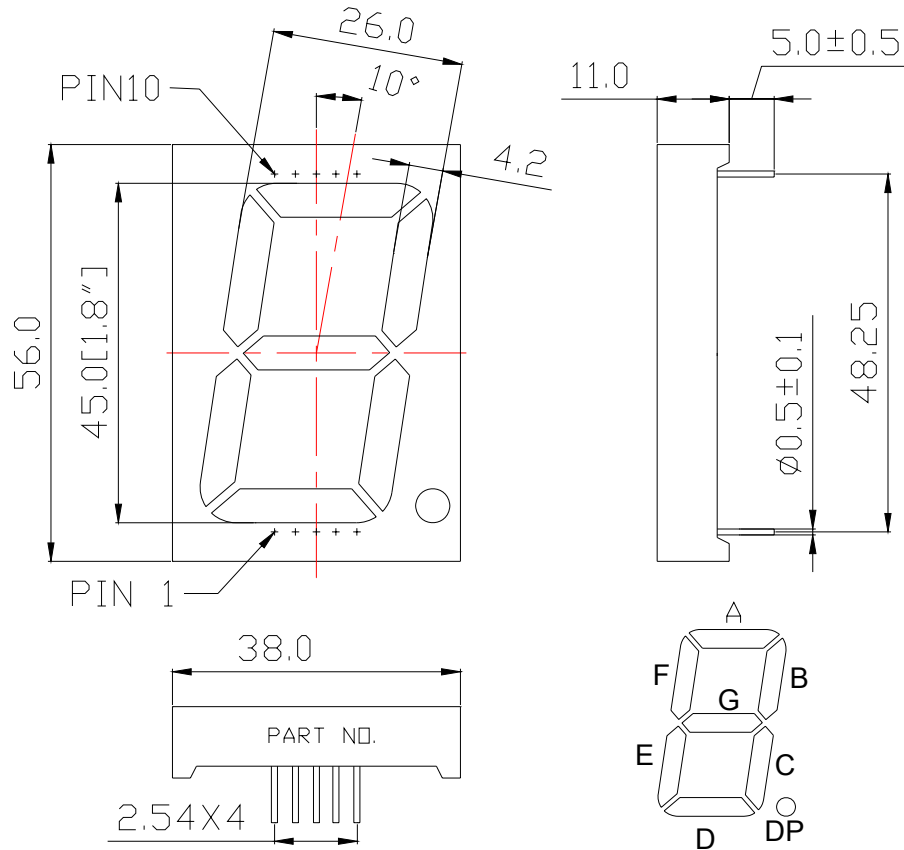


**WCN1-00A8SD-A51S****SPECIFICATION**

| WCN                    |            |             | CUSTOMER<br>Confirmed |
|------------------------|------------|-------------|-----------------------|
| Prepared by            | Checked by | Approved by |                       |
| Fei                    | Athena     |             |                       |
| <b>REVISION RECORD</b> |            |             |                       |

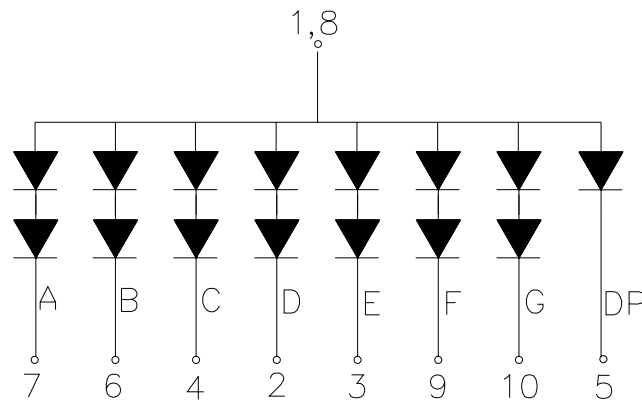
**REVISION: A2**

■ **Outer Dimension:**



Note: Unless otherwise stated, The tolerance is  $\pm 0.25$  mm.

■ **Circuit Diagram:**



■ **Pin Connection:**

| PIN NO. | CONNECTION   | PIN NO. | CONNECTION   |
|---------|--------------|---------|--------------|
| 1       | Common Anode | 6       | Cathode B    |
| 2       | Cathode D    | 7       | Cathode A    |
| 3       | Cathode E    | 8       | Common Anode |
| 4       | Cathode C    | 9       | Cathode F    |
| 5       | Cathode DP   | 10      | Cathode G    |

# WCN Opto Group Co., Limited

■ **Features:**

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

■ **Description:**

- Single Digit LED Display
- Digit Height: 45mm (1.8")
- Black Face and Milky Segment

■ **Absolute Maximum Rating (Ta=25°C):**

| Parameter                        | Symbol           | Condition         | Color | Rating   | Units |
|----------------------------------|------------------|-------------------|-------|----------|-------|
| Power Dissipation Per Segment/DP | P <sub>d</sub>   | —                 | Red   | 125/62.5 | 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>1KHz | Red   | 100      | mA    |
| Reverse Voltage Per Segment/DP   | V <sub>R</sub>   | —                 | Red   | 10/5     | V     |
| Operating Temperature Range      | T <sub>opr</sub> | —                 | —     | -35~+85  | °C    |
| Storage Temperature Range        | T <sub>stg</sub> | —                 | —     | -35~+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 Segment    | —      | 4.00  | 5.00  | V     |
|   |                  |                        | DP             | —      | 2.00  | 2.50  | V     |
| Reverse Current   | I <sub>R</sub>   | V <sub>R</sub> =10V/5V | Per Segment/DP | —      | —     | 100   | μA    |
| Luminous Intensity  | I <sub>v</sub>   | I <sub>F</sub> =10mA   | Per Segment    | 12801  | 20000 | 31000 | μcd   |
| Wave Length   | λ <sub>P</sub>   | I <sub>F</sub> =20mA   | Per Segment    | —      | 660   | —     | nm    |
|   | λ <sub>D</sub>   |                        |                |        | 640   |       |       |
| Spectral Line Half Width                                  | △λ               | I <sub>F</sub> =20mA   | Per Segment    | —      | 20    | —     | nm    |
| Luminous Intensity Matching Ratio<br>(Segment To Segment) | I <sub>v-m</sub> | I <sub>F</sub> =10mA   |                |        |       | 1.2:1 |       |

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

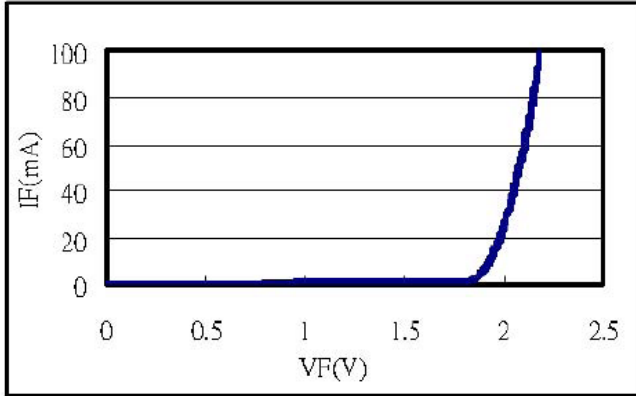
| Rank | Symbol | Condition            | Min   | Max   | Unit |
|------|--------|----------------------|-------|-------|------|
| R    | R      | I <sub>F</sub> =10mA | 12801 | 15250 | μcd  |
| S    | S      | I <sub>F</sub> =10mA | 15251 | 18000 | μcd  |
| T    | T      | I <sub>F</sub> =10mA | 18001 | 21500 | μcd  |
| U    | U      | I <sub>F</sub> =10mA | 21501 | 26000 | μcd  |
| V    | V      | I <sub>F</sub> =10mA | 26001 | 31000 | μcd  |

■ **Soldering Conditions: Soldering Temp. ≤+260°C, Soldering Time. ≤3sec.**

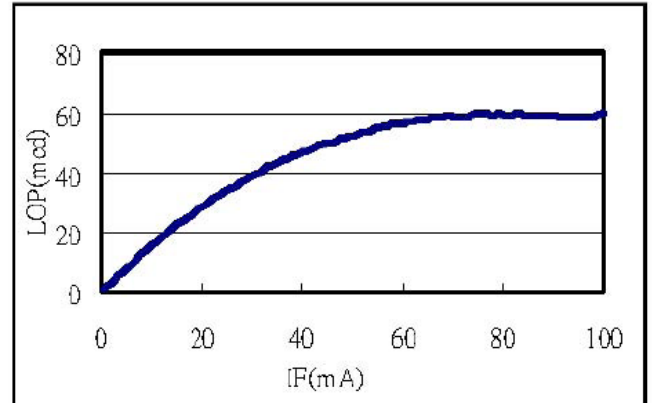
(at 2mm Distance from The Case of Reflector Edge)

■ **Typical Electro-Optical Characteristics Curve:**

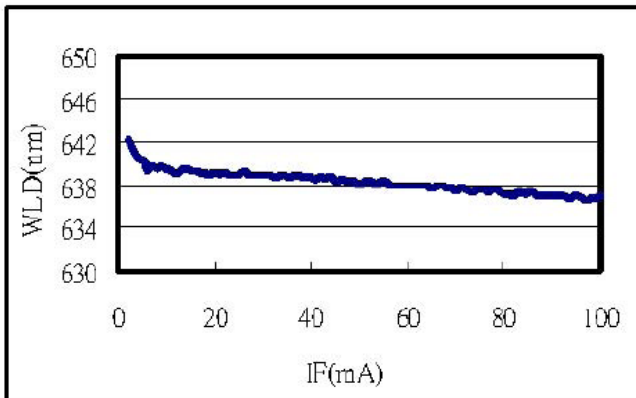
**Fig1. Forward Current vs. Forward Voltage:**



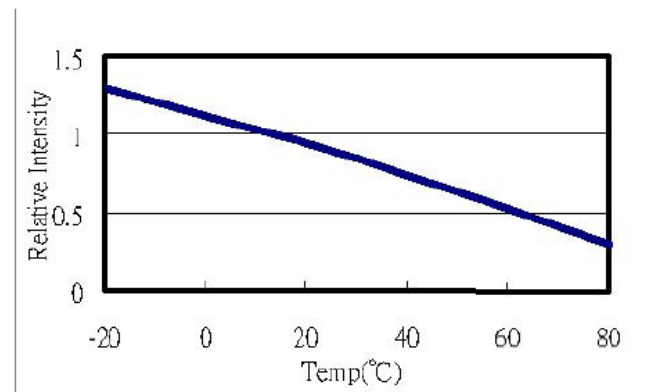
**Fig2. Forward Current vs. Relative Intensity:**



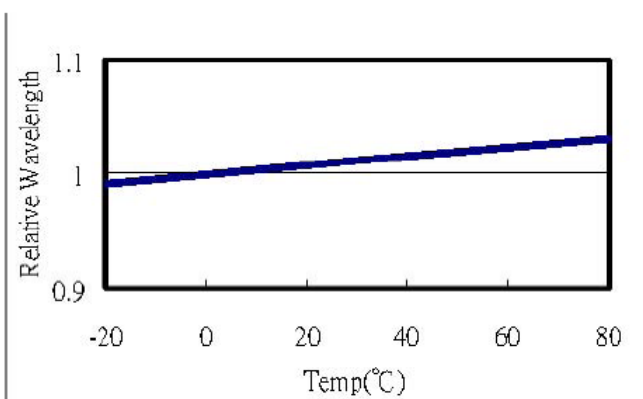
**Fig3. Forward Current vs. Relative Wavelength:**



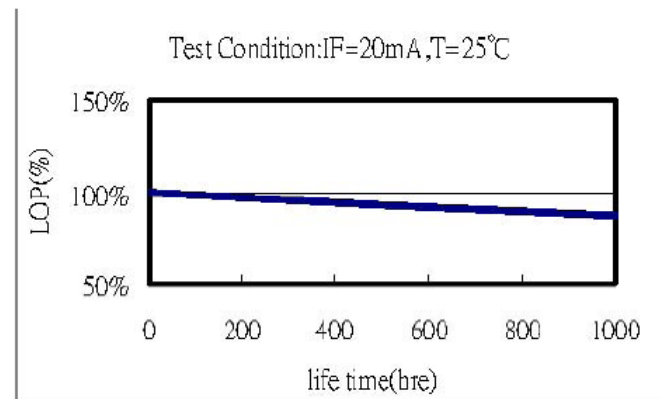
**Fig4. Temperature vs. Relative Intensity:**



**Fig5. Temperature vs. Relative Wavelength:**



**Fig6. Life Test at 20mA R.T. 1000hrs:**



## ■ 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: T <sub>hot</sub> =65°C, T <sub>cold</sub> =-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: T <sub>hot</sub> =65°C, T <sub>cold</sub> =-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.   |

## ■ Package Date:

**32pcs / Red Expandable Polyethylene.**

**350pcs / Box(360\*260\*255mm).**

**700pcs / Carton(550\*380\*280mm).**