



**SPECIFICATION FOR COTCO LED LAMP**

Document No: SPE/LM1-PPP1-01-N1-MT  
Model No : LM1-PPP1-01-N1-MT  
Rev. No : 01  
Date: 2006-06-27

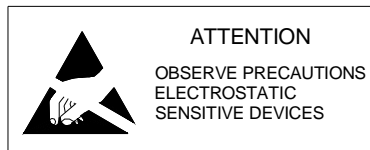
Description:

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

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

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

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

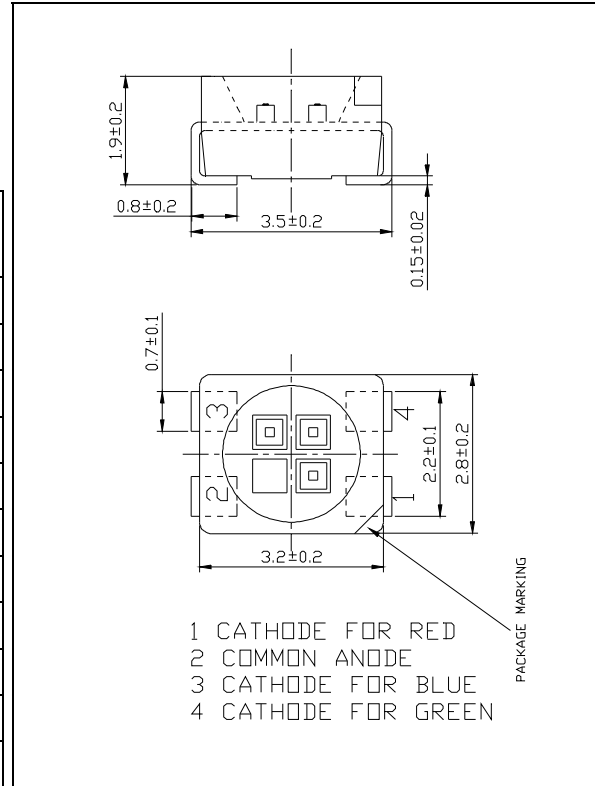


**Applications:**

- 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% I <sub>rel</sub> max | I <sub>F</sub> =20mA | Δ λ                 | 24      | 38      | 28      | nm   |
| Viewing angle at 50% I <sub>V</sub>            | 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   |

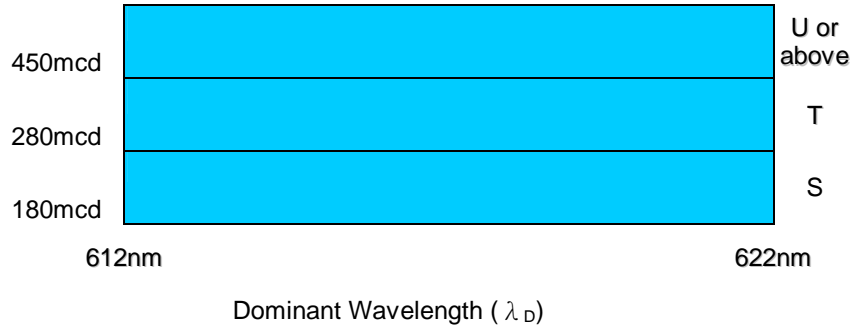
**Standard bins for LM1-PPP1-01-N1-MT(I<sub>F</sub> = 20mA):**

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

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

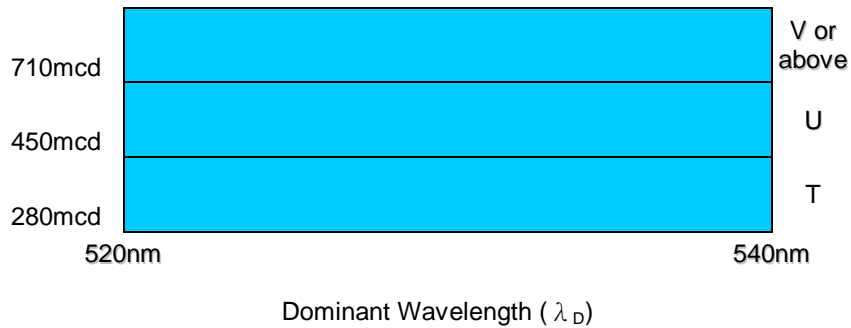
All Luminous Intensity –I<sub>v</sub> & Dominant Wavelength – λ<sub>D</sub> values shown and specified are at I<sub>f</sub>=20mA.

**R \* S+**



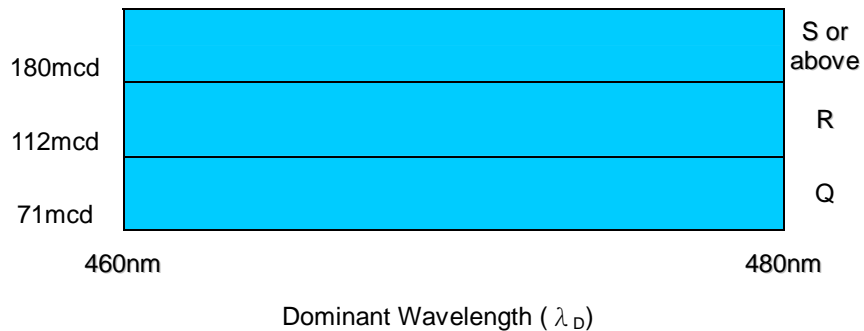
I S+ indicates Luminous Intensity of Red Rank is at S bin or above.

**G \* T+**



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

**B \* Q+**

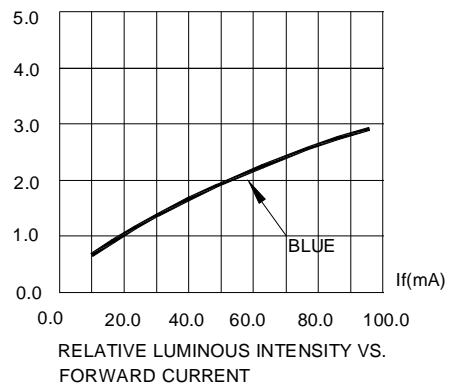
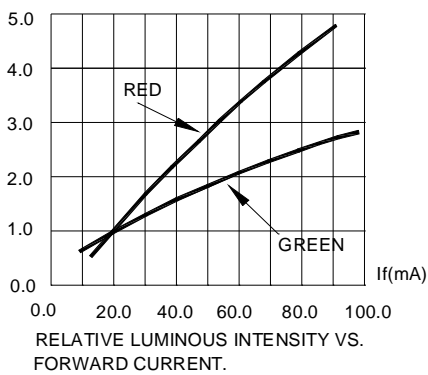
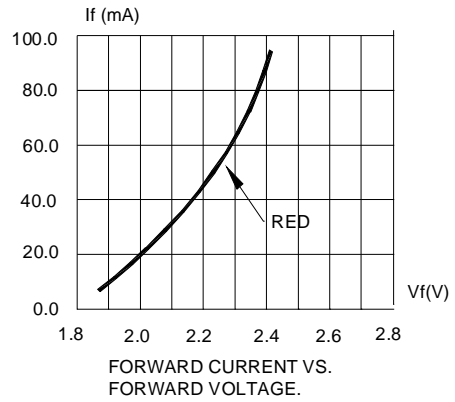
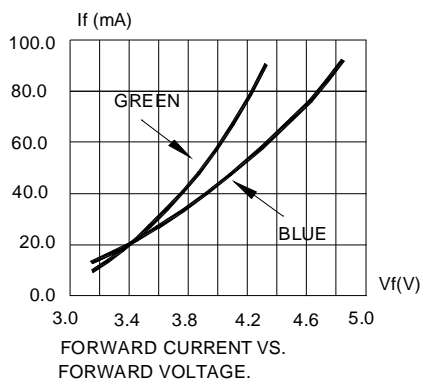
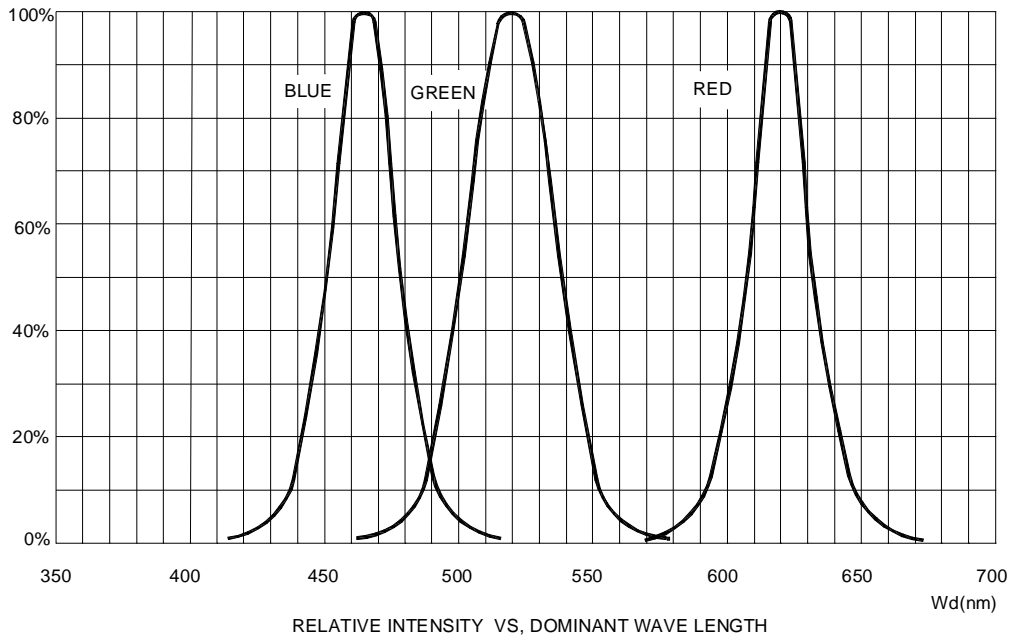


I Q+ indicates Luminous Intensity of Blue Rank is at Q bin or above.

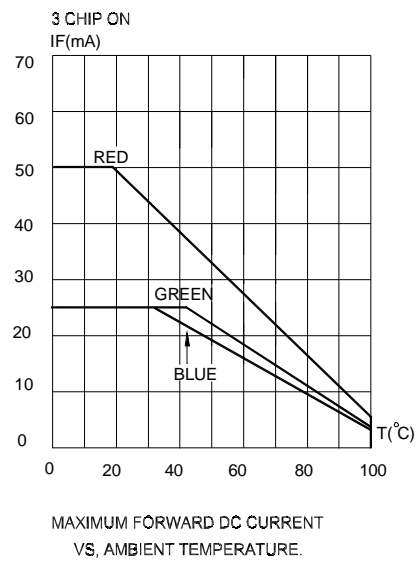
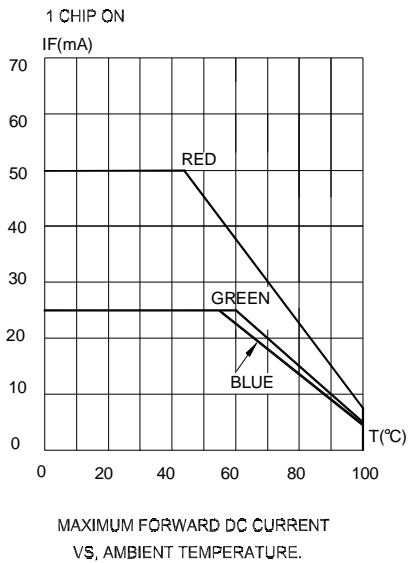
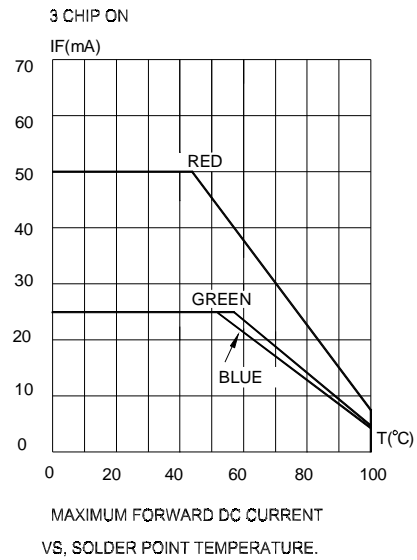
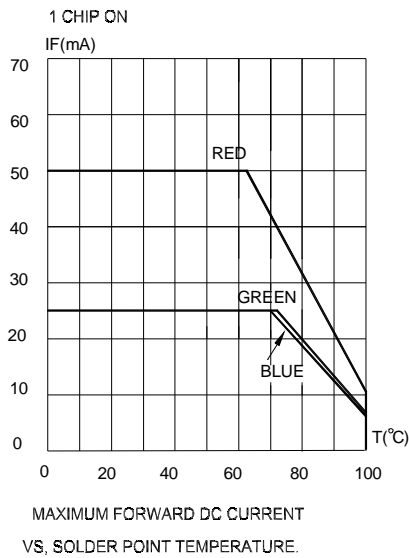
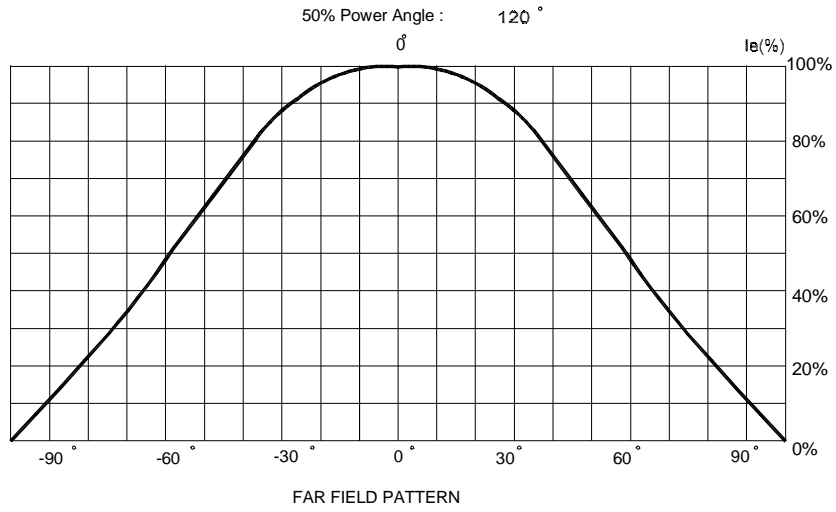
**Important Notes:**

- 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 .

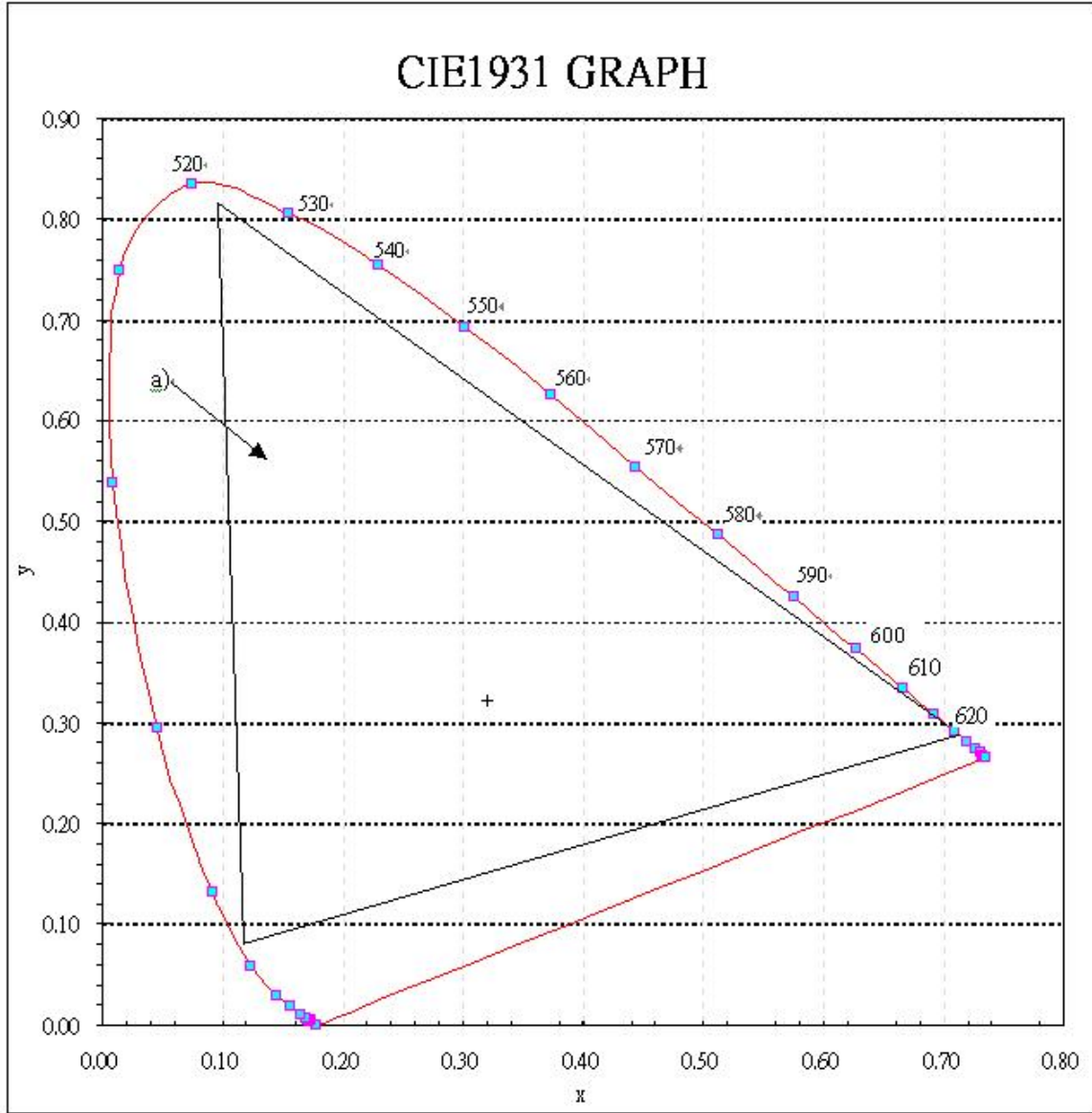
## Graphs



# 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 |      |                    |
|-------------|-------------|------------|------------------|------|--------------------|
| Prepared by | MaAiQiu     | 2006-06-27 | Rev.No           | Date | Change Description |
| Checked by  | XieJH       | 2006-06-27 |                  |      |                    |
| Approved by | DavidLiu    | 2006-06-27 |                  |      |                    |
| FCN#        | FCN20060218 |            |                  |      |                    |

Data is subject to change without prior notice.

[Copyright@2002](#) Cotco International Ltd.