

**WCN Opto Group Co., Limited****Customer Name:****Date:**

2022-12-16

**Part No:**

WCN2S-1030SR-A1

**Product Group  
Description:**

LED Display

**Customer Part No:****Approval Date:****Customer  
Confirmation****Approved by****Checked by**Athena  
2022-12-16**Prepared By**Fei  
2022-12-16**Country of Origin: China****World Components Network Service Ltd****5th Floor,Block A-2,Xuxingda Ind Zone  
Shiyan Town,Bao An District , Shenzhen****Tel : (86)755-29000022****Fax : (86)755-29000023****RoHS****www . wcnopto.net**

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# WCN Opto Group Co., Limited

## REVISION RECORD

| MARKER | Matter for revision                          | SHEET      | DTAE       | MAKER | APPOVED SIGN |  |
|--------|----------------------------------------------|------------|------------|-------|--------------|--|
|        | Reason for revision                          |            |            |       |              |  |
| A0     | P# WCN2S-1030SR-A1                           | Whole Spec | 2015-3-19  | Fei   | Athena       |  |
|        | New Version issued                           |            |            |       |              |  |
| A1     | Add Package Data                             | Page.5     | 2015-5-11  | Fei   | Athena       |  |
|        | Change Out Size Shape                        |            |            |       |              |  |
| A2     | Change File's Set Type                       | Whole Spec | 2016-2-23  | Fei   | Athena       |  |
|        | Improved                                     |            |            |       |              |  |
| A3     | Luminous Intensity Sorting                   | Page.6     | 2016-10-21 | Fei   | Athena       |  |
|        | Improved                                     |            |            |       |              |  |
| A4     | New Version issued and Change Out Size Shape | Page.5     | 2017-2-14  | Fei   | Athena       |  |
|        | Improved                                     |            |            |       |              |  |
| A5     | Change material direction                    | Page.5     | 2017-3-1   | Fei   | Athena       |  |
|        | Improved                                     |            |            |       |              |  |
| B0     | Change Package Qty                           | Page.8     | 2022-12-16 | Fei   | Athena       |  |
|        | Improved                                     |            |            |       |              |  |
|        |                                              |            |            |       |              |  |
|        |                                              |            |            |       |              |  |

**1. Type No./Manufacture's Name**

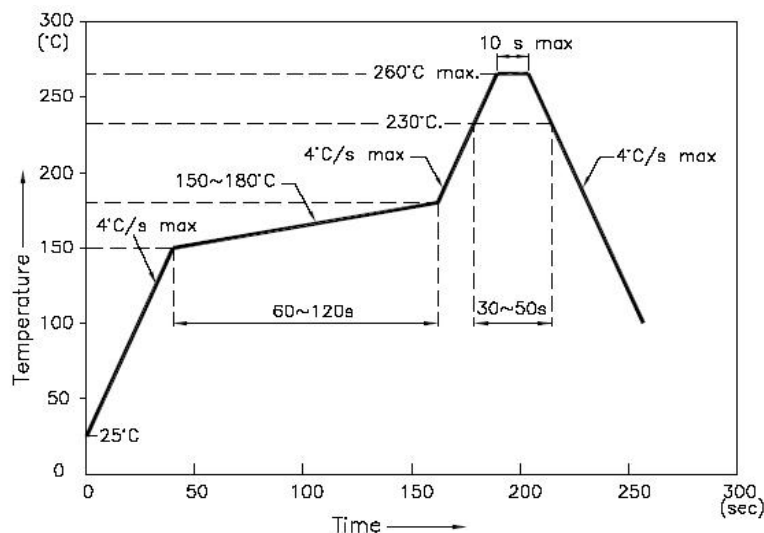
**WCN2S-1030SR-A1 / World Components Network Service Ltd.**

**2. Features:**

- **High Reliability**
- **Low Power Requirement**
- **Easy Assembly**

**3. Faction: Display Digit Characteristic****4. Soldering Conditions: Soldering Temp.  $260 \pm 5$  °C, Soldering Time. 3~5 sec.**

**Soldering Power <30 W.**

**5. Re-flow Temp/Time****NOTES:**

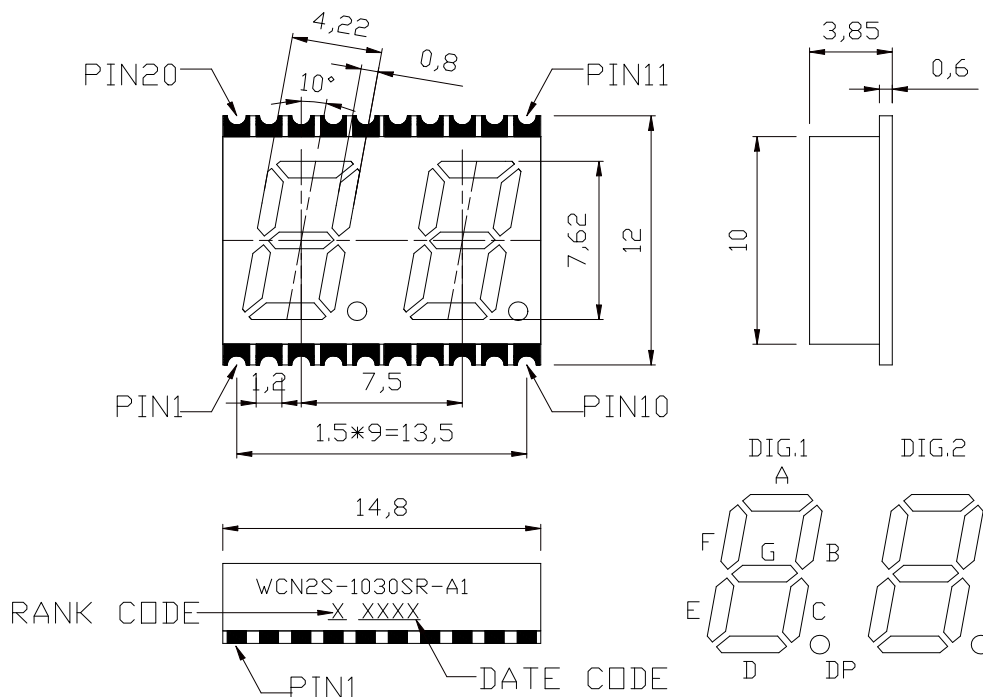
**5.1. We recommend the re-flow temperature  $245^{\circ}\text{C}(\pm 5^{\circ}\text{C})$ . the maximum soldering temperature should be limited to  $260^{\circ}\text{C}$ .**

**5.2. Don't cause stress to the epoxy resin while it is exposed to high temperature. Number of re-flow process shall be 2 times or less.**

**6. Description:**

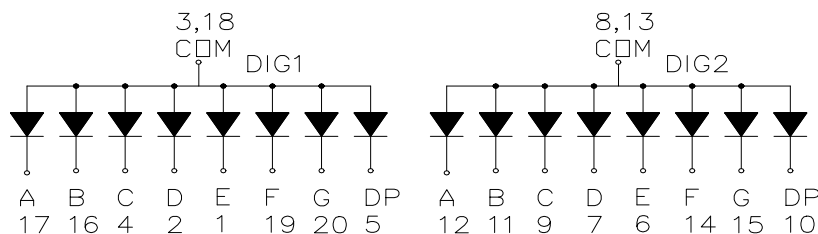
- **Two Digit LED Display**
- **Digit Height: 7.62mm(0.30" )**
- **Gray Face and Milky Segment**
- **Color: Red**

## Outer Dimension:



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

## Circuit Diagram:



## Pin Connection:

| PIN NO. | CONNECTION        | PIN NO. | CONNECTION        |
|---------|-------------------|---------|-------------------|
| 1       | Cathode E1        | 11      | Cathode B2        |
| 2       | Cathode D1        | 12      | Cathode A2        |
| 3       | Common Anode dig1 | 13      | Common Anode dig2 |
| 4       | Cathode C1        | 14      | Cathode F2        |
| 5       | Cathode DP1       | 15      | Cathode G2        |
| 6       | Cathode E2        | 16      | Cathode B1        |
| 7       | Cathode D2        | 17      | Cathode A1        |
| 8       | Common Anode dig2 | 18      | Common Anode dig1 |
| 9       | Cathode C2        | 19      | Cathode F1        |
| 10      | Cathode dp2       | 20      | Cathode G1        |

## ABSOLUTE MAXIMUM RATINGS AT TA=25°C

| Parameter                        | Symbol           | Condition         | Color | Rating   | Units |
|----------------------------------|------------------|-------------------|-------|----------|-------|
| Power Dissipation Per Segment    | P <sub>d</sub>   | —                 | Red   | 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      | V <sub>R</sub>   | —                 | Red   | 5        | V     |
| Operating Temperature Range      | T <sub>opr</sub> | —                 | —     | -40~+105 | °C    |
| Storage Temperature Range        | T <sub>stg</sub> | —                 | —     | -40~+105 | °C    |

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

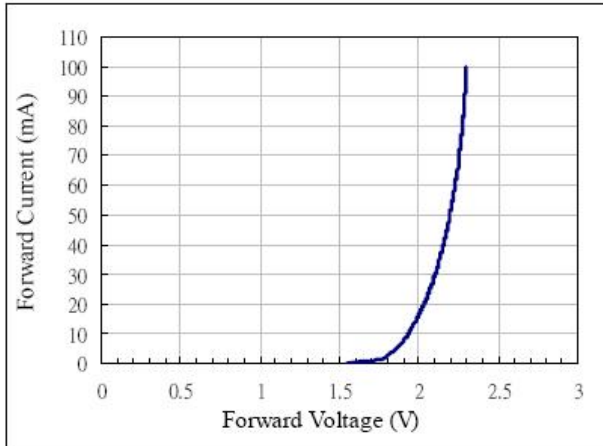
| Item                                                      | Symbol           | Test conditions      | Location | Rating |      |       | Units |
|-----------------------------------------------------------|------------------|----------------------|----------|--------|------|-------|-------|
|                                                           |                  |                      |          | Min.   | Typ. | Max.  |       |
| Forward Voltage                                           | V <sub>F</sub>   | I <sub>F</sub> =20mA | Per Chip | 1.80   | 2.00 | 2.50  | V     |
| Reverse Current                                           | I <sub>R</sub>   | V <sub>R</sub> =5V   | Per Chip | —      | —    | 100   | μA    |
| Luminous Intensity                                        | I <sub>V</sub>   | I <sub>F</sub> =10mA | Per Chip | 5001   | 7800 | 12800 | ucd   |
| Wave Length                                               | λ <sub>P</sub>   | I <sub>F</sub> =20mA | Per Chip | —      | 640  | —     | nm    |
|                                                           | λ <sub>D</sub>   |                      |          | 627    | 630  | 633   |       |
| Spectral Line Half Width                                  | △λ               | I <sub>F</sub> =20mA | Per Chip | —      | —    | 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 :+/-10%)

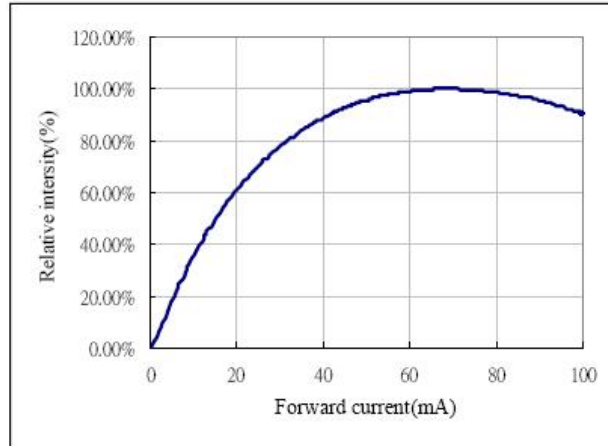
| Rank | Symbol | Condition            | Min   | Max   | Unit |
|------|--------|----------------------|-------|-------|------|
| M    | M      | I <sub>F</sub> =10mA | 5001  | 6100  | μcd  |
| N    | N      | I <sub>F</sub> =10mA | 6101  | 7200  | μcd  |
| O    | O      | I <sub>F</sub> =10mA | 7201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

■ **Typical Optical-Electronic Characteristic Curves**

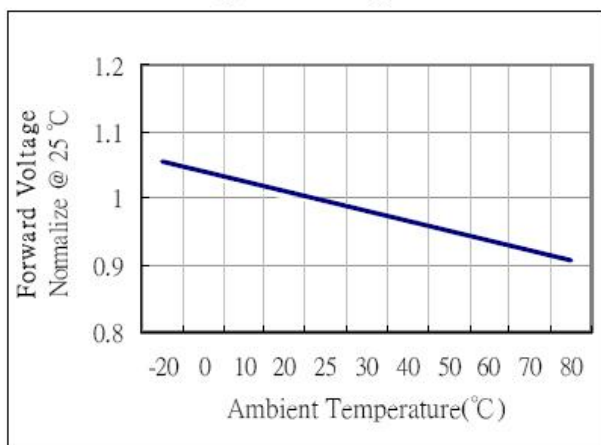
Forward current vs. Forward voltage



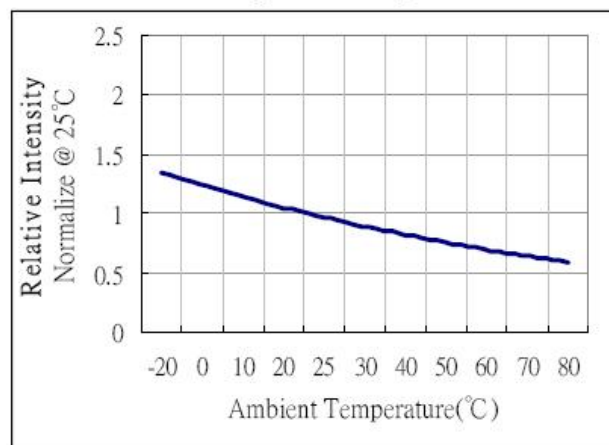
Relative intensity vs. Forward current



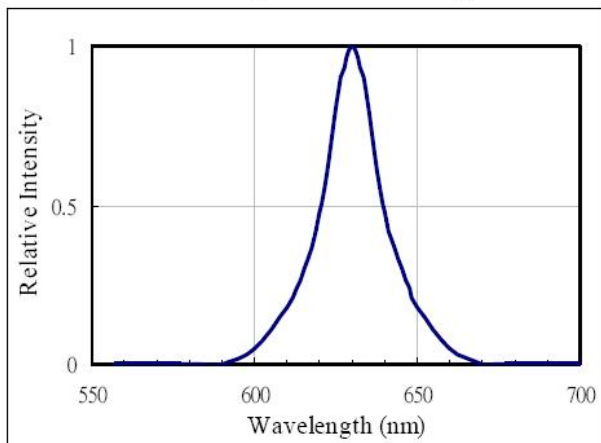
Forward voltage vs. Temperature



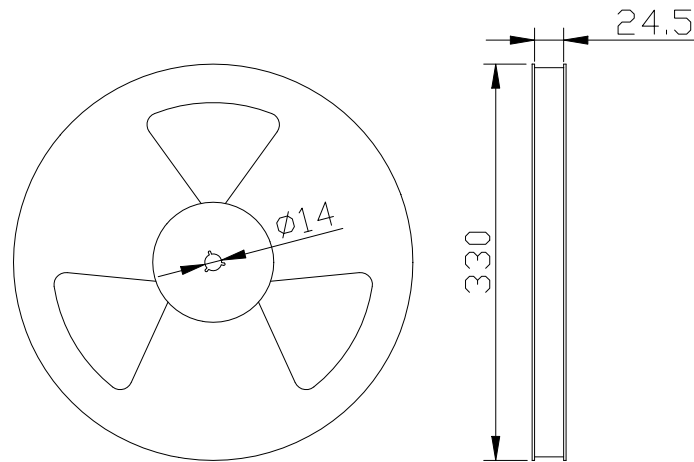
Relative intensity vs. Temperature



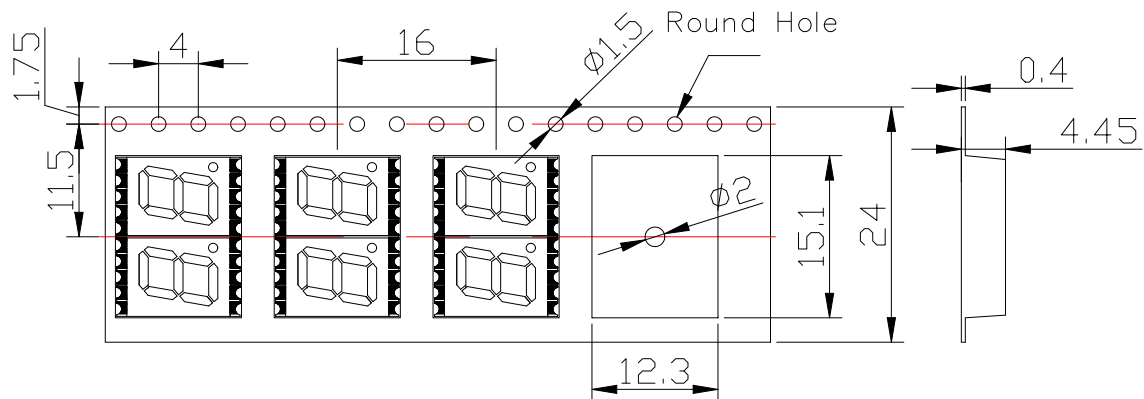
Relative intensity vs. Wavelength



## ■ Packing Reel Dimensions(mm):

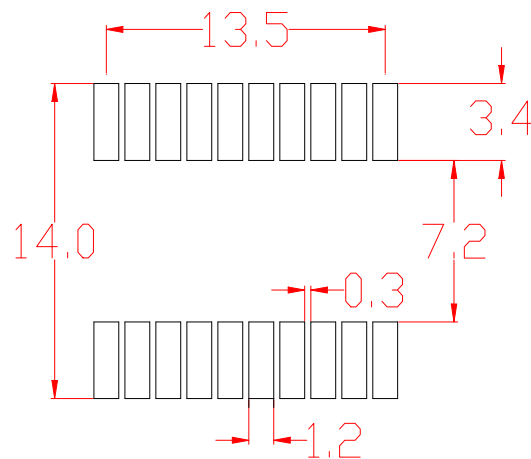


## ■ Dimensions of Tape (Unit: mm)



## ■ One Reel contained 600 PCS products:

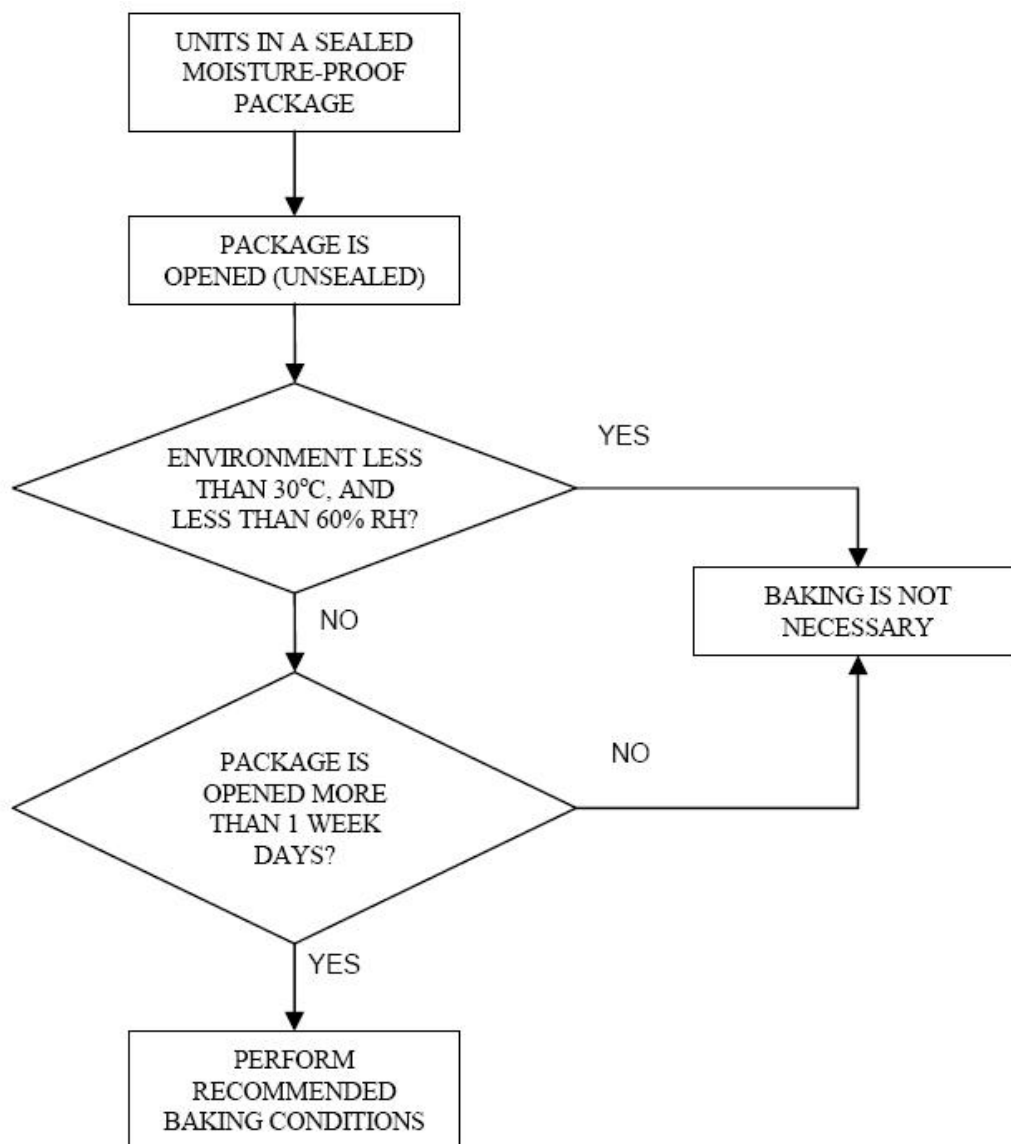
## ■ Recommended Soldering Pattern:





## ■ Moisture Proof Packaging:

All N/D SMD displays are shipped in moisture proof package. The displays should be stored at 30°C or less and 60% RH or less. Once the package opened, moisture absorption begins.



## ■ Baking Conditions:

If the parts not stored in dry conditions, they must be baked before re-flow to prevent damage to the parts.

| Package | Temperature | Time      |
|---------|-------------|-----------|
| In Reel | 60 °C       | ≥ 48hours |
| In Bulk | 100 °C      | ≥ 4hours  |
|         | 125 °C      | ≥ 2hours  |

■ Baking should only be done once.