

# **WCN2-0052SR-A11**

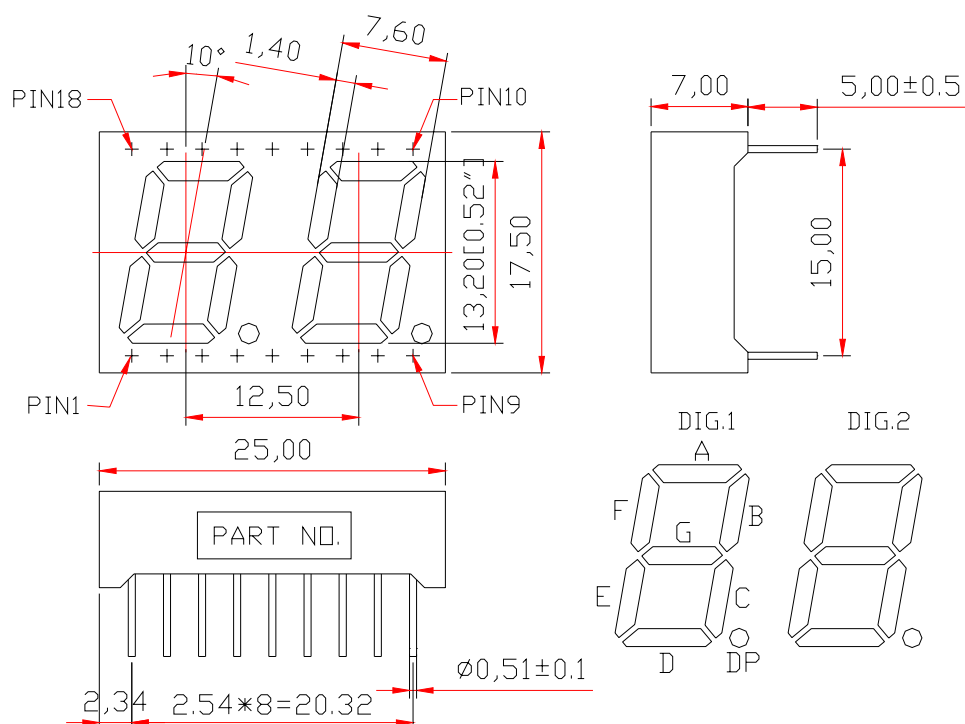
## **SPECIFICATION**

| WCN             |            |             | CUSTOMER<br>Confirmed |
|-----------------|------------|-------------|-----------------------|
| Prepared by     | Checked by | Approved by |                       |
| Fei<br>2016-6-1 | Athena     |             |                       |
| REVISION RECORD |            |             |                       |



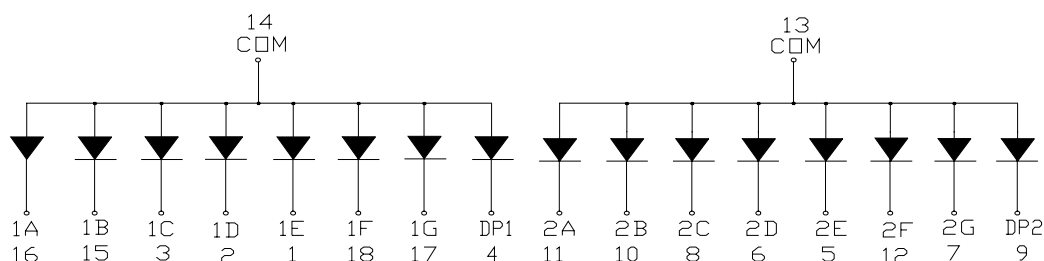
REVISION: A0

■ **Outer Dimension:**



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

■ **Circuit Diagram:**



### ■ Pin Connection:

| <b>PIN NO.</b> | <b>CONNECTION</b>  | <b>PIN NO.</b> | <b>CONNECTION</b>         |
|----------------|--------------------|----------------|---------------------------|
| <b>1</b>       | <b>Cathode 1E</b>  | <b>10</b>      | <b>Cathode 2B</b>         |
| <b>2</b>       | <b>Cathode 1D</b>  | <b>11</b>      | <b>Cathode 2A</b>         |
| <b>3</b>       | <b>Cathode 1C</b>  | <b>12</b>      | <b>Cathode 2F</b>         |
| <b>4</b>       | <b>Cathode DP1</b> | <b>13</b>      | <b>Common Anode Dig.2</b> |
| <b>5</b>       | <b>Cathode 2E</b>  | <b>14</b>      | <b>Common Anode Dig.1</b> |
| <b>6</b>       | <b>Cathode 2D</b>  | <b>15</b>      | <b>Cathode 1B</b>         |
| <b>7</b>       | <b>Cathode 2G</b>  | <b>16</b>      | <b>Cathode1A</b>          |
| <b>8</b>       | <b>Cathode 2C</b>  | <b>17</b>      | <b>Cathode 1G</b>         |
| <b>9</b>       | <b>Cathode DP2</b> | <b>18</b>      | <b>Cathode 1F</b>         |

# WCN Opto Group Co., Limited

## ■ Features:

- High Reliability
- Color: Red
- Low Power Requirement
- Easy Assembly

## ■ Description:

- Dual Digit LED Display
- Digit Height:13.2mm(0.52" )
- Black Face and Milky Segment

## ■ Absolute Maximum Rating (Ta=25℃):

| Parameter                        | Symbol           | Condition          | Color | Rating  | Units |
|----------------------------------|------------------|--------------------|-------|---------|-------|
| Power Dissipation Per Segment    | P <sub>d</sub>   | —                  | Red   | 65      | mW    |
| Forward Current Per Segment      | I <sub>F</sub>   | —                  | Red   | 25      | mA    |
| Peak Forward Current Per Segment | I <sub>FP</sub>  | 1/10 Duty<br>10KHz | Red   | 100     | mA    |
| Reverse Voltage Per Segment      | V <sub>R</sub>   | —                  | Red   | 5       | V     |
| Operating Temperature Range      | T <sub>opr</sub> | —                  | —     | -35~+85 | ℃     |
| Storage Temperature Range        | T <sub>stg</sub> | —                  | —     | -35~+85 | ℃     |

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

| Item                                                   | Symbol           | Test conditions      | Location    | Rating |      |       | Units |
|--------------------------------------------------------|------------------|----------------------|-------------|--------|------|-------|-------|
|                                                        |                  |                      |             | Min.   | Typ. | Max.  |       |
| Forward Voltage                                        | V <sub>F</sub>   | I <sub>F</sub> =20mA | Per Segment | —      | 2.0  | 2.60  | V     |
| Reverse Current                                        | I <sub>R</sub>   | V <sub>R</sub> =5V   | Per Segment | —      | —    | 100   | μA    |
| Luminous Intensity                                     | I <sub>V</sub>   | I <sub>F</sub> =10mA | Per Segment | 5001   | 7800 | 12800 | μcd   |
| Peak Emission Wave Length                              | λ <sub>P</sub>   | I <sub>F</sub> =20mA | Per Segment | —      | 638  | —     | nm    |
|                                                        | λ <sub>D</sub>   |                      |             | —      | 633  | —     |       |
| Spectral Line Half Width                               | △λ               | I <sub>F</sub> =20mA | Per Segment | —      | 30   | —     | nm    |
| Luminous Intensity Matching Ratio (Segment to Segment) | I <sub>v-m</sub> | I <sub>F</sub> =20mA | —           | —      | —    | 1.2:1 |       |

## ■ Luminous Intensity Sorting: (Luminous Intensity Tolerance is +/-10%)

| Rank | Symbol | Condition            | Min   | Max   | Unit |
|------|--------|----------------------|-------|-------|------|
| M    | M      | I <sub>F</sub> =10mA | 5001  | 6100  | μcd  |
| N    | N      | I <sub>F</sub> =10mA | 6101  | 7200  | μcd  |
| O    | O      | I <sub>F</sub> =10mA | 7201  | 8500  | μcd  |
| P    | P      | I <sub>F</sub> =10mA | 8501  | 10500 | μcd  |
| Q    | Q      | I <sub>F</sub> =10mA | 10501 | 12800 | μcd  |

■ Soldering Conditions: Soldering Temp. ≤+260℃, Soldering Time. ≤3sec.  
(at 2mm Distance from The Case of Reflector Edge)

## Typical Elector-Optical Characteristics Curve:

Fig 1. Forward Current vs. Forward Voltage

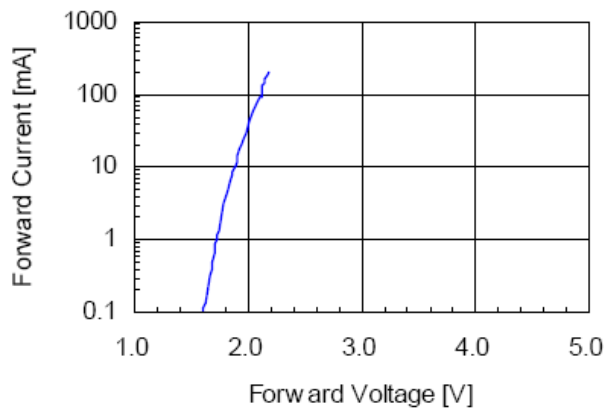


Fig 2. Relative Intensity vs. Forward Current

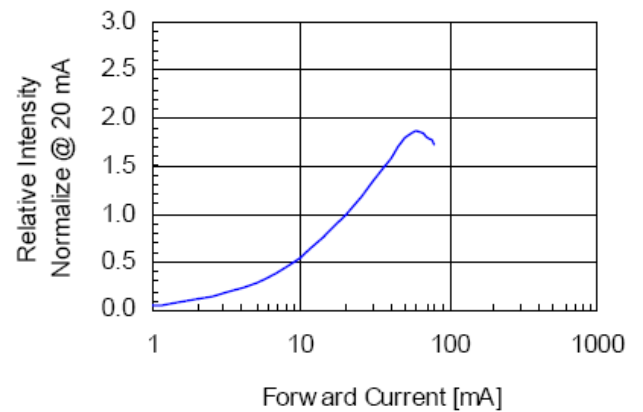


Fig 3. Forward Voltage vs. Temperature

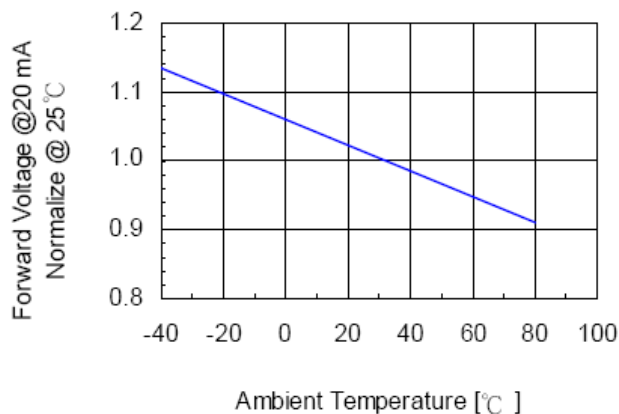


Fig 4. Relative Intensity vs. Temperature

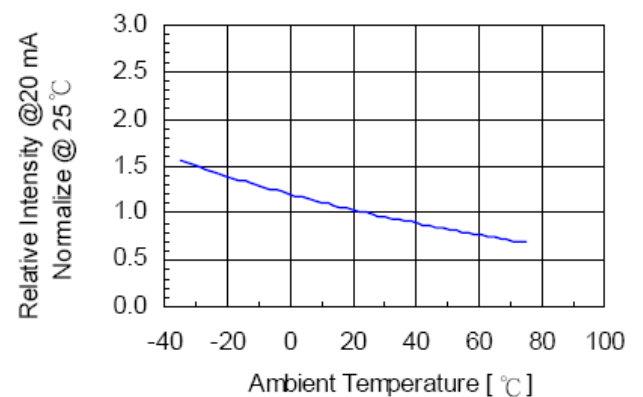
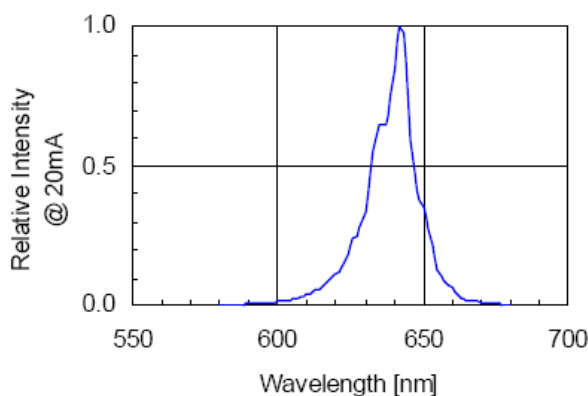


Fig 5. Relative Intensity vs. Wavelength



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## 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 <sub>a</sub> = UNDER ROOM TEMPERATURE<br>I <sub>F</sub> = I <sub>F</sub> max                                |
|                    | HIGH TEMPERATURE HIGH HUMIDITY STORAGE | EVALUATES MOISTURE RESISTANCE OF THE DEVICE WHEN STORED FOR A LONG TERM AT HIGH TEMPERATURE AND HUMIDITY<br>T <sub>a</sub> = 65±5°C<br>RH=90~95%RH<br>TEST TIME=240± 2Hrs              |
|                    | HIGH TEMPERATURE STORAGE               | EVALUATES DEVICE DURABILITY FOR LONG TERM STORAGE IN HIGH TEMPERATURE<br>T <sub>a</sub> = 85±5°C(COB: T <sub>a</sub> =65±5°C)<br>TEST TIME=1000Hrs(-24Hrs, +72Hrs)                     |
|                    | LOW TEMPERATURE STORAGE                | EVALUATES DEVICE DURABILITY FOR LONG TERM STORAGE IN LOW TEMPERATURE<br>T <sub>a</sub> = -35±5°C<br>TEST TIME=1000Hrs(-24Hrs, +72Hrs)                                                  |
| ENVIRONMENTAL TEST | TEMPERATURE CYCLING                    | EVALUATES RESISTANCE OF DEVICE AT THERMAL STRESSES OR EXPANSION AND CONTRACTION<br>85°C ~ 25°C ~ -35°C ~ 25°C<br>30min 5min 30min 5min<br>10 CYCLES(COB: Thot=65°C, Tcold=-25°C)       |
|                    | THERMAL SHOCK                          | EVALUATES DEVICE STRUCTURE AND STRUCTURE AND MECHANICAL RESISTANCE WHEN SUDDENLY EXPOSED AT SERVE CHANGES<br>85±5°C ~ -35±5°C<br>10min 10min<br>10 CYCLES(COB: Thot=65°C, Tcold=-25°C) |
|                    | SOLDERABILITY                          | EVALUATES SOLDERABILITY ON LEADS OF DEVICE<br>T.SOL=230±5°C<br>DWELL TIME=5±1sec.                                                                                                      |
|                    | SOLDER RESISTANCE                      | EVALUATES RESISTANCE TO THERMAL STRESS CAUSED BY SOLDERING<br>T.SOL=260±5°C<br>DWELL TIME=10±1sec.                                                                                     |

## Packing method A:

104 pcs / Red Expandable Polyethylene.

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

4320 pcs / Carton(550\*380\*280mm).

## Packing method B:

20 pcs / IC Tube(520\*19.7\*18.6).

1080 pcs / Box(537\*175\*125mm).

4320 pcs / Carton(550\*380\*280mm)