



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

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## **SPECIFICATION FOR COTCO LED LAMP**

Document No: SPE/LM1-PPP1-01-N1  
Model No : LM1-PPP1-01-N1  
Rev. No : 02  
Date: 2005-07-06

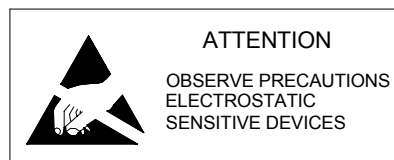
Description:

120 Degree 3.2 x 2.8mm SMT-LED in Full  
Color with Water Transparent

Dice Material: AlGaInP&InGaN

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

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



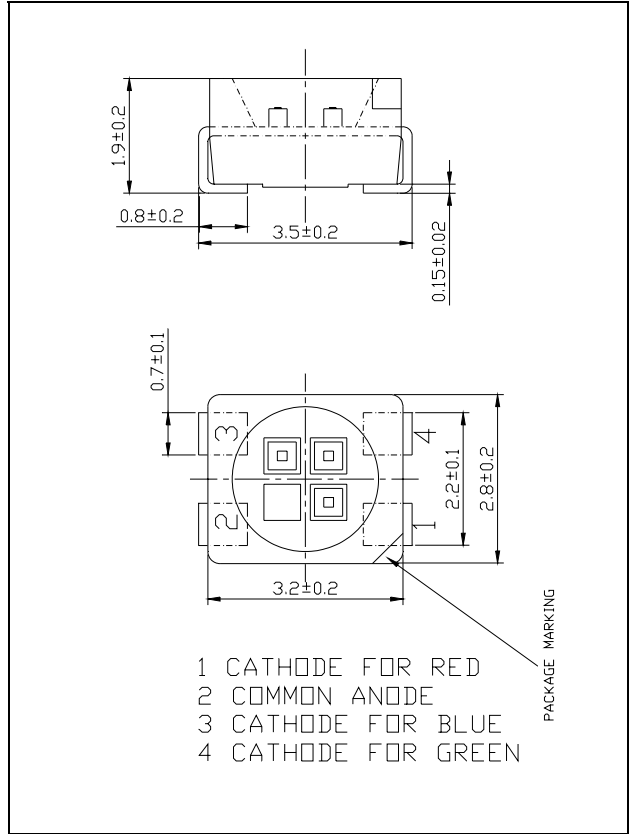
### Applications:

- Indoor and outdoor displays
- Backlighting
- Coupling into light guides
- RGB full color displays

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

Items	Symbol	Absolute maximum Rating			Unit
		R	G	B	
Forward Current <sup>*1</sup>	I <sub>F</sub>	50	25	25	mA
Peak Forward Current <sup>*2</sup>	I <sub>FP</sub>	200	100	100	mA
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Power Dissipation	P <sub>D</sub>	125	100	100	mW
Operation Temperature	T <sub>opr</sub>	-40~+100			°C
Storage Temperature	T <sub>stg</sub>	-40~+100			°C
Junction Temperature	T <sub>j</sub>	+110	+110	+110	°C
Junction/ambient 1 chips on <sup>*3</sup>	R <sub>th JA</sub>	450	400	450	°C/W
Junction/ambient 3 chips on <sup>*3</sup>	R <sub>th JA</sub>	650	580	680	°C/W
Junction/solder point 1 chips on	R <sub>th JS</sub>	300	280	300	°C/W
Junction/solder point 3 chips on	R <sub>th JS</sub>	450	430	480	°C/W

### Dimension Drawing



\*<sup>1</sup> single color light \*<sup>2</sup> pulse width ≤0.1msec duty ≤1/10 \*<sup>3</sup> Rth test condition: Mounted on PC Board FR 4(pad size)≥16mm<sup>2</sup>)

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

Parameter	Condition	Symbol	Values			Unit
			R	G	B	
Wavelength at peak emission	I <sub>F</sub> =20mA	λ <sub>peak</sub>	620	520	465	nm
Dominant wavelength	I <sub>F</sub> =20mA	λ <sub>dom</sub>	612~622	520~540	460~480	nm
Spectral bandwidth at 50% Irel max	I <sub>F</sub> =20mA	Δ λ	24	38	28	nm
Viewing angle at 50% IV	I <sub>F</sub> =20mA	2 θ <sub>1/2</sub>	120	120	120	Deg.
Forward voltage	I <sub>F</sub> =20mA	V <sub>F(avg)</sub>	2.0	3.4	3.4	V
		V <sub>F(max)</sub>	2.5	4.0	4.0	V
Luminous Intensity	I <sub>F</sub> =20mA	I <sub>V(Min)</sub>	180	280	71	mcd
		I <sub>V(Avg)</sub>	300	450	110	mcd
Reverse current (max.)	V <sub>R</sub> =5V	I <sub>R</sub>	10	10	10	μA

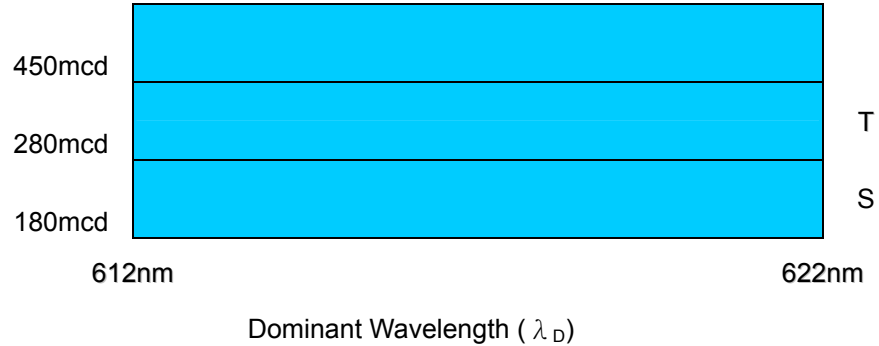
**Standard bins for LM1-PPP1-01-N1 (I<sub>F</sub> = 20mA):**

Lamps are sorted to Luminous Intensity –I<sub>V</sub> & Dominant Wavelength – λ<sub>D</sub> bins shown.

Orders for LM1-PPP1-01-N1 may be filled with any or all bins contained as below.

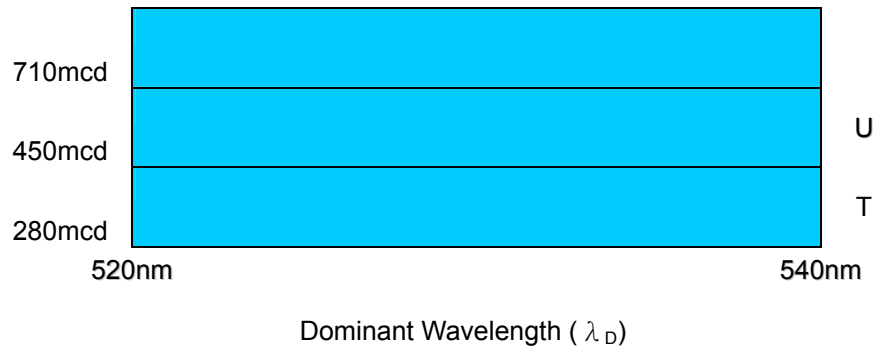
All Luminous Intensity –I<sub>V</sub> & Dominant Wavelength – λ<sub>D</sub> values shown and specified are at I<sub>F</sub>=20mA.

**R \* S+**



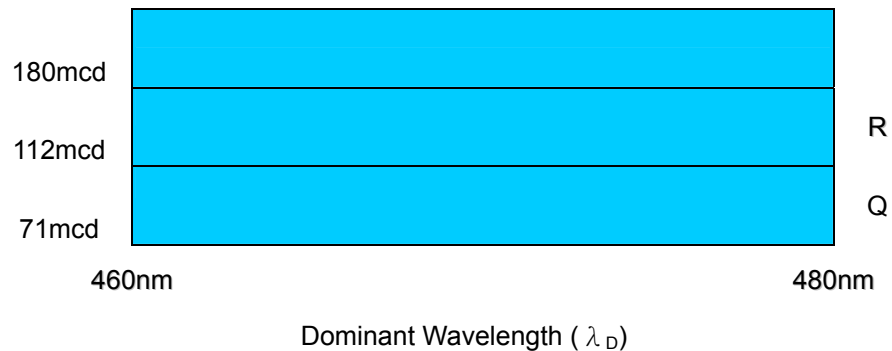
- S+ indicates Luminous Intensity of Red Rank is at S bin or above.

**G \* T+**



- T+ indicates Luminous Intensity of Green Rank is at T bin or above.

**B \* Q+**

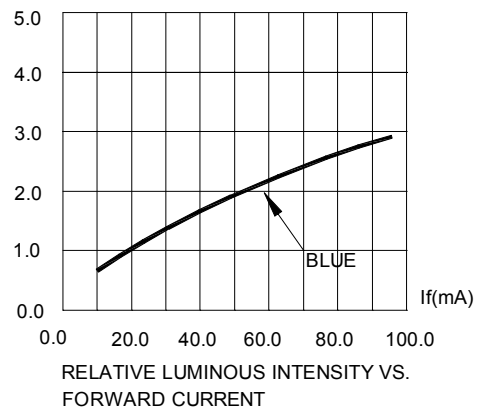
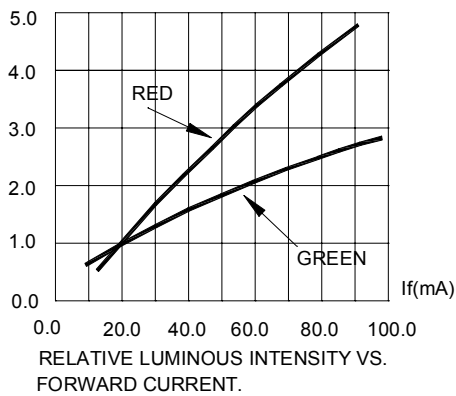
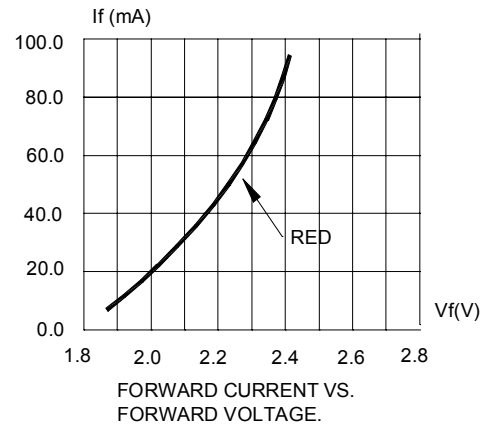
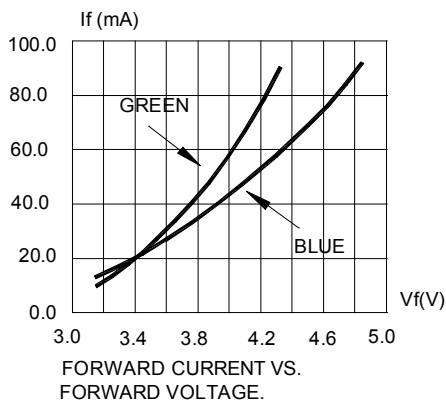
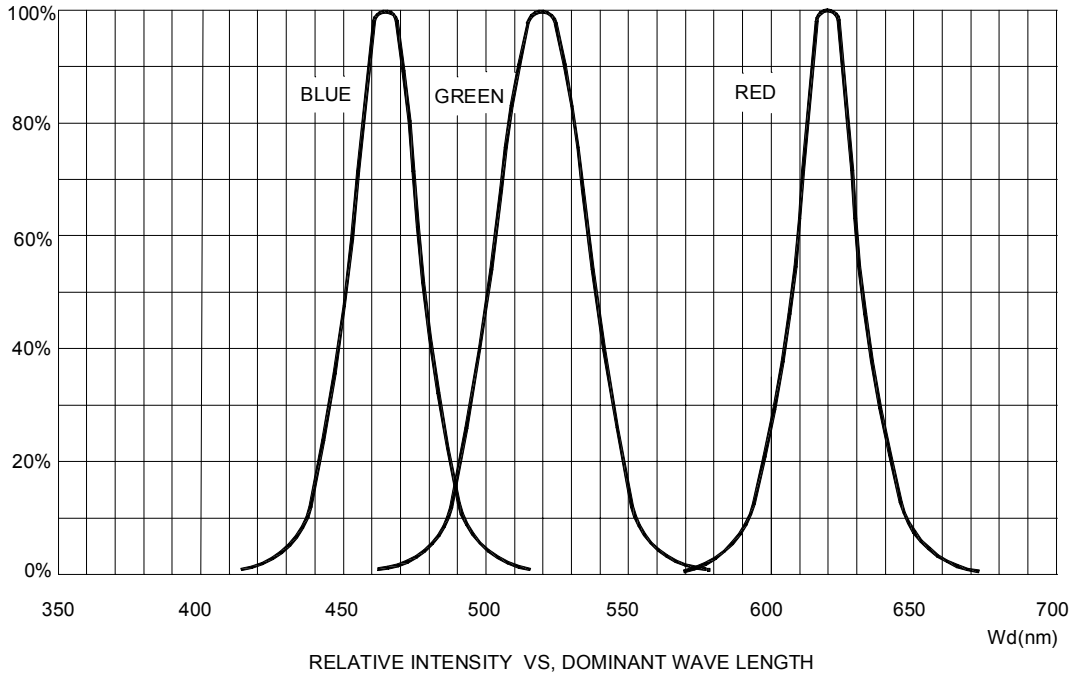


- Q+ indicates Luminous Intensity of Blue Rank is at Q bin or above.

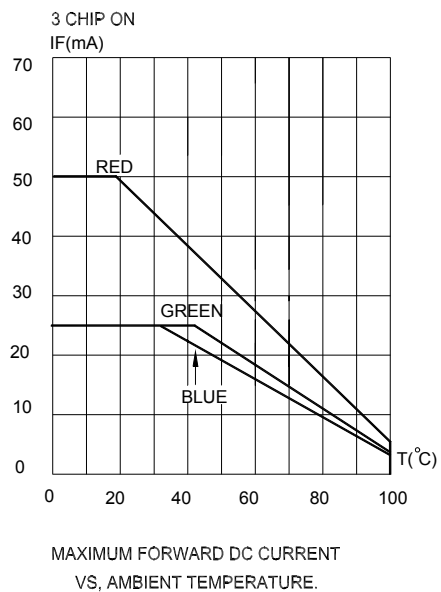
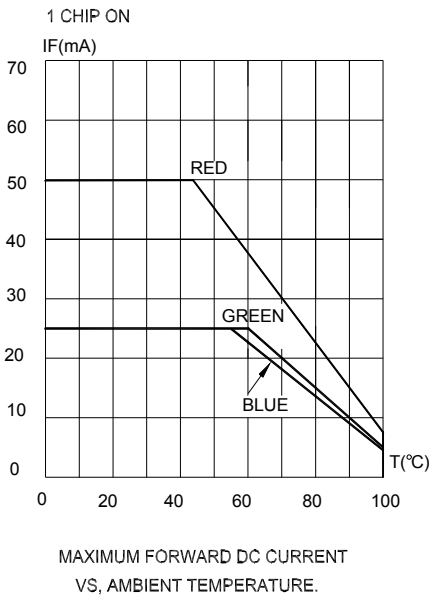
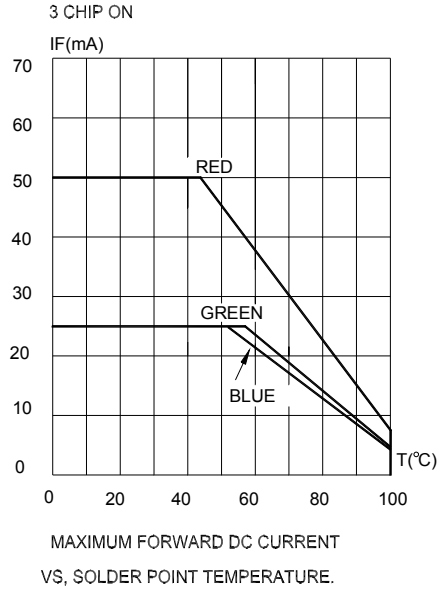
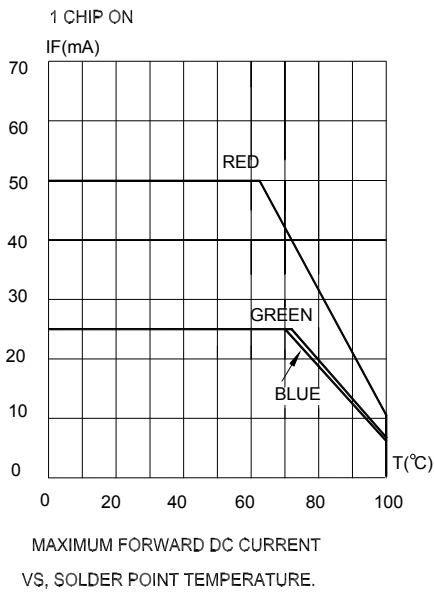
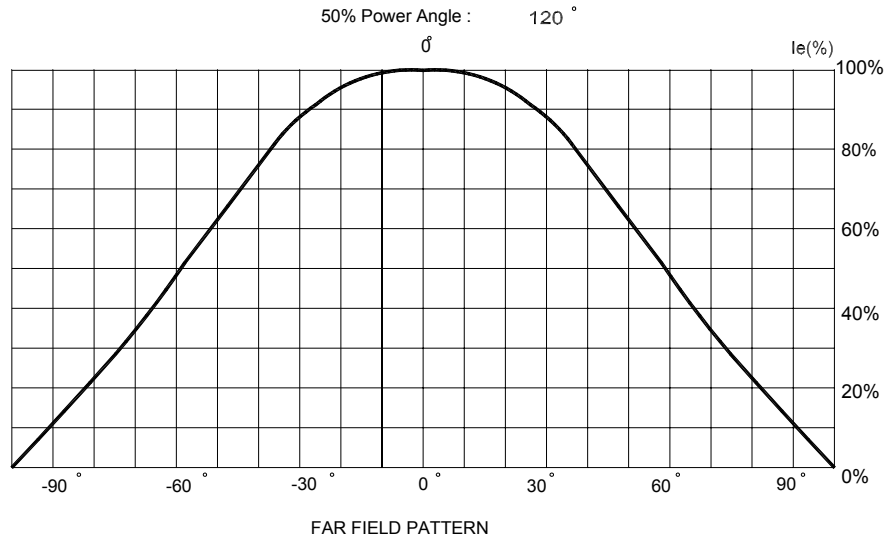
**Important Notes:**

- 1) All ranks will be included per delivery, rank ratio will be based on Dices distribution.
- 2) Tolerance of measurement of luminous intensity is ±10%
- 3) Tolerance of measurement of dominant wavelength is ±1nm.
- 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 .

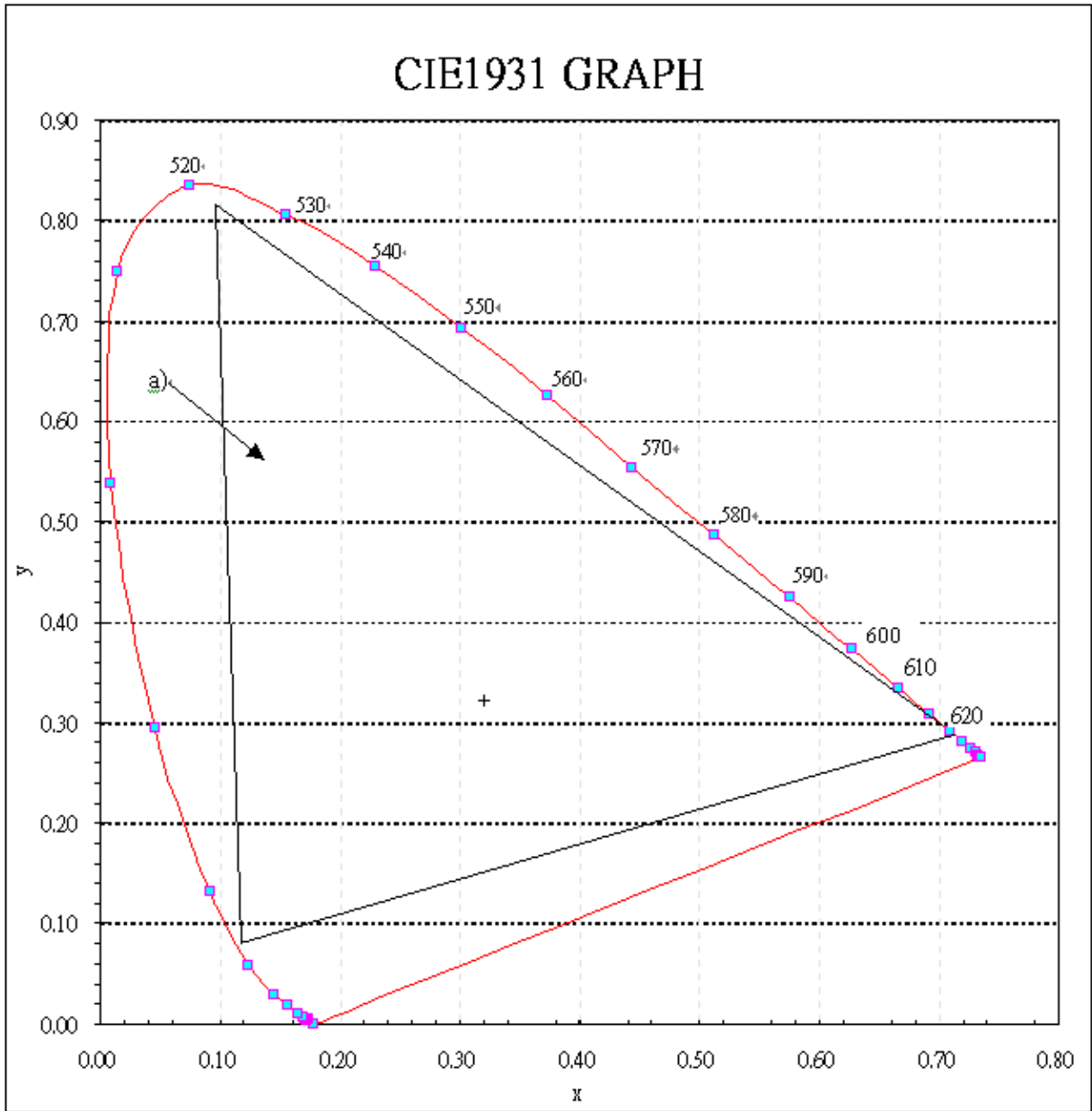
## Graphs



# Graphs



### Graphs



the color coordinates of the mixed light can be expected within the area of the color triangle marked a).

the achromatic point ( $x=0.33, y=0.33$ ) is marked "+"

Items	Signatures	Date	Revision History		
			Rev.No	Date	Change Description
Prepared by	Meiliping	2005-07-06	02	2005-07-06	Release.
Checked by	XieJH	2005-07-06			
Approved by	DavidLiu	2005-07-06			
FCN#	FCN20050192				

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