



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

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## **SPECIFICATION FOR COTCO LED LAMP**

Document No: SPE/LM1-PWR1-01-N1  
Model No : LM1-PWR1-01-N1  
Rev. No : 02  
Date: 2006-01-10

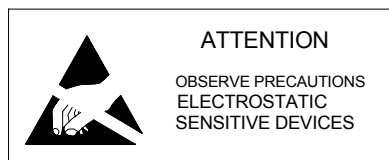
Description:

120 Degree 3.2 x 2.7mm Power SMD in  
Warm White Color with Water Transparent

Dice Material: InGaN

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

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



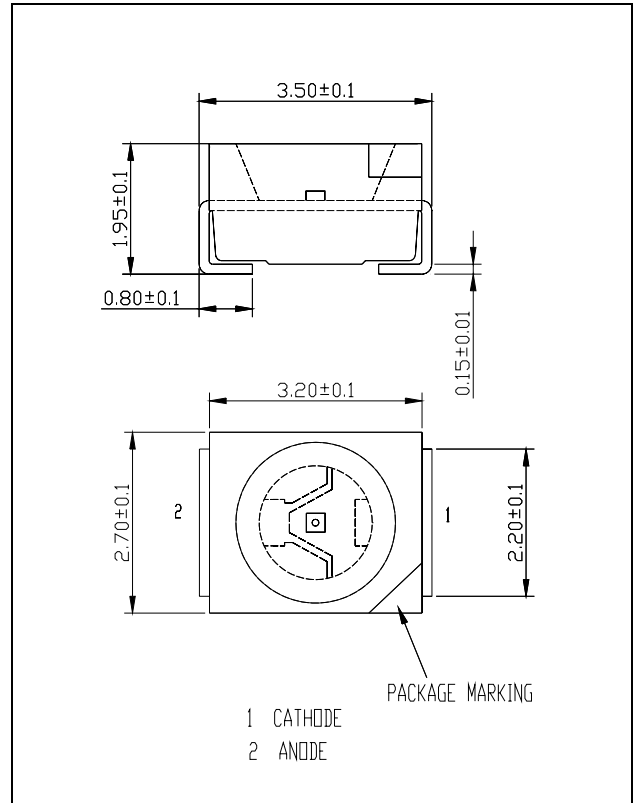
**Applications:**

- Indicators
- Illuminations
- LCD Back Lights
- Automobile's Applications

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

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

| Items                    | Symbol                   | Condition    | Min. | Typ.  | Max. | Unit |
|--------------------------|--------------------------|--------------|------|-------|------|------|
| Forward Voltage          | $V_F$                    | $I_F = 20mA$ | ---  | 3.4   | 4.0  | V    |
| Reverse Current          | $I_R$                    | $V_R = 5V$   | ---  | ---   | 100  | μA   |
| Luminous Intensity       | $I_V$                    | $I_F = 20mA$ | 355  | 470   | ---  | mcd  |
| Color Temperature        | CCT                      | $I_F = 20mA$ | ---  | 3200  | ---  | K    |
| Chromaticity Coordinates | x                        | $I_F = 20mA$ | ---  | 0.426 | ---  | ---  |
|                          | y                        | $I_F = 20mA$ | ---  | 0.407 | ---  | ---  |
| 50% Power Angle          | $2 \theta_{\frac{1}{2}}$ | $I_F = 20mA$ | ---  | 120   | ---  | deg  |

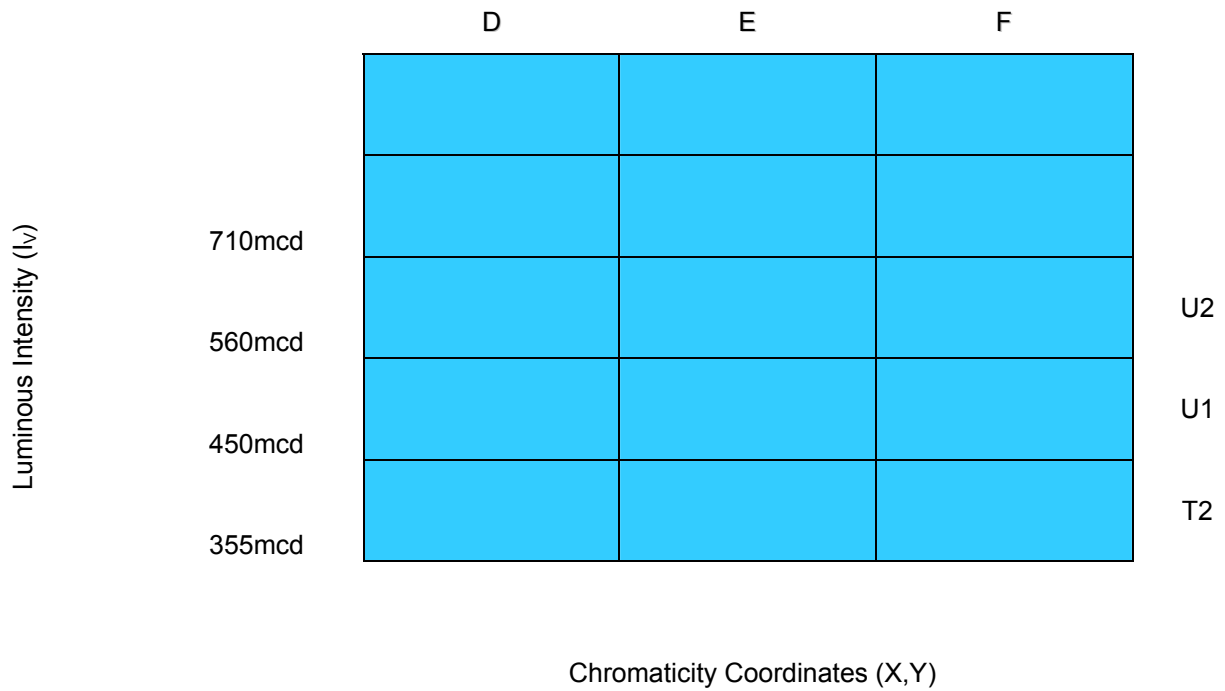
**Standard bins for LM1-PWR1-01-N1 (IF = 20mA):**

Lamps are sorted to Luminous Intensity –IV & Chromaticity Coordinates –(X,Y) bins shown.

Orders for LM1-PWR1-01-N1 may be filled with any or all bins contained as below.

All Luminous Intensity –IV & Chromaticity Coordinates –(X,Y) values shown and specified are at IF =20mA.

**\*T2 +**



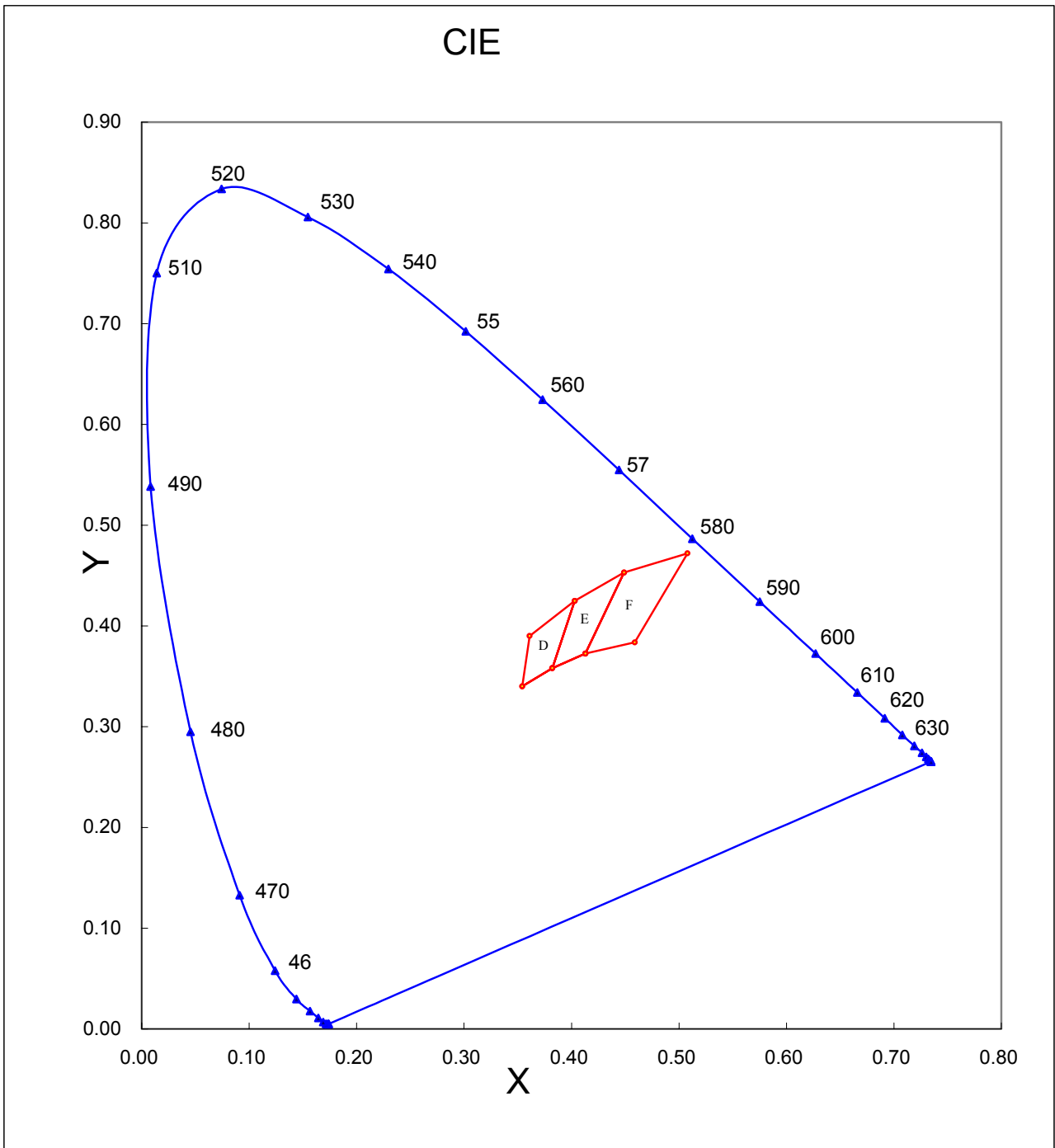
- T2+ indicates Luminous Intensity is at T2 bin or above.

| Rank                     |   | D      |        |        |        | E      |        |        |        | F      |        |        |        |
|--------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Chromaticity Coordinates | x | 0.3541 | 0.3610 | 0.4030 | 0.3822 | 0.3822 | 0.4030 | 0.4490 | 0.4129 | 0.4129 | 0.4490 | 0.5080 | 0.4588 |
|                          | y | 0.3401 | 0.3900 | 0.4250 | 0.3580 | 0.3580 | 0.4250 | 0.4530 | 0.3725 | 0.3725 | 0.4530 | 0.4720 | 0.3838 |

**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 ±10%
- 3) Tolerance of measurement of the Color Coordinates is ±0.015.
- 4) Tolerance of measurement of Vf is ±0.05 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.

# CIE Chromaticity Diagram



## Graphs

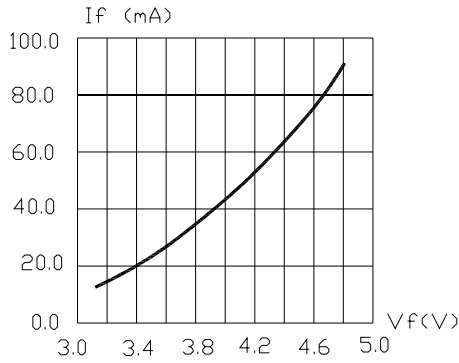


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

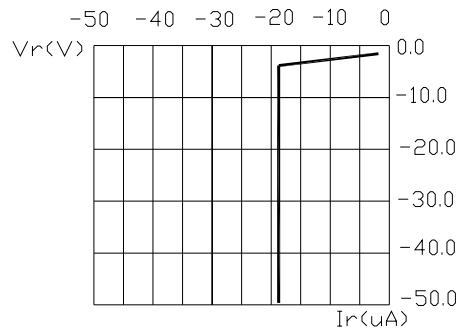


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE.

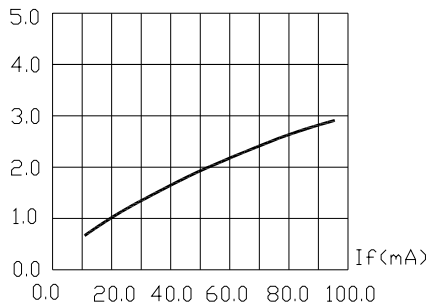


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

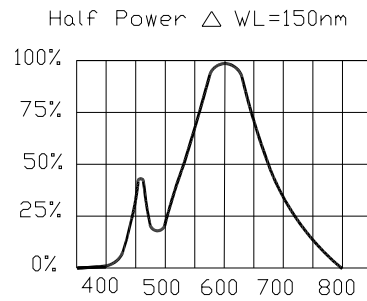


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

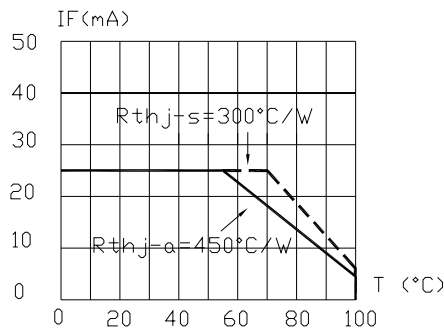


FIG.5 MAXIMUM FORWARD DC CURRENT VS TEMPERATURE. DERATING BASED ON  $T_{jmax}=110^{\circ}\text{C}$

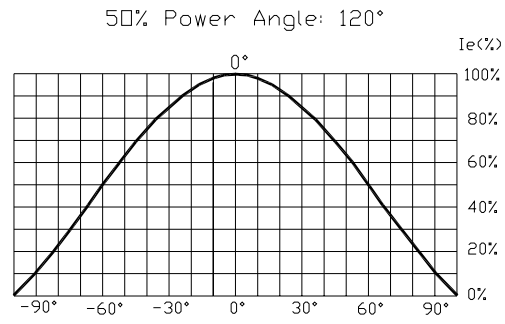


FIG.6 FAR FIELD PATTERN

| Items       | Signatures  | Date       | Revision History |            |                    |
|-------------|-------------|------------|------------------|------------|--------------------|
|             |             |            | Rev.No           | Date       | Change Description |
| Prepared by | Meiliping   | 2006-01-10 |                  |            |                    |
| Checked by  | XieJH       | 2006-01-10 | 02               | 2006-01-10 | Release.           |
| Approved by | DavidLiu    | 2006-01-10 |                  |            |                    |
| fCN#        | FCN20060002 |            |                  |            |                    |

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

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