



## Description

R12.000 Series are the fuses set the industry standard for performance, reliability and quality. The solder-free design provides excellent on-off and temperature cycling characteristics during use and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

## Features

- Rapid interruption of excessive current
- Compatible with reflow and wave solder
- Ceramic and glass construction
- One time positive disconnect
- Lead free and Halogen free material

## Applications

- Secondary circuit protection
- Laptop, notebook, netbook
- Flat panel displays
- High definition television(HDTV)
- LCD/LED backlighting
- Computers and peripherals
- Gaming console systems
- Handheld/portable equipment
- Mobile device charges
- Automotive
- Central body control module
- Heating ventilation and air conditioning
- Doors,window lift and seat control
- Digital instrument cluster
- In-vehicle infotainment and navigation
- Electric pumps,motor control and
- Powertrain control module(PCU)/Engine
- Transimission Control Unit(TCU)

## Electrical Characteristics

| Rated Current | % of Amp Rating | Opening Time    |
|---------------|-----------------|-----------------|
| 250mA~30A     | 100%            | 4hours, min     |
| 1A~3A         | 200%            | 1.0s - 60 s     |
| 1A~5A         | 250%            | 5.0s max        |
| 1A~5A         | 300%            | 0.1s - 3.0 s    |
| 250mA~750mA   | 350%            | 5.0s max        |
| 6A~30A        | 350%            | 5.0s max        |
| 250mA~30A     | 1000%           | 0.2ms - 20.0 ms |

## Agency information

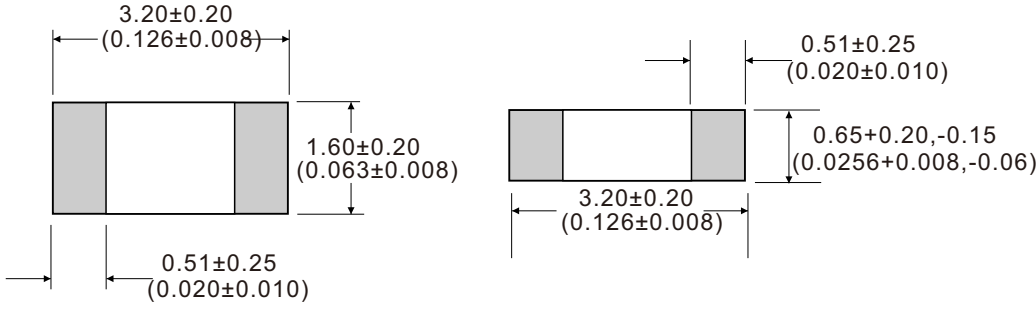
File Number:E340427, Guide JDYX2/JDYX8

## Specifications

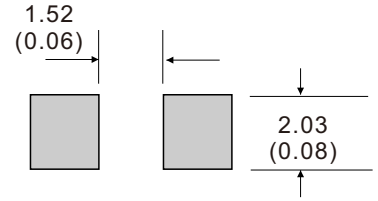
| Part No.      | Rated Voltage (V) |       |       | Rated Current (A) | Breaking Capacity (A) | Typical Cold Resistance (mOhms) | Typical Voltage Drop (mV) | Typical Pre-Arcing I <sup>2</sup> t (A <sup>2</sup> Sec) | Marking |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
|---------------|-------------------|-------|-------|-------------------|-----------------------|---------------------------------|---------------------------|--|---------|-----|------------|------|-----|---------|----|------|-----|--------|----|-----|-----|------|----|-----|-----|------|----|-----|-----|-----|---|-----|-----|-----|---|----|-----|-----|---|----|-----|-----|---|----|-----|-----|---|----|-----|-----|---|----|-----|-----|---|----|-----|---|---|------|-----|----|---|
| R12.000.0.25  | 125Vdc            | 72Vdc | 63Vdc | 250mA             | 100A@72Vdc            | 100A@32Vdc                      | 3700                      | 1350   | 0.00038 | .25 |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.0.375 |                   |       |       | 375mA             |                       |                                 |                           |  |         |     | 100A@63Vdc | 1850 | 720 | 0.00077 | E  |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.0.5   |                   |       |       | 500mA             |                       |                                 |                           |  |         |     |            |      |     |         |    | 1050 | 690 | 0.0019 | B  |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.0.75  |                   |       |       | 750mA             |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    | 775 | 680 | 0.15 | G  |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.1     |                   |       |       | 1A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    | 485 | 550 | 0.18 | H  |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.1.5   |                   |       |       | 1.5A              |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    | 218 | 355 | 0.4 | K |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.2     |                   |       |       | 2A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   | 133 | 310 | 1.1 | N |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.2.5   |                   |       |       | 2.5A              |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   | 79 | 230 | 1.7 | O |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.3     |                   |       |       | 3A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   | 49 | 185 | 2.2 | P |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.3.5   |                   |       |       | 3.5A              |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   | 37 | 175 | 2.7 | R |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.4     |                   |       |       | 4A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   | 33 | 160 | 3.2 | S |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.4.5   |                   |       |       | 4.5A              |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   | 28 | 150 | 4.2 | X |    |     |   |   |      |     |    |   |
| R12.000.5     |                   |       |       | 5A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   | 22 | 135 | 6 | T |      |     |    |   |
| R12.000.6     |                   |       |       | 6A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   | 15.5 | 140 | 12 | F |
| R12.000.7     |                   |       |       | 7A                |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.8     | 8A                | 8.0   | 100   | 18                | V                     |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.10    | 10A               |       |       |                   |                       | 7.0                             | 90                        | 30   | U       |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.12    | 12A               |       |       |                   |                       |                                 |                           |  |         | 5.9 | 85         | 45   | W   |         |    |      |     |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.15    | 15A               |       |       |                   |                       |                                 |                           |  |         |     |            |      |     | 3.8     | 75 | 63   | Y   |        |    |     |     |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.20    | 20A               |       |       |                   |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     | 2.9    | 70 | 80  | Q   |      |    |     |     |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.25    | 25A               |       |       |                   |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     | 1.6  | 60 | 90  | 25  |      |    |     |     |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |
| R12.000.30    | 30A               |       |       |                   |                       |                                 |                           |  |         |     |            |      |     |         |    |      |     |        |    |     |     |      |    |     |     | 1.3  | 60 | 100 | 30  |     |   |     |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |     |   |    |     |   |   |      |     |    |   |

## Dimensions

(Unit: mm/inch)



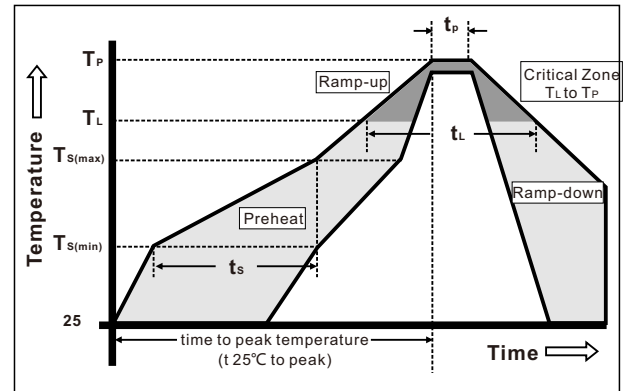
## Pad layout



## Installation Recommendations

### 1 Wave Soldering Parameters

| Reflow Condition                                     |                                    | Pb-free assembly |
|--|------------------------------------|------------------|
| Pre Heat   | - Temperature Min ( $T_{s(min)}$ ) | 150°C            |
|  | - Temperature Max ( $T_{s(max)}$ ) | 200°C            |
|  | - Time (Min to Max) ( $t_s$ )      | 60 – 120 seconds |
| Average Ramp-up Rate (Liquidus Temp (TL) to peak)    |                                    | 3°C/second max.  |
| TS(max) to TL - Ramp-up Rate                         |                                    | 5°C/second max.  |
| Reflow   | - Temperature (TL) (Liquidus)      | 217°C            |
|  | - Temperature (tL)                 | 60 – 150 seconds |
| Peak Temperature ( $T_P$ )                           |                                    | 260+0/-5°C       |
| Time within 5°C of actual peak Temperature ( $t_p$ ) |                                    | 30 seconds       |
| Ramp-down Rate                                       |                                    | 6°C/second max   |
| Time 25°C to peak Temperature ( $T_P$ )              |                                    | 8 minutes max.   |
| Do not exceed  |                                    | 260°C            |

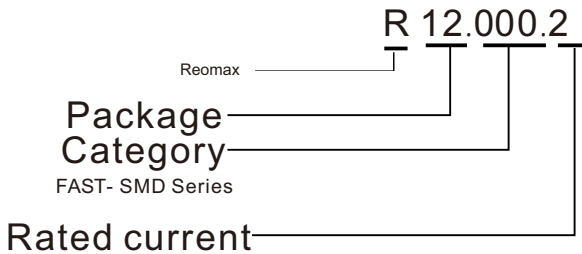


Solder Pot Temperature: 260°C max  
 Solder Dwell Time: 10 Seconds max

### 2 Hand-Solder Parameters

Solder Iron Temperature: 280±5°C  
 Heating Time: 5 Seconds min  
 Generally, hand-soldering is not recommended

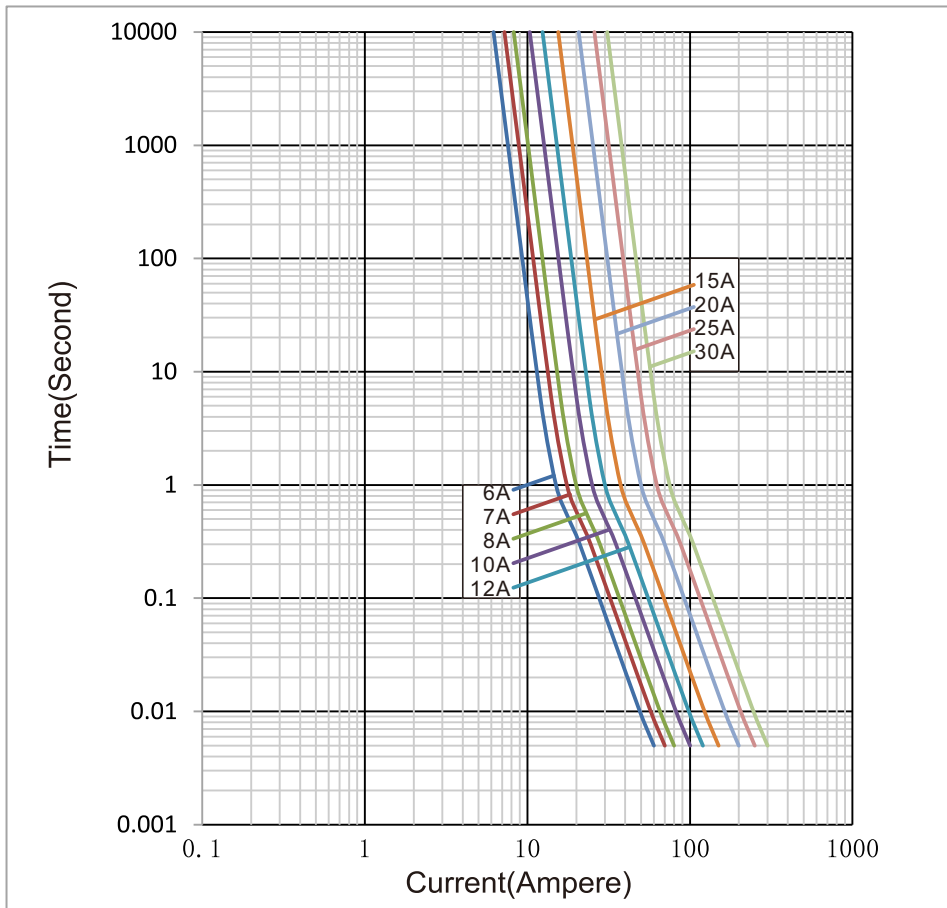
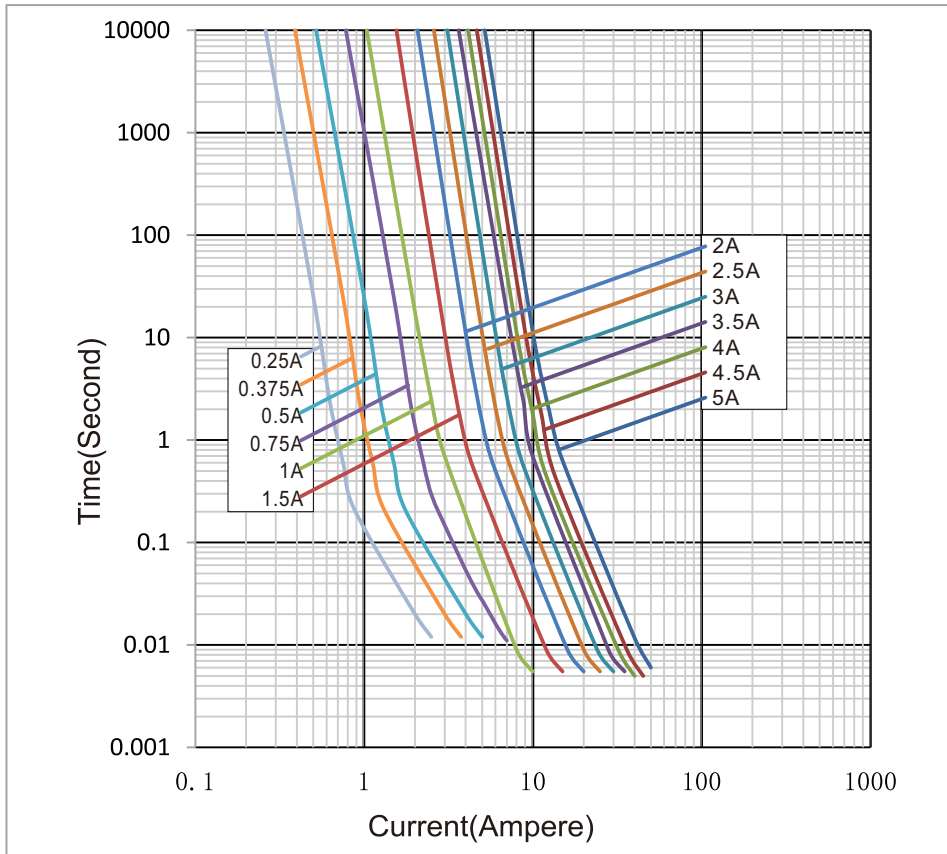
## Part Numbering System



## Product Characteristics

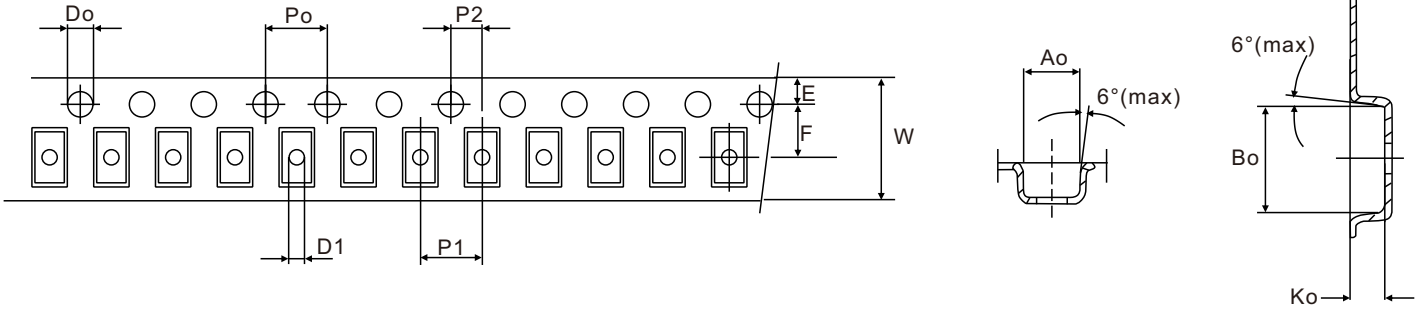
|                                       |   |
|---------------------------------------|---|
| Materials                             | <b>Body:</b> Ceramic<br><b>Terminations:</b> Silver over-plated with tin<br><b>Element:</b> Alloy(Ag,Cu,Zn)<br><b>Cover Coat:</b> Glass |
| Operating Temperature                 | -55°C to 125°C<br>Consult temperature derating curve chart.   |
| Thermal Shock                         | 300 cycles -55°C to 125°C   |
| Humidity                              | MIL-STD-202F, Method 103B, Condition D  |
| Vibration                             | Per MIL-STD-202F, Method 201A   |
| Insulation Resistance (After Opening) | Greater than 10,000 ohms  |
| Resistance to Soldering Heat          | MIL-STD-202G, Method 210F, Condition D  |

## Time Current Curve



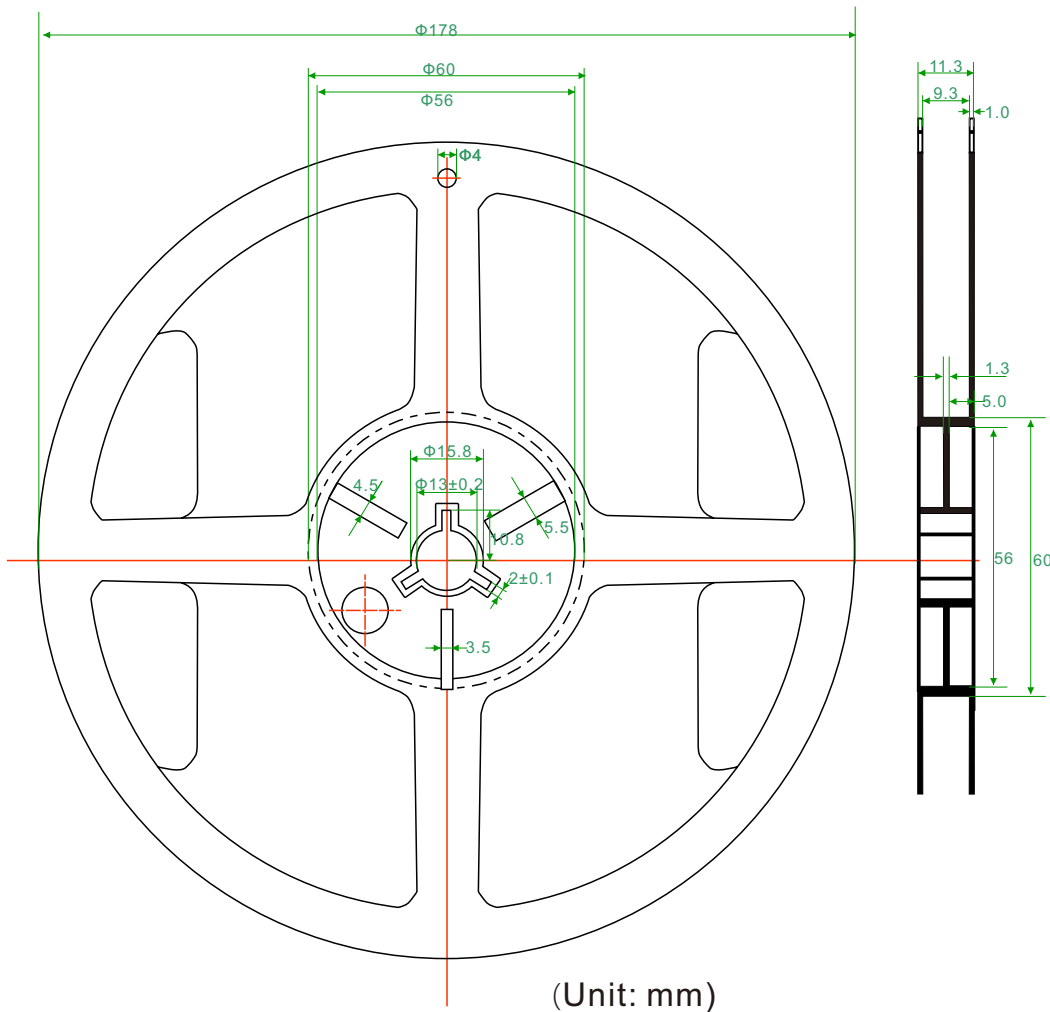
## Packaging

3,000 pieces of fuses in plastic or paper taper (3000pcs)



|        |           |           |           |           |           |           |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| Symbol | Ao        | Bo        | Ko        | Po        | P1        | P2        |
| Spec   | 1.80±0.10 | 3.50±0.10 | 1.27±0.10 | 4.00±0.10 | 4.00±0.10 | 2.00±0.10 |
| Symbol | E         | F         | Do        | D1        | W         | T         |
| Spec   | 1.75±0.10 | 3.50±0.10 | 1.50±0.10 | 1.00(Max) | 8.00±0.10 | 0.25±0.05 |

(Unit: mm)



(Unit: mm)

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Largest Supplier of Electrical and Electronic Components

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