

# WCN2-0039B7-A12

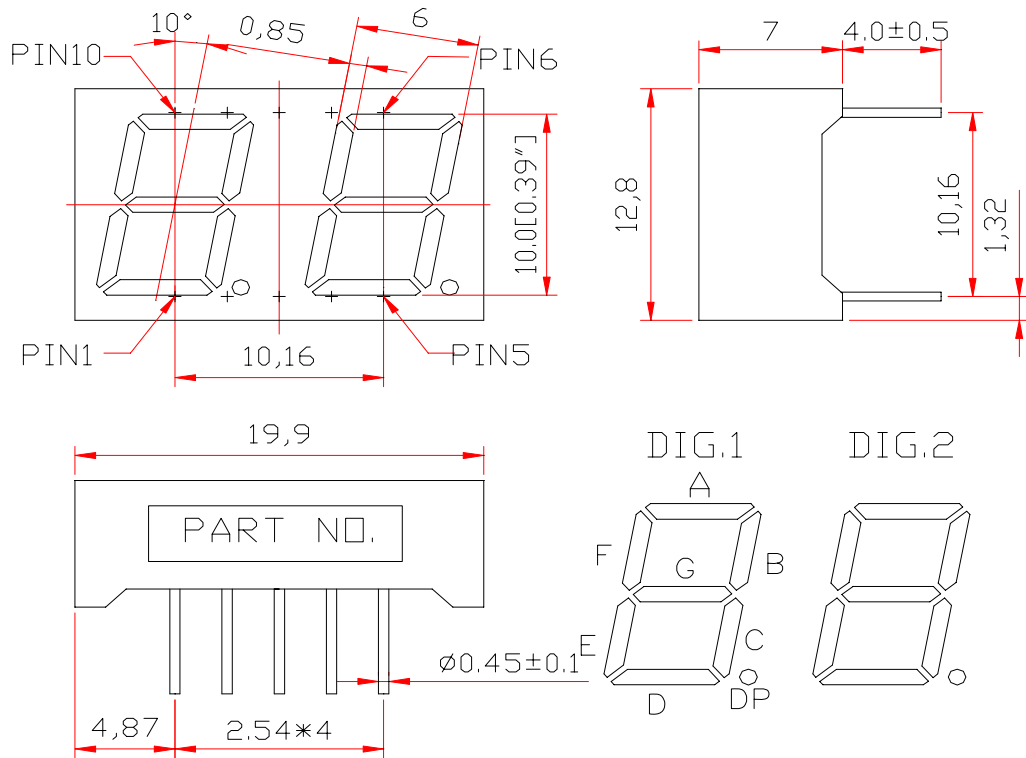
## SPECIFICATION

| WCN              |            |             | CUSTOMER<br>Confirmed |
|------------------|------------|-------------|-----------------------|
| Prepared by      | Checked by | Approved by |                       |
| Fei<br>2016-5-30 | Athena     | William     |                       |
| REVISION RECORD  |            |             |                       |



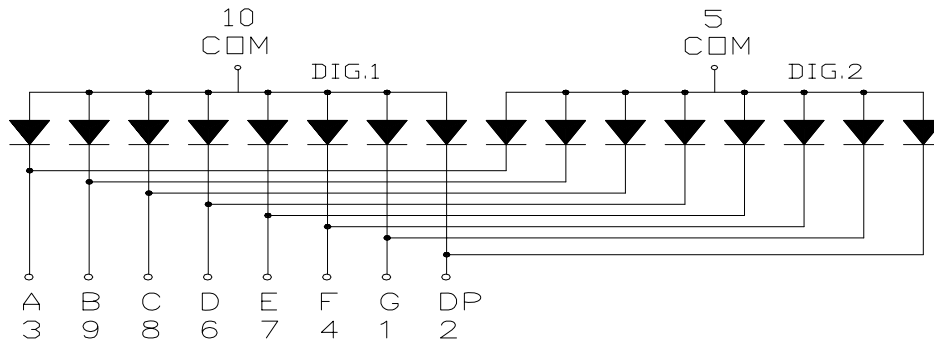
REVISION: A0

### Outer Dimension:



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

### Circuit Diagram:



### Pin Connection:

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

■ **Features:**

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

■ **Description:**

- Dual Digit Display
- Digit Height:10.0mm(0.39" )
- Black Face and Milky Segment

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

| Parameter                        | Symbol           | Condition          | Color | Rating  | Units |
|----------------------------------|------------------|--------------------|-------|---------|-------|
| Power Dissipation Per Segment    | P <sub>d</sub>   | —                  | Blue  | 90      | mW    |
| Forward Current Per Segment      | I <sub>F</sub>   | —                  | Blue  | 25      | mA    |
| Peak Forward Current Per Segment | I <sub>FP</sub>  | 1/10 Duty<br>10KHz | Blue  | 100     | mA    |
| Reverse Voltage Per Segment      | V <sub>R</sub>   | —                  | Blue  | 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 | —      | 3.2   | 3.6   | 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 | 8501   | 13500 | 21500 | μcd   |
| Peak Emission Wave Length                              | λ <sub>p</sub>   | I <sub>F</sub> =20mA | Per Segment | —      | —     | —     | nm    |
|  | λ <sub>d</sub>   |                      |             | 465    | 470   | 475   |       |
| Spectral Line Half Width                               | △λ               | I <sub>F</sub> =20mA | Per Segment | —      | 20    | —     | nm    |
| Luminous Intensity Matching Ratio (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 |
|------|--------|----------------------|-------|-------|------|
| P    | P      | I <sub>F</sub> =10mA | 8501  | 10500 | Mcd  |
| Q    | Q      | I <sub>F</sub> =10mA | 10501 | 12800 | μcd  |
| 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  |

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

**Typical Elector-Optical Characteristics Curve:**

Fig1. Forward Current vs. Forward Voltage:

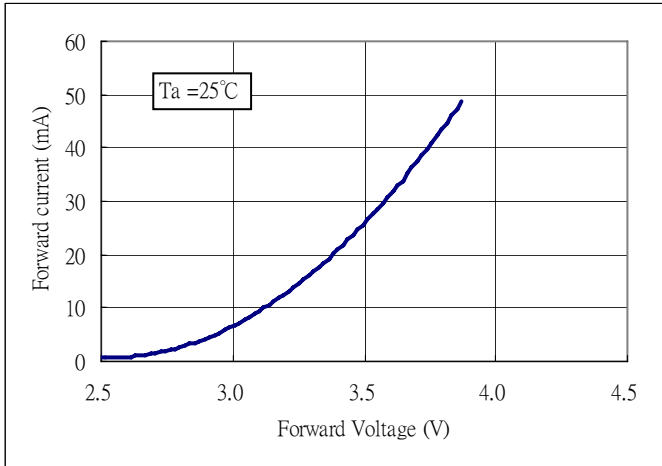


Fig2. Forward Current vs. Relative Intensity:

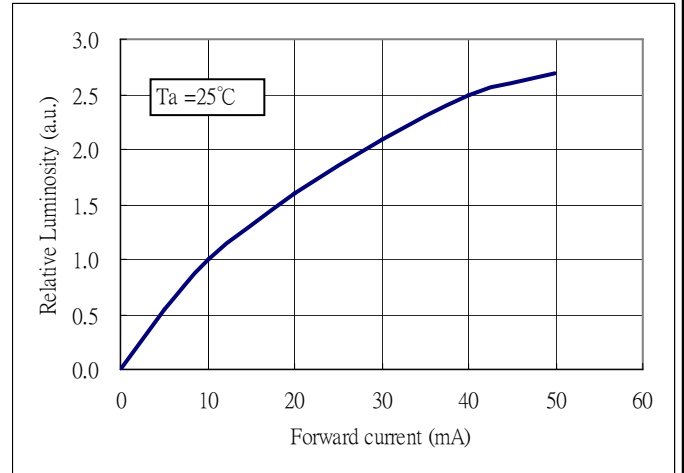


Fig3. Forward Current vs. Relative wavelength:

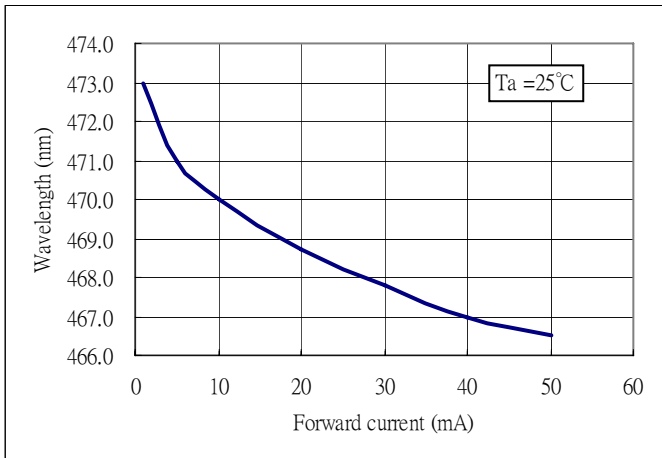
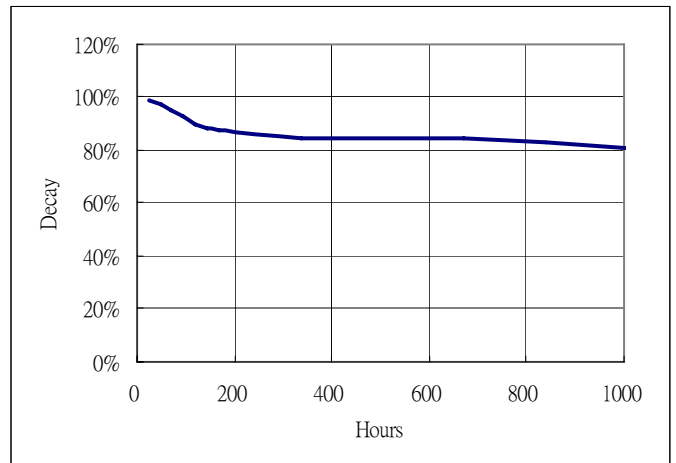


Fig4. Life Test at 20mA R.T. 1000hrs:



## ■ 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>$T_a$ = UNDER ROOM TEMPERATURE<br>$I_f = I_f \text{ max}$  |
|                    | HIGH TEMPERATURE HIGH HUMIDITY STORAGE | EVALUATES MOISTURE RESISTANCE OF THE DEVICE WHEN STORED FOR A LONG TERM AT HIGH TEMPERATURE AND HUMIDITY<br>$T_a = 65 \pm 5^\circ\text{C}$<br>RH=90~95%RH<br>TEST TIME=240± 2Hrs  |
|                    | HIGH TEMPERATURE STORAGE               | EVALUATES DEVICE DURABILITY FOR LONG TERM STORAGE IN HIGH TEMPERATURE<br>$T_a = 85 \pm 5^\circ\text{C}$ (COB: $T_a = 65 \pm 5^\circ\text{C}$ )<br>TEST TIME=1000Hrs(-24Hrs, +72Hrs)   |
|                    | LOW TEMPERATURE 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 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±1sec.  |
|                    | SOLDER RESISTANCE                      | EVALUATES RESISTANCE TO THERMAL STRESS CAUSED BY SOLDERING<br>$T_{\text{SOL}}=260 \pm 5^\circ\text{C}$<br>DWELL TIME=10±1sec.   |

## ■ Package Pattern A:

176 pcs / Red Expandable Polyethylene.

1230 pcs / Box(360\*175\*130mm).

7380 pcs / Carton(550\*380\*280mm).

## ■ Package Pattern B:

25 pcs / IC Tube.(525\*17.2\*16.3)

1750 pcs / Box(537\*175\*125mm).

7000 pcs / Carton(550\*380\*280mm).