

## Datasheet Specification

Customer name : \_\_\_\_\_

Product name: \_\_\_\_\_ Plastic encapsulated varistor

Discription: \_\_\_\_\_ 9S271K

KNS P/N: \_\_\_\_\_ JVRS9S271KRF

Customer P/N: \_\_\_\_\_

Date: \_\_\_\_\_ 2025-05-27

| Supplier signature |              |          |  |
|--------------------|--------------|----------|--|
| Make               | Check        | Approved |  |
| Xiu mei lu         | Shu feng Liu | Jun Liu  |  |

| Customer signature |       |          |                                                                                                           |
|--------------------|-------|----------|-----------------------------------------------------------------------------------------------------------|
| Recognize          | Check | Approved | conclusion:                                                                                               |
|                    |       |          | <input type="checkbox"/> Qualified<br><input type="checkbox"/> Reject<br><input type="checkbox"/> Others: |
|                    |       |          |                                                                                                           |

Please confirm and return it for delivery confirmation; Failure to sign indicates default qualification, and the order contract will be executed for delivery based on this sample.

Date: 2024-12-18

[illegible]

## Plastic encapsulated varistor 9S series

### 一、CHARACTERISTICS

- 1、Advanced packaging technology, packaging materials meet UL94-V0 standards
- 2、Compact structure, small volume, space saving
- 2、Superior high-temperature and high humidity performance
- 3、Powerful ability to suppress high surges and strong currents
- 4、SMD injection molding packaging, suitable for lead-free reflow soldering/wave soldering automatic mounting
- 5、Compliant with RoHS, REACH, halogen-free
- 6、Safety certification: CQC, UL, TUV



|                       |                |         |              |
|-----------------------|----------------|---------|--------------|
| Certificate authority | CQC            | UL      | TUV          |
| Certificate number    | CQC22001336554 | E489693 | B115306 0002 |

### 二、Application Area

- 1、LED power supply
- 2、industrial equipment
- 3、communication equipment
- 4、Automotive Electronics
- 5、Security circuit
- 6、Household Electric Appliances

### 三、Standards

- 1、UL1449
- 2、IEC61051-1, IEC61051-2, IEC61051-2-2, IEC62638-1 AnnexG8.1
- 3、GB/T10193, GB/T10194, GB/T10195, GB4943

### 四、Coding Rules

|                                                                                  |                     |                 |                            |                |                                            |                       |
|----------------------------------------------------------------------------------|---------------------|-----------------|----------------------------|----------------|--------------------------------------------|-----------------------|
| ①                                                                                | ②                   | ③               | ④                          | ⑤              | ⑥                                          | ⑦                     |
| JVRS                                                                             | 9S                  | 271             | K                          | R              | F                                          |                       |
| Product Category                                                                 | External dimensions | aristor voltage | Varistor voltage tolerance | Packing style  | Environmental compliance                   | Internal control code |
| JK-ET brand plastic sealed pressure-sensitive adhesive<br>Common resistor series | Plastic seal 4032   | 270V            | ±10%                       | Roller packing | Compliant with RoHS2.0,REACH, halogen-free | 0001-ZZZZ             |

### 五、Word printing

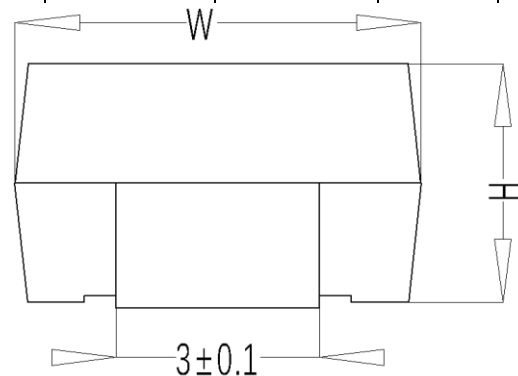
JK-ET → trademark  
9S271K → Specification  
55XSK001 → Production Batch

## 六、Temperature range

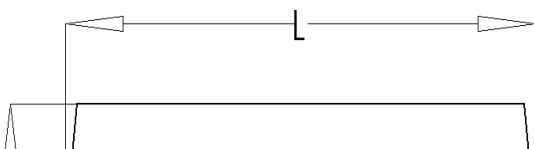
| Parameter           | Parameter value | Unite |
|---------------------|-----------------|-------|
| Temperature range   | -40 ~ +125      | °C    |
| Storage temperature | +10 ~ +40       | °C    |

## 七、Specification parameter table

| Spec type | Varistor voltage<br>(@1mA) | Maximum<br>continuous<br>operating voltage |            | Maximum limiting<br>voltage (8/20μs) |           | Maximum<br>impulse current<br>1time<br>(8/20μs) | maximum<br>energy<br>1time<br>(10/1000μs) | Rated<br>static<br>power | Reference<br>capacitance@1<br>KHZ |
|-----------|----------------------------|--------------------------------------------|------------|--------------------------------------|-----------|-------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
|           | V1mA<br>(V)                | VAC<br>(V)                                 | VDC<br>(V) | Vp<br>(V)                            | Ip<br>(A) | I max<br>(A)                                    | E max<br>(J)                              | P<br>(W)                 | C<br>(pF)                         |
| 9S201K    | 200(180-220)               | 130                                        | 170        | 340                                  | 25        | 2500                                            | 18                                        | 0.4                      | 500                               |
| 9S221K    | 220(198-242)               | 140                                        | 180        | 360                                  | 25        | 2500                                            | 20                                        | 0.4                      | 450                               |
| 9S241K    | 240(216-264)               | 150                                        | 200        | 395                                  | 25        | 2500                                            | 22                                        | 0.4                      | 420                               |
| 9S271K    | 270(243-297)               | 175                                        | 225        | 455                                  | 25        | 2500                                            | 25                                        | 0.4                      | 370                               |
| 9S301K    | 300(270-330)               | 195                                        | 250        | 500                                  | 25        | 2500                                            | 28                                        | 0.4                      | 330                               |
| 9S331K    | 330(297-363)               | 210                                        | 275        | 550                                  | 25        | 2500                                            | 31                                        | 0.4                      | 300                               |
| 9S361K    | 360(324-396)               | 230                                        | 300        | 595                                  | 25        | 2500                                            | 34                                        | 0.4                      | 280                               |
| 9S391K    | 390(351-429)               | 250                                        | 320        | 650                                  | 25        | 2500                                            | 37                                        | 0.4                      | 260                               |
| 9S431K    | 430(387-473)               | 275                                        | 350        | 710                                  |           |                                                 |                                           |                          | 230                               |
| 9S471K    | 470(423-517)               | 300                                        | 385        | 775                                  |           |                                                 |                                           |                          | 210                               |
| 9S511K    | 510(459-561)               | 320                                        | 410        | 845                                  |           |                                                 |                                           |                          | 200                               |
| 9S561K    | 560(504-616)               | 350                                        | 450        | 930                                  |           |                                                 |                                           |                          | 180                               |
| 9S621K    | 620(558-682)               | 395                                        | 510        | 1020                                 |           |                                                 |                                           |                          | 160                               |
| 9S681K    | 680(612-748)               | 420                                        | 560        | 1120                                 |           |                                                 |                                           |                          | 150                               |

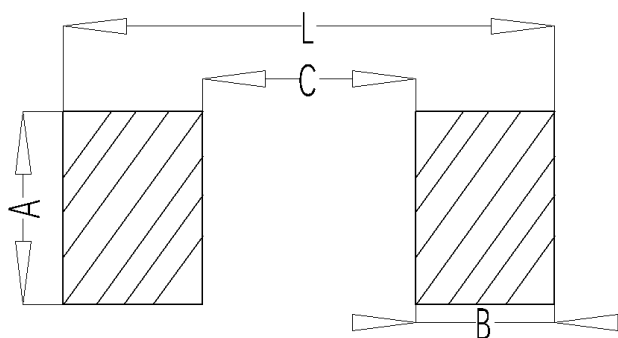


## 八、Outline dimensions (unit: mm)



| Size     | Varistor voltage range (V) | L            | W           | H           |
|----------|----------------------------|--------------|-------------|-------------|
| 9S(4032) | $V_{1mA}=201—681$          | $11.0\pm0.5$ | $8.2\pm0.5$ | $4.8\pm0.5$ |

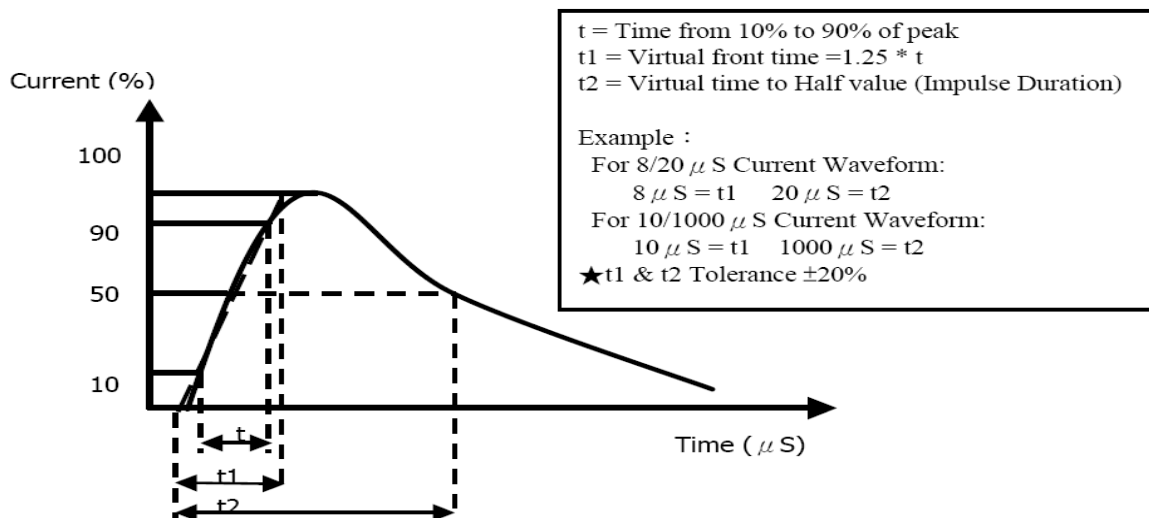
#### 九. Pad size (unit: mm)



(单位 mm)

| Size     | A   | B   | C   | L    |
|----------|-----|-----|-----|------|
| 9S(4032) | 3.5 | 2.8 | 6.5 | 12.1 |

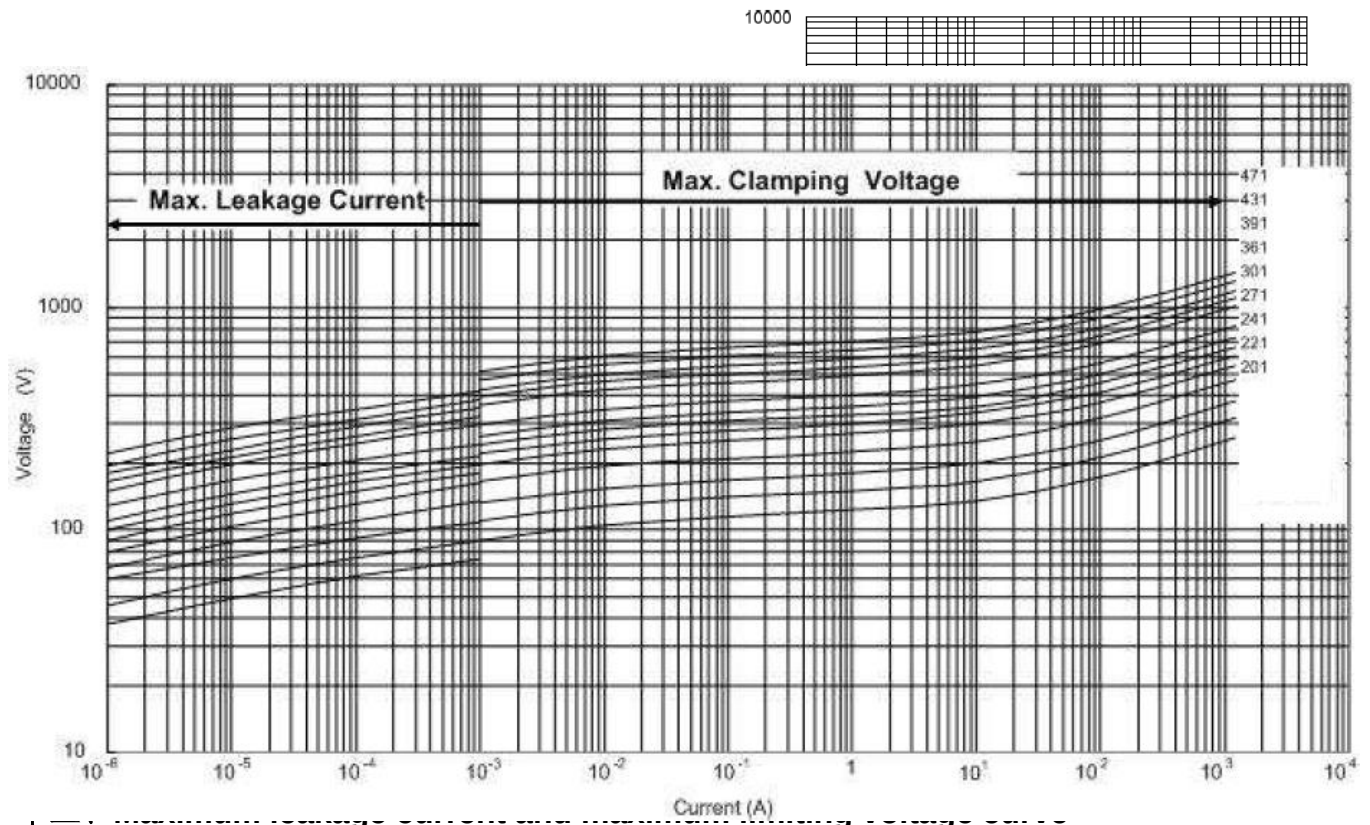
#### 十、Standard waveform of impulse current



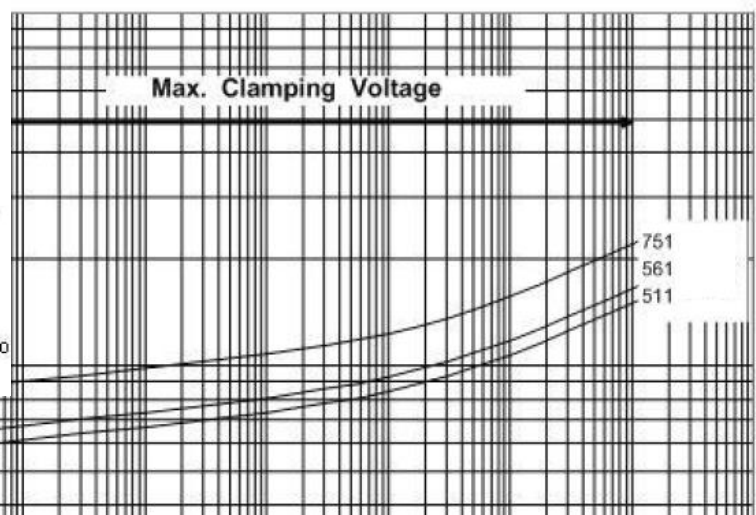
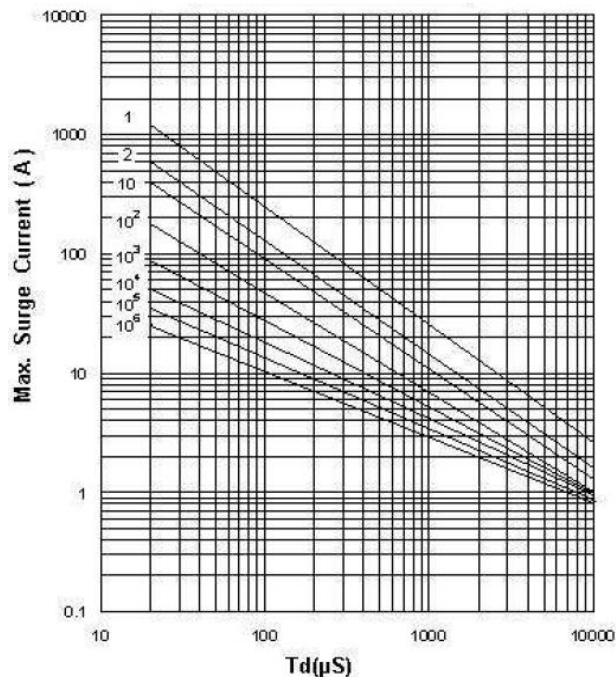
#### 十一、Maximum impulse current derating curve

9S201K – 9S471K

9S511K – 9S681K

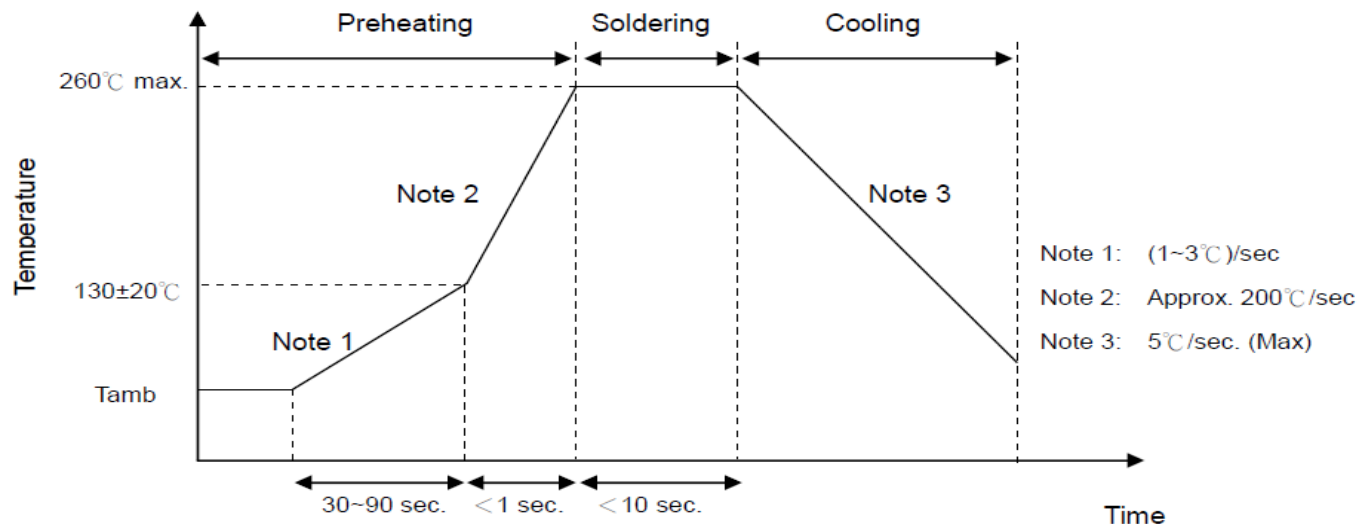


9S201K – 9S471K

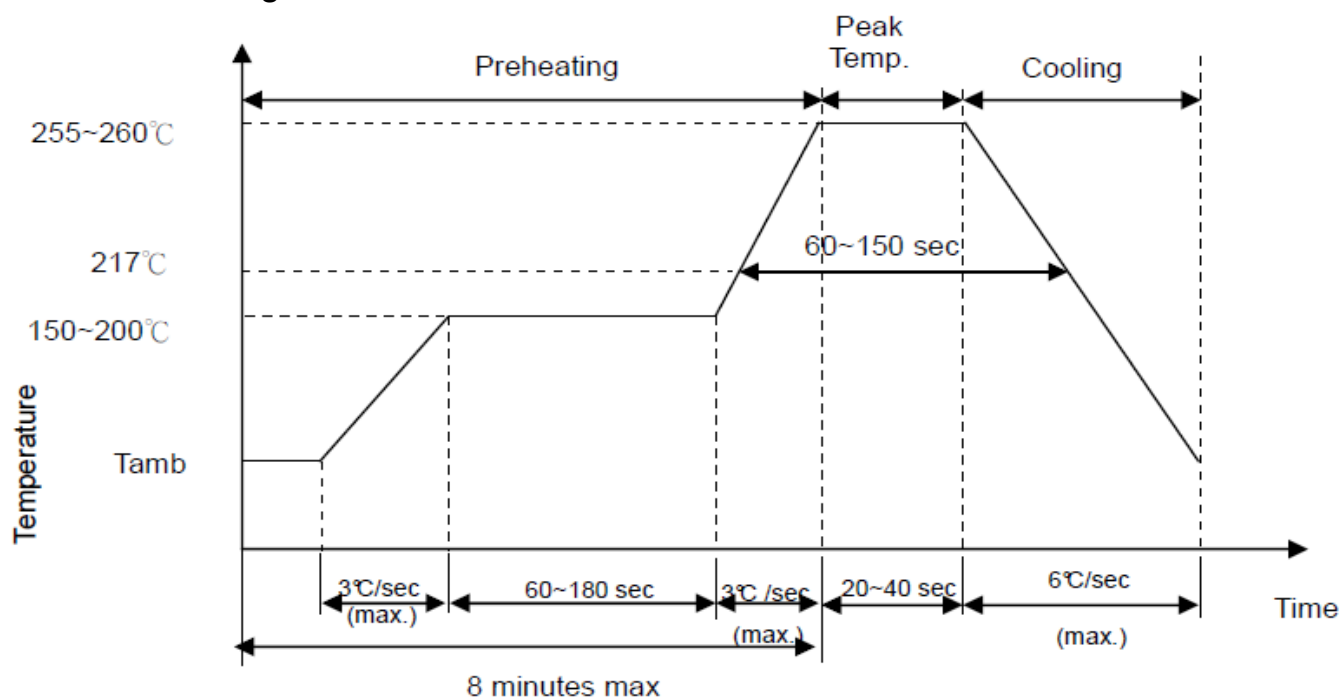


### 十三、Recommended welding conditions

#### ●Wave soldering curve



#### ● Reflow soldering curve



#### ●Welding conditions for soldering iron rework

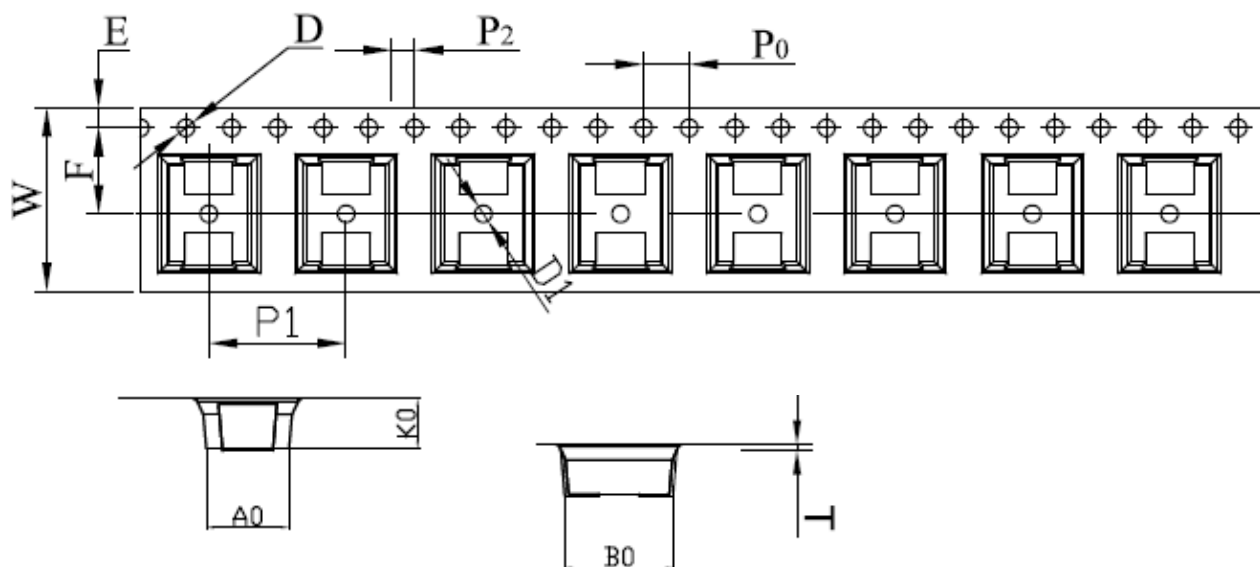
| Item                              | Temperature                       |
|-----------------------------------|-----------------------------------|
| Tip temperature of soldering iron | $360^{\circ}\text{C}(\text{max})$ |
| Weld time                         | 3s(max)                           |
| Diameter of soldering iron tip    | $\Phi 3\text{mm}(\text{max})$     |

#### 十四、Performance and Testing

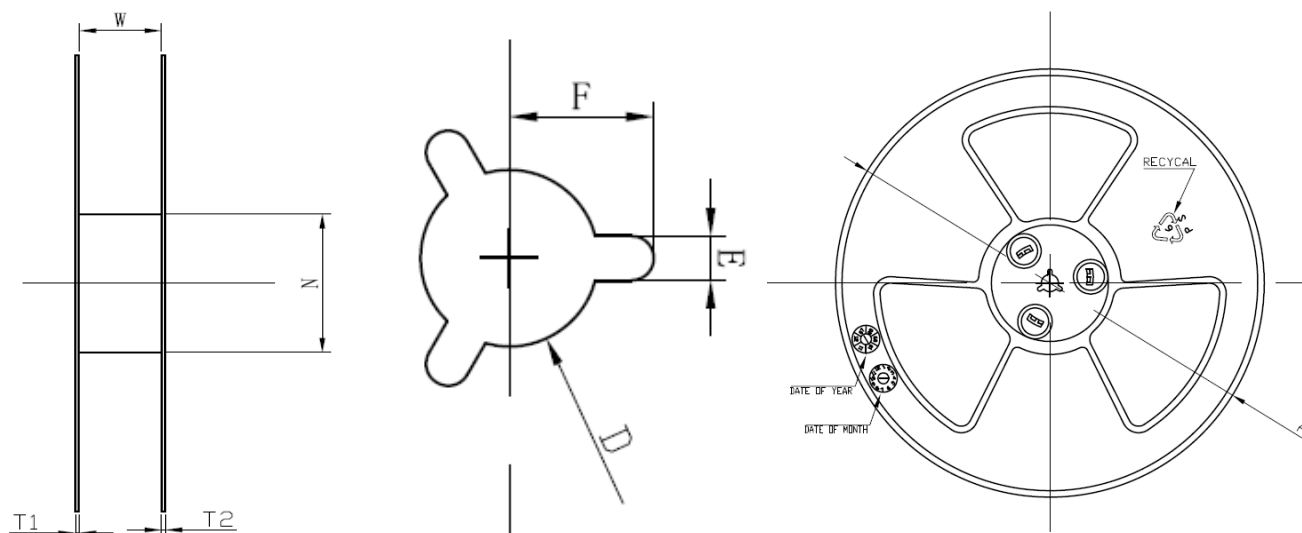
| Test item                                   | Test standard clauses   | Experimental conditions and methods                                                                                                                                                                                                                                                                                                                                     | Testing requirements                                                    |
|---------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Resistance to vibration                     | IEC 20068-2-6           | Place the finished product on a vibrating machine, apply single harmonic vibration (amplitude: 0.75mm) and amplitude of 1.5mm, with a vibration frequency period of 10Hz-55Hz-10Hz. Test for 2 hours in each of the three vertical directions to inspect the appearance of the finished product and measure the pressure-sensitive voltage                              | No visible damage  <br>$\Delta V_{1mA}/V_{1mA} : \pm 5\%$               |
| Solderability                               | IEC 60068-2-20          | Immerse the finished pins in a soldering solution at 235 °C± 5 °C for 2 ± 0.5 seconds and remove                                                                                                                                                                                                                                                                        | Uniform tin plating and surface area≥95%                                |
| Resistance to Soldering Heat                | IEC 60068-2-20          | Immerse the finished pins in a soldering solution at 350 °C± 10 °C for 10 ± 1 seconds and remove                                                                                                                                                                                                                                                                        | $ \Delta V_{1mA}/V_{1mA}  : \pm 5\%$                                    |
| Rapid temperature changes                   | IEC 60068-2-14          | TA=-40 °C, TB=+125 °C, a total of five cycles. Place at each extreme temperature for 30 minutes, with a temperature conversion time of less than 3 minutes. After removal, place at room temperature for 1-2 hours, and then measure the varistor voltage                                                                                                               | $ \Delta V_{1mA}/V_{1mA}  : \pm 5\%$<br>No visible damage<br>Clear logo |
| Damp heat steady state                      | IEC60068-2-78           | Place the finished product in an environment with a temperature of 40 ± 2 °C and a humidity of 93 ± 2% for 500 hours, divide it into two groups, one group does not apply voltage, and the other group applies a maximum continuous DC voltage of 10%. After taking it out, place it at room temperature for 1-2 hours, and then measure the pressure-sensitive voltage | No visible damage                                                       |
| Upper limit category temperature durability | IEC60068-2-2            | Place the finished product in an environment with a temperature of 125 ± 2 °C for 1000 hours, apply the maximum continuous AC voltage, take it out and leave it at room temperature for 1-2 hours, then measure the varistor voltage.                                                                                                                                   | No visible damage                                                       |
| Voltage temperature coefficient             | Specification standards | $\frac{U_{1mA}(125^{\circ}\text{C}) - U_{1mA}(25^{\circ}\text{C})}{U_{1mA}(25^{\circ}\text{C})} \times \frac{1}{100} \times 100(\%)$                                                                                                                                                                                                                                    | -0.05≤Tc≤+0.05<br>(%/°C)                                                |
| Withstanding voltage                        | IEC61051-1              | Wrap the surface of the finished product into a tight coil shape with metal wire, and apply a voltage of AC2500V to the coil head and pin ends for 1 minute.                                                                                                                                                                                                            | No visible damage                                                       |

十五、包装说明(Packing description):

A Taping Packaging (24mm 载带尺寸) 1500PCS/Roller



B Size of rubber disc(15 inch plastic tray size)



| Code | W        | N        | T1      | T2      | A        | D        | E       | F         |
|------|----------|----------|---------|---------|----------|----------|---------|-----------|
| Size | 24.4±0.3 | Φ100±3.0 | 2.2±0.3 | 2.2±0.3 | Φ380±3.0 | 13.3±0.3 | 2.3±0.5 | 10.75±0.5 |