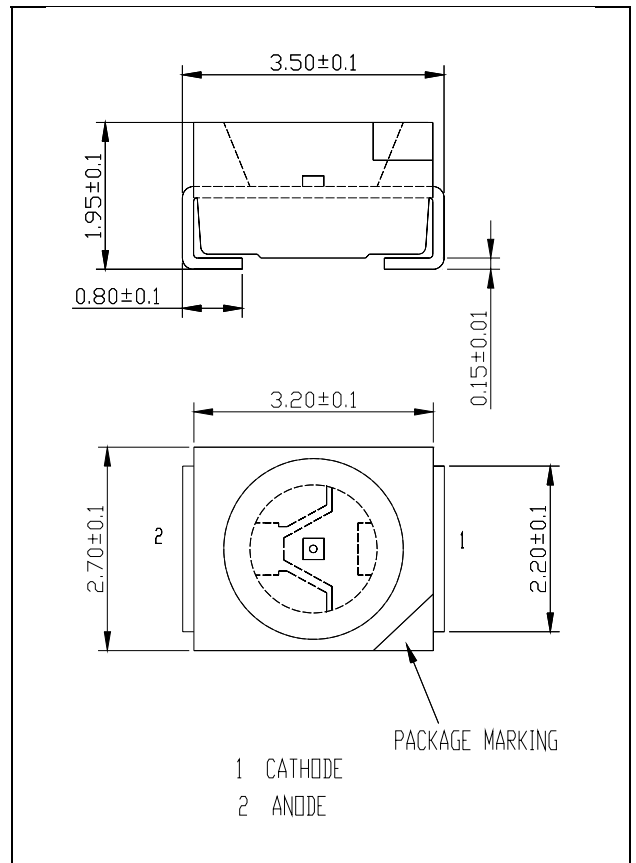
### Applications:

- Indicators
- Illuminations
- LCD Back Lights
- Automobile's Applications
- RGB Full Color Displays

### Absolute Maximum Ratings at Ta = 25°C

Items	Symbol	Absolute maximum Rating	Unit
Forward Current	$I_F$	25	mA
Peak Forward Current*	$I_{FP}$	100	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	100	mW
Operation Temperature	$T_{opr}$	-40 ~ + 100	°C
Storage Temperature	$T_{stg}$	-40 ~ + 100	°C
Junction temperature	$T_j$	+110	°C
Junction/ambient **	$R_{th JA}$	450	°C/W
Junction/solder point	$R_{th JS}$	300	°C/W

### Dimension Drawing



\*pulse width  $\leq 0.1$ msec duty  $\leq 1/10$  \*\* Rth test condition: Mounted on PC Board FR 4 (pad size  $\geq 16$ mm<sup>2</sup>)

### Typical Electrical & Optical Characteristics ( Ta = 25°C)

Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F = 20$ mA	---	3.4	4.0	V
Reverse Current	$I_R$	$V_R = 5$ V	---	---	10	$\mu$ A
Luminous Intensity	$I_V$	$I_F = 20$ mA	112	160	---	mcd
Dominant Wavelength	$\lambda_D$	$I_F = 20$ mA	460	470	480	nm
50% Power Angle	$2 \theta_{1/2}$	$I_F = 20$ mA	---	120	---	deg

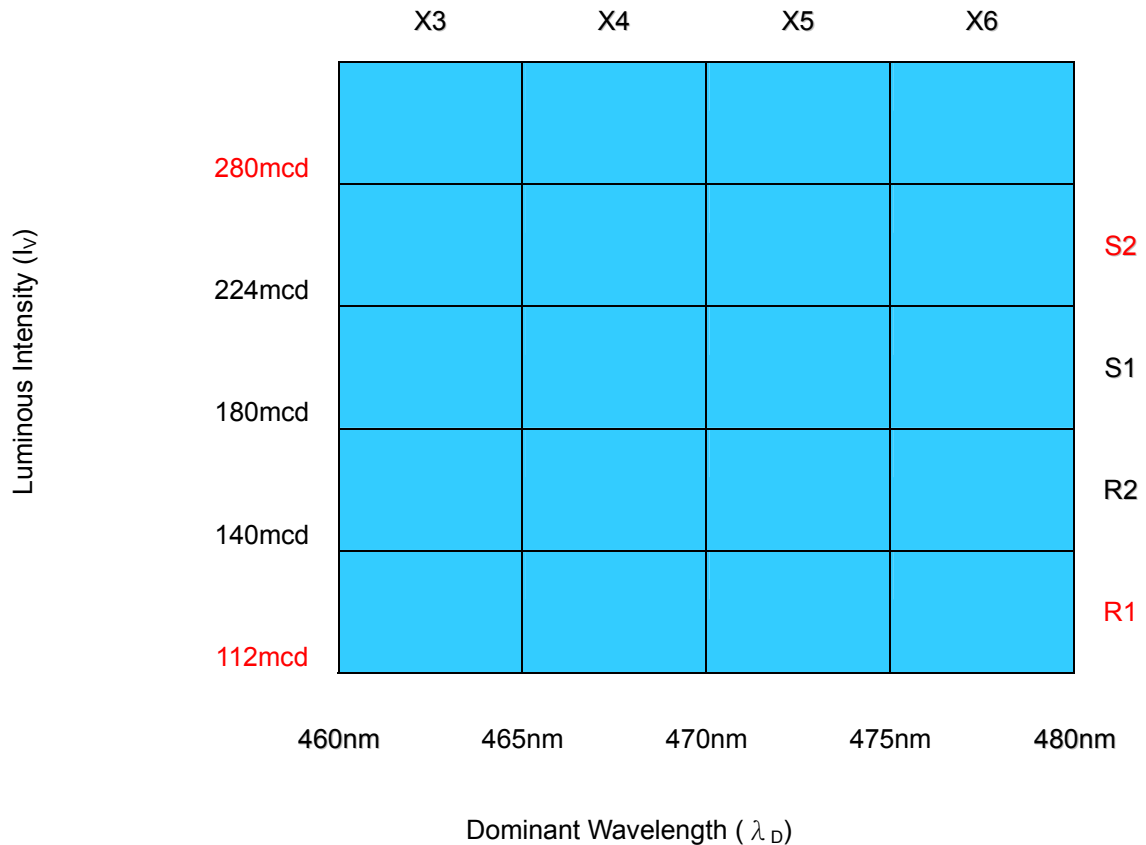
**Standard bins for LM1-PBL1-01-N1 ( $I_F = 20\text{mA}$ ):**

Lamps are sorted to Luminous Intensity  $-I_V$  & Dominant Wavelength  $-\lambda_D$  bins shown.

Orders for LM1-PBL1-01-N1 may be filled with any or all bins contained as below.

All Luminous Intensity  $-I_V$  & Dominant Wavelength  $-\lambda_D$  values shown and specified are at  $I_f=20\text{mA}$ .

\* **R1+**



\* **R1+** indicates Luminous Intensity is at **R1** bin or above.

**Important Notes:**

- 1) All ranks will be included per delivery, rank ratio will be based on Dices distribution.
- 2) Tolerance of measurement of luminous intensity is  $\pm 10\%$
- 3) Tolerance of measurement of dominant wavelength is  $\pm 1\text{nm}$ .
- 4) Tolerance of measurement of  $V_f$  is  $\pm 0.05\text{V}$ .
- 5) Packaging methods are available for selection, please refer to PACKAGING STANDARD.
- 6) Please refer to LED LAMP RELIABILITY TEST STANDARD for reliability test conditions.
- 7) Please refer to APPLICATION NOTES for Application.

### Graphs

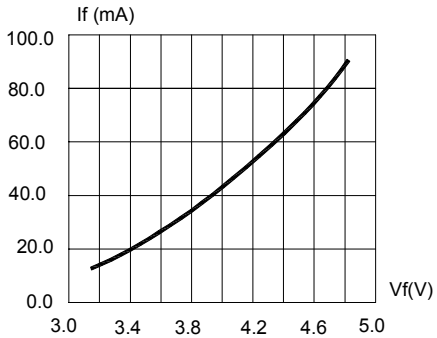


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

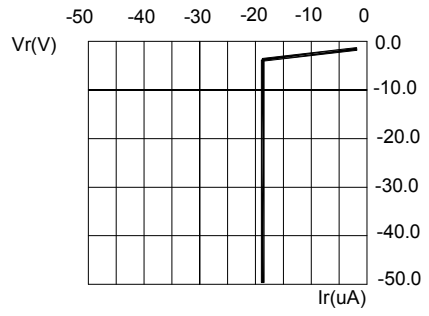


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE.

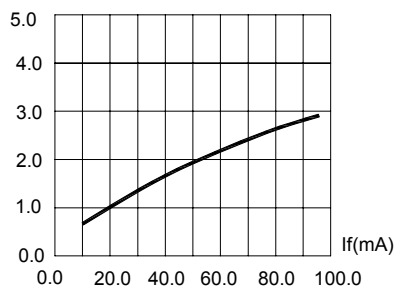


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

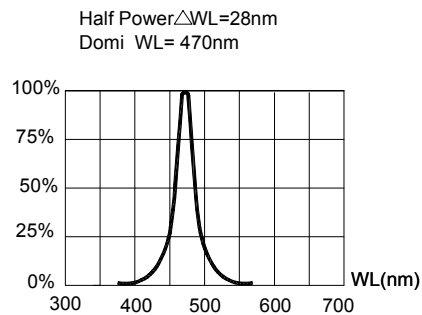


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

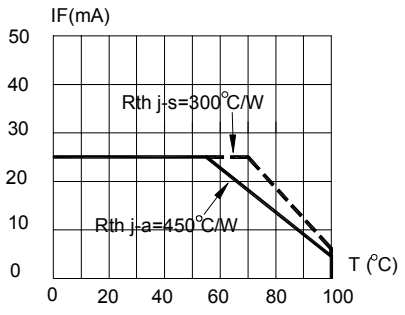


FIG.5 MAXIMUM FORWARD DC CURRENT VS TEMPERATURE. DERATING BASED ON  $T_{jmax}=110^{\circ}C$

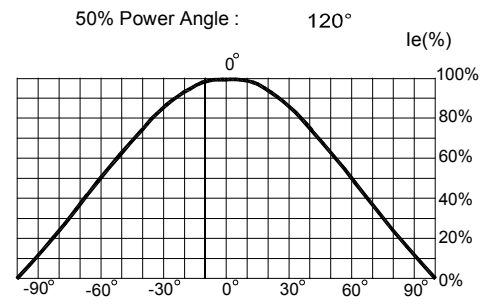


FIG.6 FAR FIELD PATTERN

Items	Signatures	Date	Revision History		
			Rev.No	Date	Change Description
Prepared by	Meiliping	2005-11-11			
Checked by	XieJH	2005-11-11	02	2005-07-27	Release. Change IV Rank from R1~S1 (min) 112mcd to Q2~S1 (min) 90mcd.
Approved by	DavidLiu	2005-11-11	03	2005-11-11	Change IV Rank from Q2~S1(min)90mcd to R1~S2 (min) 112mcd.
FCN#	FCN20050365				

Data is subject to change without prior notice; please refer to COTCO Website for the latest version.

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