



**WCN Opto Group Co., Limited**

**WCN-5713SR-DA02**

**SPECIFICATION**

| WCN              |            |             | CUSTOMER<br>Confirmed |
|------------------|------------|-------------|-----------------------|
| Prepared by      | Checked by | Approved by |                       |
| Fei<br>2016-3-26 | Athena     |             |                       |
| REVISION RECORD  |            |             |                       |



**REVISION: A0**

# WCN Opto Group Co., Limited

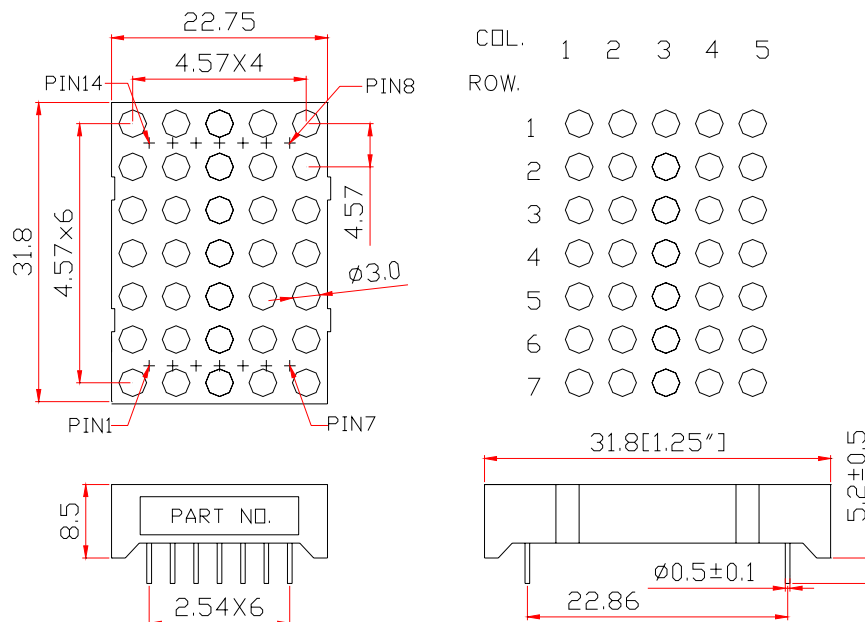
## ■ Features:

- High Reliability
- Color : Red
- Low Power Requirement
- Flat Package and Light Weight
- Easy Assembly

## ■ Description:

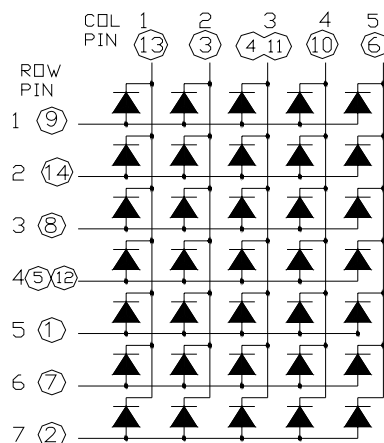
- 5X7 LED Dot Matrix
- $\phi$  3mm Dot and Pitch 4.57 mm
- Black Face and Milky Dots

## ■ Outer Dimension:



Notes : Unless otherwise stated, The tolerance is  $\pm 0.25\text{mm}$ .

## ■ Circuit Diagram





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## ■ Absolute Maximum Rating (Ta=25°C) / Per Dice:

| Parameter                                               | Symbol          | Condition        | Color | Rating  | Units |
|---------------------------------------------------------|-----------------|------------------|-------|---------|-------|
| Maximal Power Dissipation<br>(When completely Lighting) | P <sub>d</sub>  | —                | Red   | 65      | mW    |
| Maximal Forward Current<br>(When completely Lighting)   | I <sub>F</sub>  | —                | Red   | 25      | mA    |
| Peak Forward Current                                    | I <sub>FP</sub> | 1/8Duty<br>10khz | Red   | 100     | mA    |
| Reverse Voltage                                         | V <sub>R</sub>  | —                | Red   | 5       | V     |
| Operating Temperature Range                             | Topr            | —                | —     | -40~+85 | °C    |
| Storage Temperature Range                               | Tstg            | —                | —     | -40~+85 | °C    |

## ■ Electrical/Optical Characteristics Rating(Ta=25°C)

| Item                                              | Symbol           | Test conditions                  | Location | Rating |      |       | Units |
|---------------------------------------------------|------------------|----------------------------------|----------|--------|------|-------|-------|
|                                                   |                  |                                  |          | Min.   | Typ. | Max.  |       |
| Forward Voltage                                   | V <sub>F</sub>   | I <sub>F</sub> =20mA             | Per Dice | 1.80   | 2.0  | 2.60  | V     |
| Reverse Current                                   | I <sub>R</sub>   | V <sub>R</sub> =5V               | Per Dice | —      | —    | 100   | μA    |
| Luminous Intensity                                | I <sub>V</sub>   | I <sub>F</sub> =10mA             | Per Dice | 3.501  | 5.5  | 8.5   | mcd   |
| Wave Length                                       | λ <sub>p</sub>   | I <sub>F</sub> =20mA             | Per Dice | —      | 638  | —     | nm    |
|                                                   | λ <sub>d</sub>   |                                  |          |        | 633  |       |       |
| Spectral Line Half Width                          | △λ               | I <sub>F</sub> =20mA             | Per Dice | —      | 20   | —     | nm    |
| Luminous Intensity Matching Ratio<br>(Dot To Dot) | I <sub>V-M</sub> | 1/8Duty<br>I <sub>FP</sub> =40mA |          |        |      | 1.2:1 |       |

## ■ Luminous Intensity Sorting (1/8Duty ; I<sub>FP</sub> =40mA ; The Tolerance is +/-10%)

| BIN<br>Color | K         | L         | M         | N         | O          |
|--------------|-----------|-----------|-----------|-----------|------------|
| Red ( mcd )  | 3.501-4.0 | 4.001-5.0 | 5.001-6.1 | 6.101-7.2 | 7.201-8.50 |

## ■ Soldering Conditions: Soldering Temp. ≤+260°C

Soldering Time. ≤3sec.

( at 2mm Distance from The Case of Reflector Edge)

## ■ Typical Elector-Optical Characteristics Curve:

Fig 1. Forward Current vs. Forward Voltage

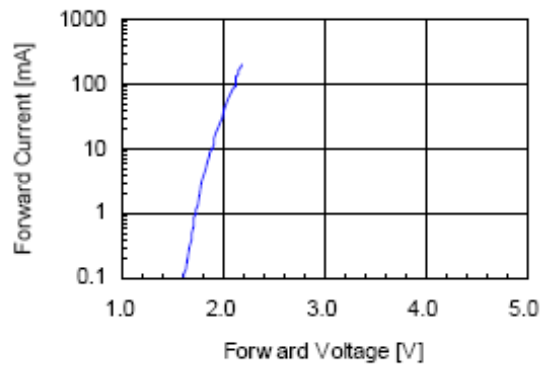


Fig 2. Relative Intensity vs. Forward Current

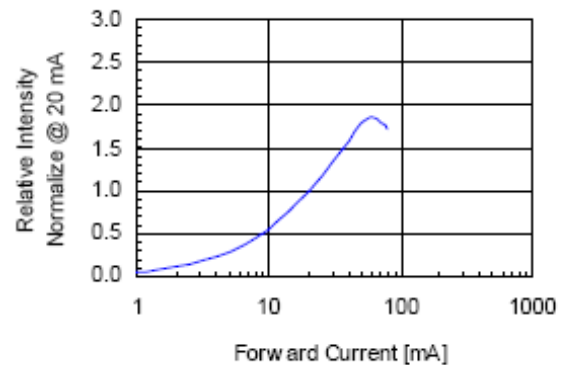


Fig 3. Forward Voltage vs. Temperature

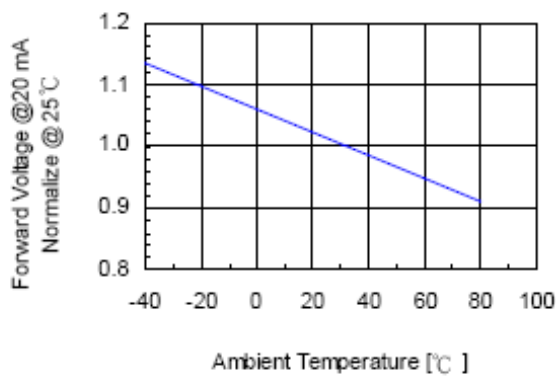


Fig 4. Relative Intensity vs. Temperature

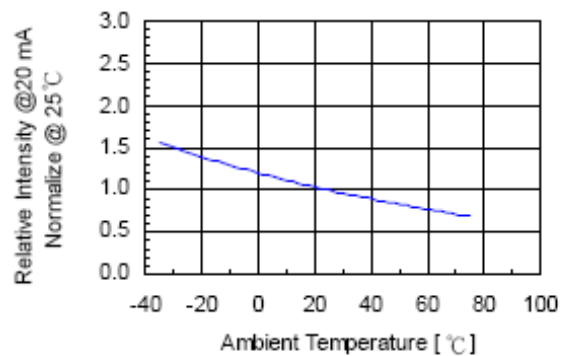
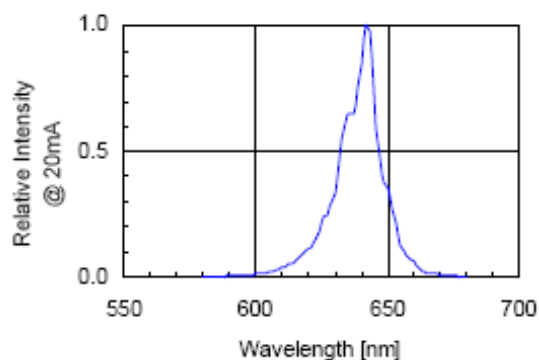


Fig 5. Relative Intensity vs. Wavelength



## LED Displays Reliability Test:

| CLASSIFICATION     | TEST ITEM                                    | DESCRIPTION AND TEST CONDITION                                                                                                                                                                                                                                                                |
|--------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ENDURANCE TEST     | OPERATION LIFE                               | EVALUATES RESISTANCE OF THE DEVICE WHEN OPERATED AT ELECTRICAL STRESS<br>$T_a$ = UNDER ROOM TEMPERATURE<br>$I_F = I_F \text{ max}$                                                                                                                                                            |
|                    | HIGH TEMPERATURE<br>HIGH HUMIDITY<br>STORAGE | EVALUATES MOISTURE RESISTANCE OF THE DEVICE WHEN STORED FOR A LONG TERM AT HIGH TEMPERATURE AND HUMIDITY<br>$T_a = 65 \pm 5^\circ\text{C}$<br>RH=90~95%RH<br>TEST TIME=240 $\pm$ 2Hrs                                                                                                         |
|                    | HIGH TEMPERATURE<br>STORAGE                  | EVALUATES DEVICE DURABILITY FOR LONG TERM STORAGE IN HIGH TEMPERATURE<br>$T_a = 85 \pm 5^\circ\text{C}$ (COB: $T_a = 65 \pm 5^\circ\text{C}$ )<br>TEST TIME=1000Hrs(-24Hrs, +72Hrs)                                                                                                           |
|                    | LOW TEMPERATURE<br>STORAGE                   | EVALUATES DEVICE DURABILITY FOR LONG TERM STORAGE IN LOW TEMPERATURE<br>$T_a = -35 \pm 5^\circ\text{C}$<br>TEST TIME=1000Hrs(-24Hrs, +72Hrs)                                                                                                                                                  |
| ENVIRONMENTAL TEST | TEMPERATURE<br>CYCLING                       | EVALUATES RESISTANCE OF DEVICE AT THERMAL STRESSES OR EXPANSION AND CONTRACTION<br>$85^\circ\text{C} \sim 25^\circ\text{C} \sim -35^\circ\text{C} \sim 25^\circ\text{C}$<br>30min 5min 30min 5min<br>10 CYCLES(COB: $T_{\text{hot}}=65^\circ\text{C}$ , $T_{\text{cold}}=-25^\circ\text{C}$ ) |
|                    | THERMAL SHOCK                                | EVALUATES DEVICE STRUCTURE AND STRUCTURE AND MECHANICAL RESISTANCE WHEN SUDDENLY EXPOSED AT SERVE CHANGES<br>$85 \pm 5^\circ\text{C} \sim -35 \pm 5^\circ\text{C}$<br>10min 10min<br>10 CYCLES(COB: $T_{\text{hot}}=65^\circ\text{C}$ , $T_{\text{cold}}=-25^\circ\text{C}$ )                 |
|                    | SOLDERABILITY                                | EVALUATES SOLDERABILITY ON LEADS OF DEVICE<br>$T_{\text{SOL}}=230 \pm 5^\circ\text{C}$<br>DWELL TIME=5 $\pm$ 1sec.                                                                                                                                                                            |
|                    | SOLDER<br>RESISTANCE                         | EVALUATES RESISTANCE TO THERMAL STRESS CAUSED BY SOLDERING<br>$T_{\text{SOL}}=260 \pm 5^\circ\text{C}$<br>DWELL TIME=10 $\pm$ 1sec.                                                                                                                                                           |

## Packing method A:

70 pcs / Expandable Polyethylene.

350 pcs / Box(360\*175\*130mm).

2100 pcs / Catton(550\*380\*280mm).