



**SPECIFICATION FOR COTCO LED LAMP**

Document No: SPE/LC503TWR1-50P-A1  
Model No : LC503TWR1-50P-A1  
Rev. No: 01  
Date: 2005-12-20

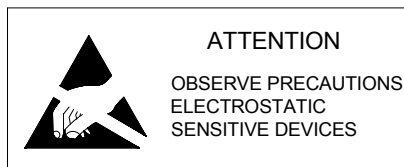
Description:

50 Degree 5mm Round LED Lamp in Warm  
White Color with Water Transparent Lens and  
Stopper

Dice Material: InGaN

Confirmed  
by Customer: \_\_\_\_\_

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



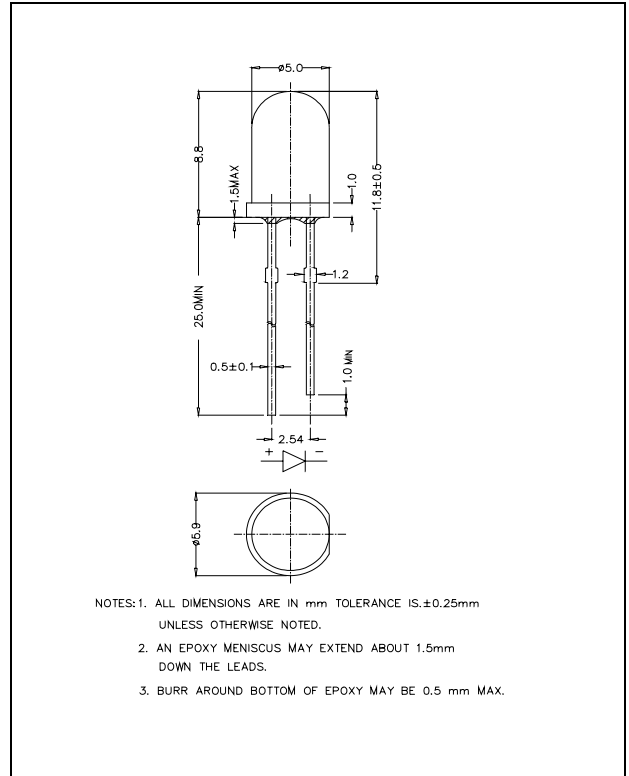
**Applications:**

- Advertising Signs
- Indicators
- LCD Back Light
- Illuminations

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

Items	Symbol	Absolute maximum Rating	Unit
Forward Current	I <sub>F</sub>	25	mA
Peak Forward Current*	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Power Dissipation	P <sub>D</sub>	100	mW
Operation Temperature	T <sub>opr</sub>	-40 ~ +95	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C
Lead Soldering Temperature	T <sub>sol</sub>	Max.260°C for 3 sec Max. (3mm from the base of the epoxy bulb)	

**Dimension Drawing**



\*pulse width <=0.1msec duty <=1/10

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

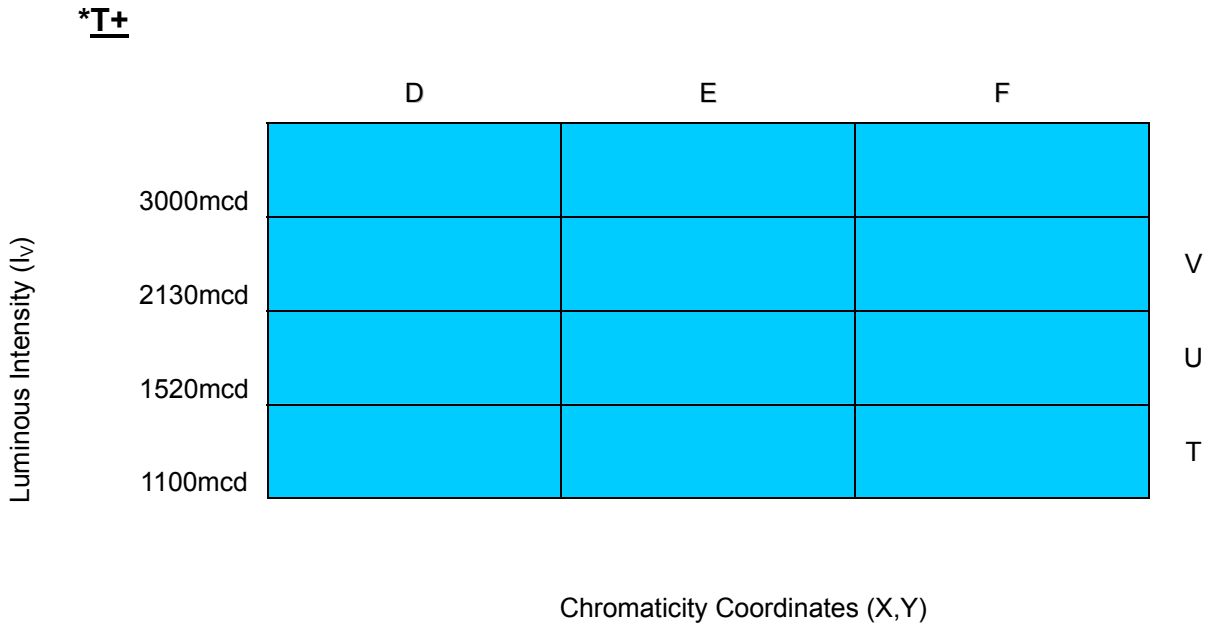
Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	---	3.4	4.0	V
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 1.0μA	1.7	---	2.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5V	---	---	100	μA
Luminous Intensity	I <sub>v</sub>	I <sub>F</sub> = 20mA	1100	2200	---	mcd
Chromaticity Coordinates	x	I <sub>F</sub> = 20mA	---	0.426	---	---
	y	I <sub>F</sub> = 20mA	---	0.407	---	---
Color Temperature	CCT	I <sub>F</sub> = 20mA	---	3000	---	K
50% Power Angle	2θ <sub>½H-H</sub>	I <sub>F</sub> = 20mA	---	50	---	deg

**Standard bins for LC503TWR1-50P-A1 ( $I_F = 20\text{mA}$ ):**

Lamps are sorted to Luminous Intensity  $-I_V$ ,  $V_F$  & Chromaticity Coordinates  $-(X,Y)$  bins shown.

Orders for LC503TWR1-50P-A1 may be filled with any or all bins contained as below.

All Luminous Intensity  $-I_V$ ,  $V_F$  & Chromaticity Coordinates  $-(X,Y)$  values shown and specified are at  $I_F = 20\text{mA}$ .



\* T+ indicates Luminous Intensity is at T 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

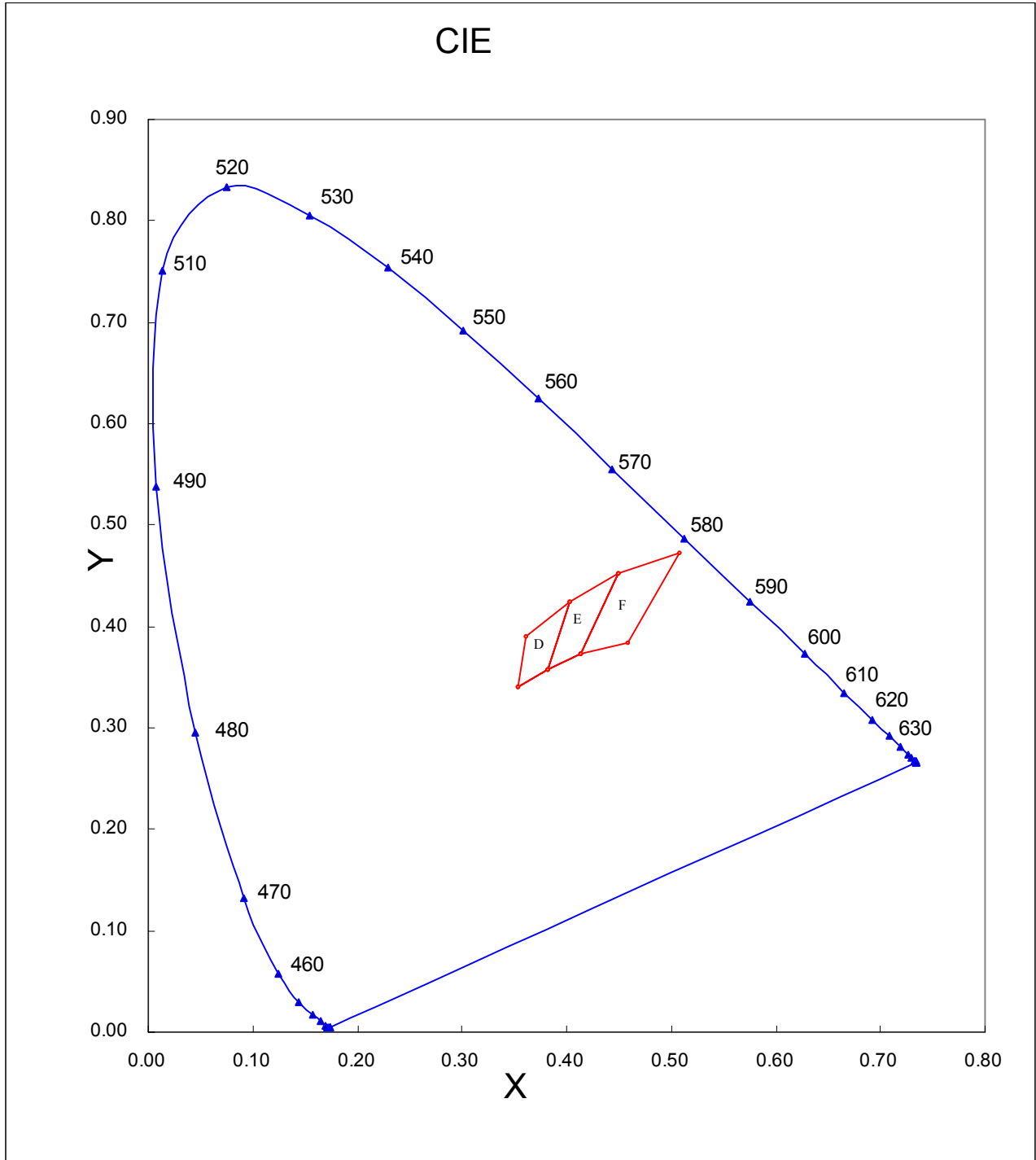
**Forward Voltage ( $V_F$ )**

Rank	V6	V7	V8	V9	V10	V11	V12
Voltage	2.6-2.8V	2.8-3.0V	3.0-3.2V	3.2-3.4V	3.4-3.6V	3.6-3.8V	3.8-4.0V

**Important Notes:**

- 1) All ranks will be included per delivery, rank ratio will be based on the Dices distribution.
- 2) Pb content <1000PPM.
- 3) Tolerance of measurement of luminous intensity is  $\pm 15\%$ .
- 4) Tolerance of measurement of the Color Coordinates is  $\pm 0.015$ .
- 5) Tolerance of measurement of  $V_f$  is  $\pm 0.05\text{ V}$ .
- 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.

### CIE Chromaticity Diagram



## Graphs

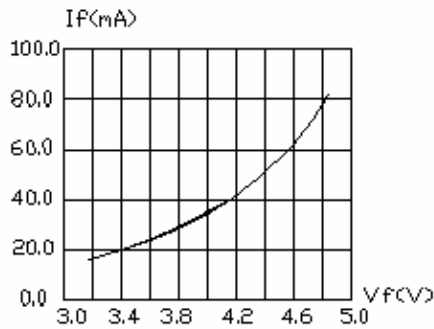


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE

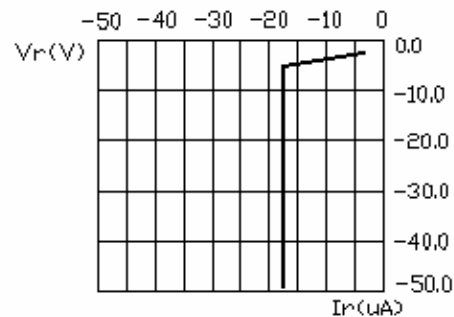


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE

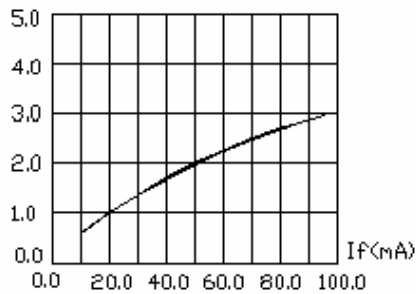


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

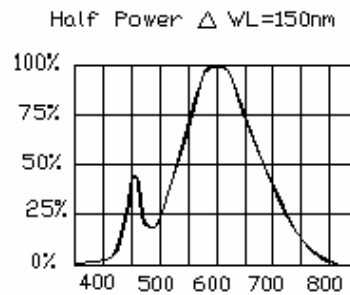


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH

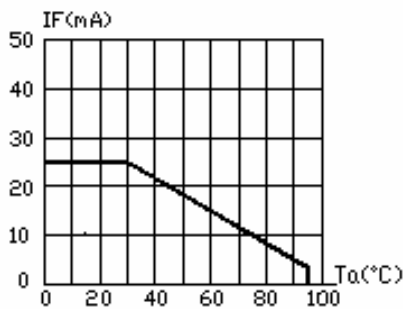


FIG.5 MAXIMUM FORWARD CURRENT VS. AMBIENT TEMPERATURE (Tjmax=105°C)

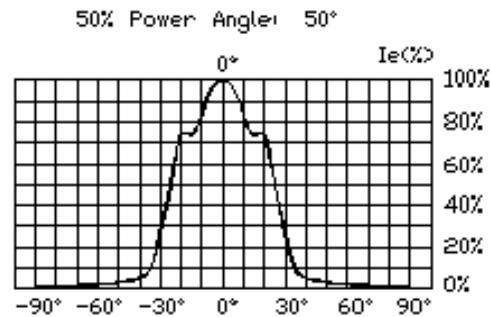


FIG.6 FAR FIELD PATTERN

Items	Signatures	Date
Prepared by	LiuZM	2005-12-20
Checked by	HuangJD	2005-12-20
Approved by	David	2005-12-20
FCN#	FCN20050420	

Revision History		
Rev. No	Date	Change Description

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

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