

DataSheet No:E16020

Version:V0

Date:2025/06/27



# PEWM2726

**Precision four-legged Kelvin structure  
pure alloy sense resistor**

|               |                         |
|---------------|-------------------------|
| Resistance    | 0.2mΩ~1.0mΩ             |
| Tolerance     | ±0.5%                   |
| TCR           | ±75ppm/°C<br>±100ppm/°C |
| Rated current | 83A~240A                |

## Applications

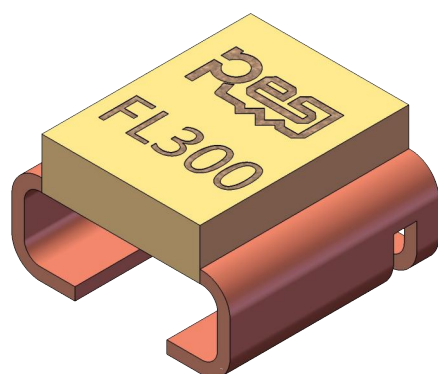
Automotive Electronics  
Precision Power Supply  
Instrumentation  
Formation & Sorting of Battery  
Medical Equipment

**Better Solution for Sustainable  
High End Manufacturing**



## High-precision low-temperature coefficient pure alloy current-sensing resistor

### Trimming Free Technology, high precision, high reliability



### Introduction

High-precision low-temperature coefficient pure alloy current-sensing resistors are manufactured by Kaibu Electronics using precision resistance alloys independently developed by the company, which are processed with precision and then welded by special electron beam welding equipment independently designed and manufactured by Kaibu Electronics. Based on the perfect combination of the control capability of resistance alloy consistency, precision processing capability, and high-efficiency welding level, the product can achieve the target accuracy of up to  $\pm 0.5\%$  without resistance trimming after stamping. In the range of  $-55^{\circ}\text{C}$  to  $+170^{\circ}\text{C}$ , the temperature coefficient of  $0.2\text{m}\Omega$  and  $0.3\text{m}\Omega$  in this series can reach within  $\pm 75\text{ppm}/^{\circ}\text{C}$ , the temperature coefficient of  $0.5\text{m}\Omega$  and  $1.0\text{m}\Omega$  can reach  $\pm 100\text{ppm}/^{\circ}\text{C}$ , and the inductance is less than  $3\text{nH}$ .

The "Trimming Free" technology avoids the rated current loss caused by resistance trimming and the current concentration hotspots caused by resistance trimming notches, which greatly improves the reliability of the product. At the same time, due to the improvement of welding quality, the thermoelectric potential of the product is significantly reduced, and the long-term stability of the product is improved.

The raw materials, core equipment, and core processes of this series of products are all independently controllable, with stable quality and timely delivery. If the standard specifications cannot meet your needs, please contact our sales staff for consultation. RuiSi is committed to providing users with the best precision resistance solutions to meet the needs of customers in instruments, medical equipment, automotive electronics, precision power supplies, cell sorting and formation, testing and measurement equipment, etc.

### Electrical Parameters

| Series   | Resistance          | Rated Power<br>( $+70^{\circ}\text{C}$ ) | Max. Operating<br>Current | Operating<br>Temperature                      | TCR<br>$\text{ppm}/^{\circ}\text{C}$ ( $+20^{\circ}\text{CRef}$ ) | Thermal<br>Resistance <sup>1</sup><br>$^{\circ}\text{C}/\text{W}$ | Tolerance<br>%                      |
|----------|---------------------|------------------------------------------|---------------------------|-----------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------|
| PEWM4026 | $0.2\text{m}\Omega$ | 12W                                      | 240A                      | $-55^{\circ}\text{C}\sim+170^{\circ}\text{C}$ | $\pm 75(-55^{\circ}\text{C}\sim+170^{\circ}\text{C})$             | 4.8                                                               | $\pm 0.5$<br>$\pm 1.0$<br>$\pm 5.0$ |
| PEWM4026 | $0.3\text{m}\Omega$ | 11W                                      | 190A                      | $-55^{\circ}\text{C}\sim+170^{\circ}\text{C}$ | $\pm 75(-55^{\circ}\text{C}\sim+170^{\circ}\text{C})$             | 5.9                                                               | $\pm 0.5$<br>$\pm 1.0$<br>$\pm 5.0$ |
| PEWM4026 | $0.5\text{m}\Omega$ | 9W                                       | 134A                      | $-55^{\circ}\text{C}\sim+170^{\circ}\text{C}$ | $\pm 100(-55^{\circ}\text{C}\sim+170^{\circ}\text{C})$            | 8.5                                                               | $\pm 0.5$<br>$\pm 1.0$<br>$\pm 5.0$ |
| PEWM4026 | $1.0\text{m}\Omega$ | 7W                                       | 83A                       | $-55^{\circ}\text{C}\sim+170^{\circ}\text{C}$ | $\pm 100(-55^{\circ}\text{C}\sim+170^{\circ}\text{C})$            | 12.6                                                              | $\pm 0.5$<br>$\pm 1.0$<br>$\pm 5.0$ |

1. Thermal Resistance (Internal): It represents the internal thermal resistance between the center of the resistance alloy and the copper electrode. Since the heat dissipation power of the product is largely affected by comprehensive factors such as the heat dissipation environment, connecting copper busbars, and PCB design, this parameter is for reference

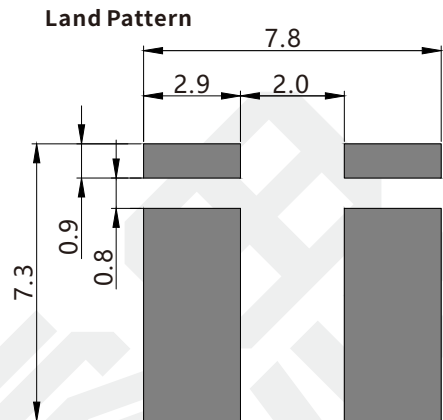
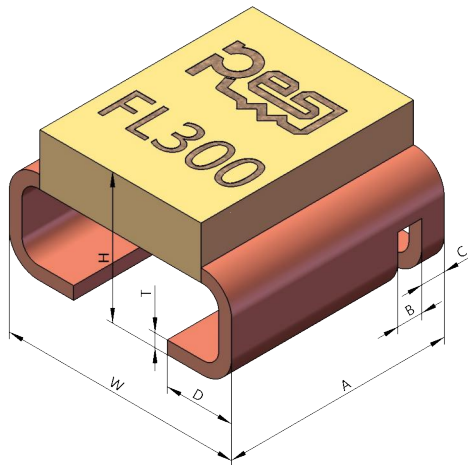
### Applications

PEWM inductance  $< 3\text{nH}$ , PEWM is suitable for AC and DC low and high frequency sampling circuits.

## Dimensions

Unit:mm

### Standard Drawing Dimensions



Not following the recommended land pattern design can seriously affect the temperature coefficient measurement results and current sensing accuracy!

| Resistance | T       | H        | W       | A       | B       | C       | D       | Packaging   | Quantity Per Reel | Net Weight |
|------------|---------|----------|---------|---------|---------|---------|---------|-------------|-------------------|------------|
| 0.2mΩ      | 0.4±0.2 | 3.75±0.5 | 6.9±0.3 | 6.6±0.3 | 1.0±0.3 | 0.7±0.3 | 2.0±0.3 | Tape & Reel | 1200pcs           | 0.54±0.2g  |
| 0.3mΩ      | 0.4±0.2 | 3.33±0.5 | 6.9±0.3 | 6.6±0.3 | 1.0±0.3 | 0.7±0.3 | 2.0±0.3 | Tape & Reel | 1200pcs           | 0.43±0.2g  |
| 0.5mΩ      | 0.4±0.2 | 3.10±0.5 | 6.9±0.3 | 6.6±0.3 | 1.0±0.3 | 0.7±0.3 | 2.0±0.3 | Tape & Reel | 1200pcs           | 0.36±0.1g  |
| 1.0mΩ      | 0.4±0.2 | 2.85±0.5 | 6.9±0.3 | 6.6±0.3 | 1.0±0.3 | 0.7±0.3 | 2.0±0.3 | Tape & Reel | 1200pcs           | 0.29±0.1g  |

## Part Number Information

Example:PEWM2726FL200A9 ( PEWM 4026 ±1.0% 0.2mΩ ±75ppm/°C Standard)

|        |   |      |   |                               |   |                                                      |   |                             |   |            |   |   |   |   |
|--------|---|------|---|-------------------------------|---|------------------------------------------------------|---|-----------------------------|---|------------|---|---|---|---|
| P      | E | W    | M | 2                             | 7 | 2                                                    | 6 | F                           | L | 2          | 0 | 0 | A | 9 |
| Series |   | Size |   | Tolerance                     |   | Resistance                                           |   | TCR                         |   | Code       |   |   |   |   |
| PEWM   |   | 2726 |   | D=±0.5%<br>F=±1.0%<br>J=±5.0% |   | L200=0.2mΩ<br>L300=0.3mΩ<br>L500=0.5mΩ<br>1L00=1.0mΩ |   | A=±75ppm/°C<br>K=±100ppm/°C |   | 9=Standard |   |   |   |   |

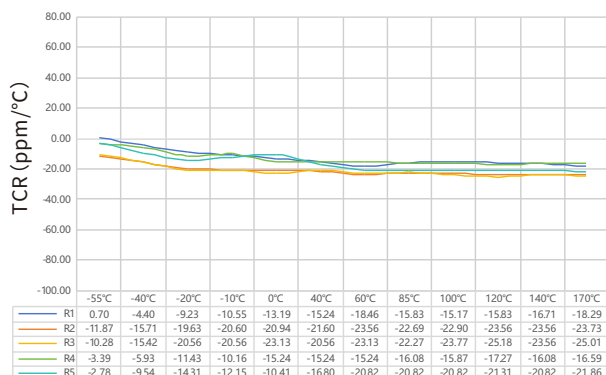
For higher/lower resistance, tighter tolerance, higher power, lower TCR and larger size, please contact us.

### Performance

| Test                      | Test Method                                                                                                               | Standards                                  | Typical                                            | Max.                      |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------|---------------------------|
| High Temperature Storage  | 1000h@+170°C, unpowered                                                                                                   | AEC-Q200 TEST 3<br>MIL-STD-202 Method 108  | $\Delta R \leq \pm 0.5\%$                          | $\Delta R \leq \pm 1.0\%$ |
| Thermal Shock             | -55°C, 15min~ambient<20s~+155°C, 15min, 1000cycles                                                                        | AEC-Q200 TEST 16<br>MIL-STD-202 Method 107 | $\Delta R \leq \pm 0.5\%$                          | $\Delta R \leq \pm 1.0\%$ |
| Bias Humidity             | +85°C, 85%RH, powered 10% rated power for 1000h                                                                           | AEC-Q200 TEST 7<br>MIL-STD-202 Method 103  | $\Delta R \leq \pm 0.2\%$                          | $\Delta R \leq \pm 0.5\%$ |
| Load Life                 | 2000 h @ +70°C*, rated power, 90min on, 30min off<br>*70°C is the terminal temperature                                    | AEC-Q200 TEST 8<br>MIL-STD-202 Method 108  | $\Delta R \leq \pm 0.5\%$                          | $\Delta R \leq \pm 1.0\%$ |
| Resistance to Solvent     | Immerse in solvent for 3 min and wipe 10 times. Three cycles of three solvents. Dry at ambient temperature after cleaning | AEC-Q200 TEST 12<br>MIL-STD-202 Method 215 | Clear marking. No visible damage                   |                           |
| Mechanical Shock          | Sine half-sine wave, peak acceleration 100g's, pulse duration 6ms, triaxial six-directional 3 times each                  | AEC-Q200 TEST 13<br>MIL-STD-202 Method 213 | $\Delta R \leq \pm 0.05\%$                         | $\Delta R \leq \pm 0.2\%$ |
| Vibration                 | 10-2KHz, 5g's, 20 min per cycle, 12 in each of the three directions of X.Y.Z loops                                        | AEC-Q200 TEST 14<br>MIL-STD-202 Method 204 | $\Delta R \leq \pm 0.05\%$                         | $\Delta R \leq \pm 0.2\%$ |
| Resistance to Solder Heat | +260°C, 10s                                                                                                               | AEC-Q200 TEST 15<br>MIL-STD-202 Method 210 | $\Delta R \leq \pm 0.2\%$                          | $\Delta R \leq \pm 0.5\%$ |
| Solderability             | +245°C tin bath for 3s                                                                                                    | AEC-Q200 TEST 18<br>IEC 60115-1 4.17       | No visible damage.<br>95% minimum coverage         |                           |
| TCR                       | +20°C and +170°C, +20°C Ref.                                                                                              | AEC-Q200 TEST 19<br>IEC 60115-1 4.8        | In the range of $\pm 100\text{ppm}/^\circ\text{C}$ |                           |
| Substrate Bending         | 2mm, 60s                                                                                                                  | AEC-Q200 TEST 21<br>AEC-Q200-005           | $\Delta R \leq \pm 0.1\%$                          | $\Delta R \leq \pm 0.5\%$ |
| Short Time Overload       | 5x rated voltage, 5s                                                                                                      | IEC 60115-1 4.13                           | $\Delta R \leq \pm 0.5\%$                          | $\Delta R \leq \pm 1.0\%$ |
| Low Temperature Storage   | -55°C, No Load, 96 h                                                                                                      | IEC 60068-2-1                              | $\Delta R = 0$                                     | $\Delta R \leq \pm 0.1\%$ |
| Moisture Resistance       | Apply T = 24 hours/cycle, zero power, 7a and 7b are not required in the method                                            | MIL-STD-202 Method 106                     | $\Delta R = 0$                                     | $\Delta R \leq \pm 0.2\%$ |

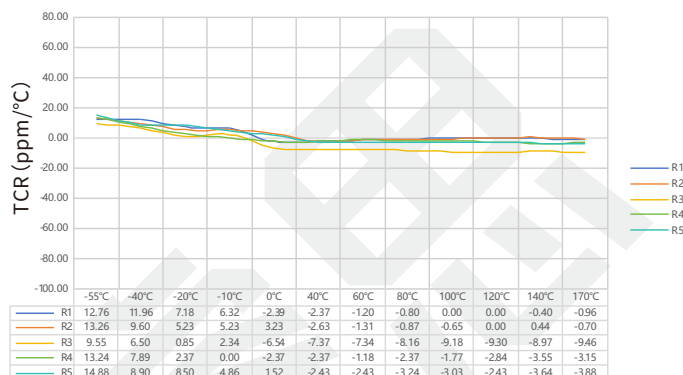
## Temperature Coefficient of Resistance Test Curve

TCR Test Curve -PEWM2726 0.2mΩ



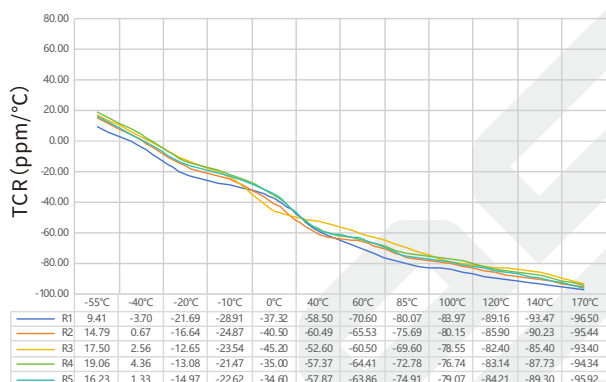
Temperature (°C)

TCR Test Curve -PEWM2726 0.3mΩ



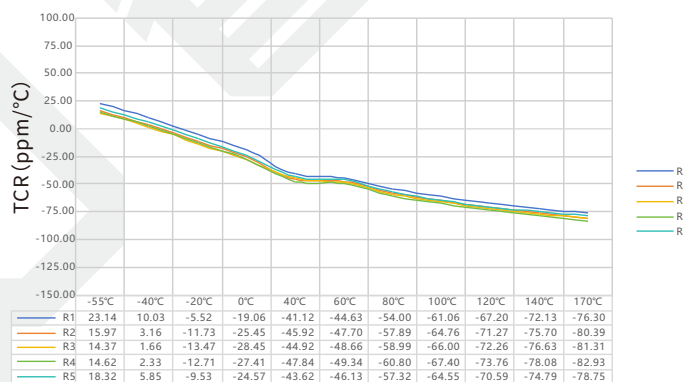
Temperature (°C)

TCR Test Curve -PEWM2726 0.5mΩ



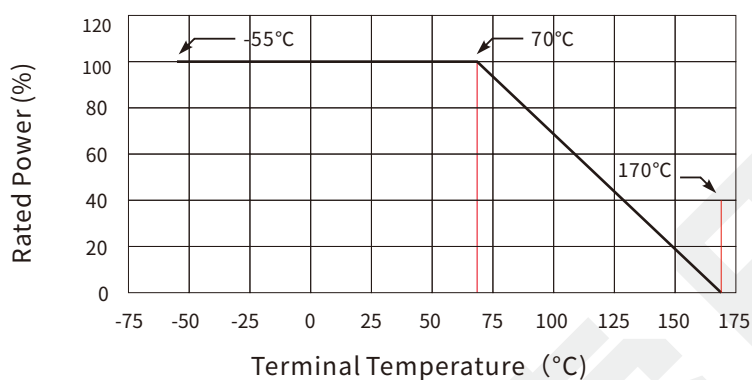
Temperature (°C)

TCR Test Curve -PEWM2726 1.0mΩ



Temperature (°C)

## Derating Curve



## Reflow Soldering Profile

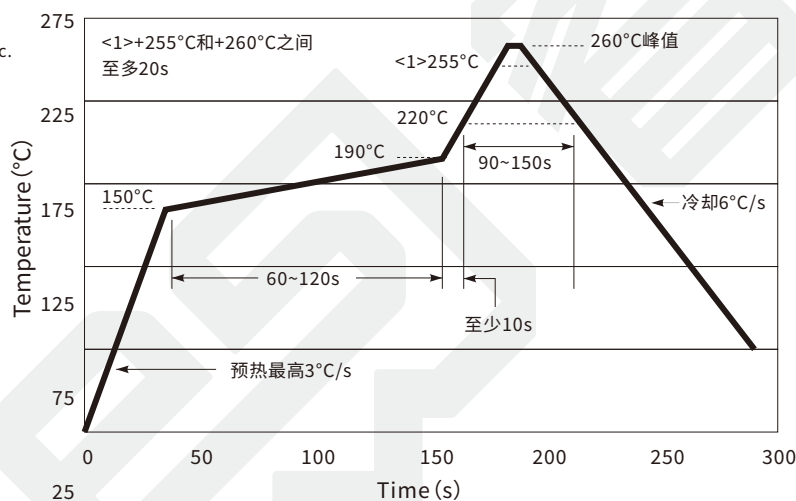
Resistor Surface Temperature:

Pre-Heat: +150°C~+190°C, 60~120sec.

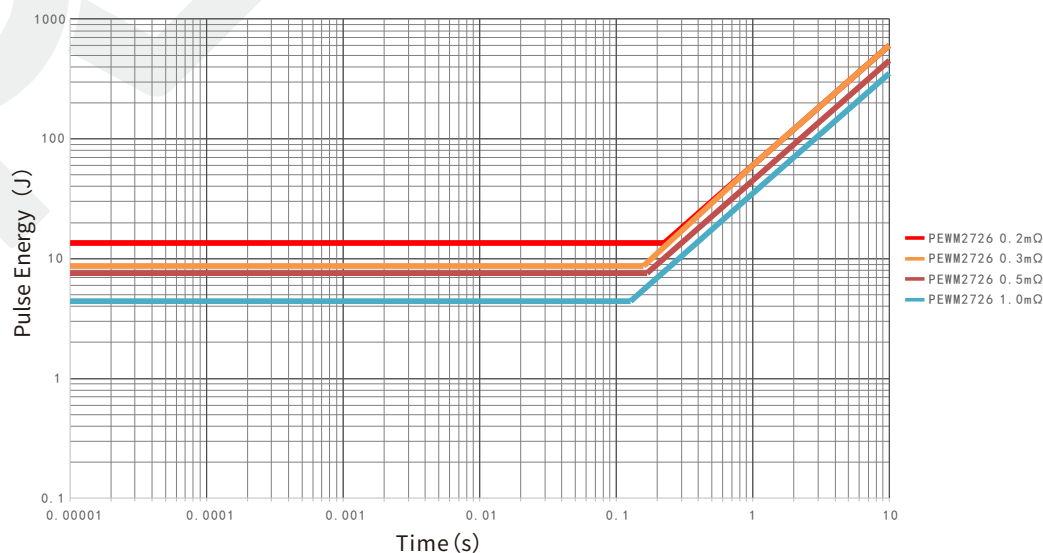
Reflow: +220°C以上, 90~150sec.

Applicable Solder Composition:

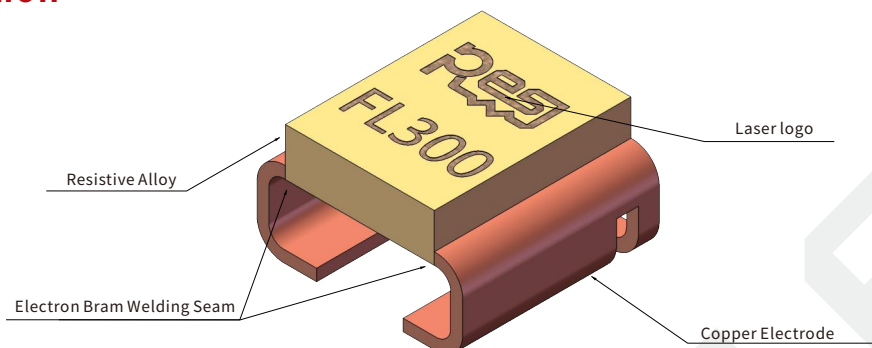
Sn-Ag-Cu solder.



## Maximum Pulse Energy Curve



## Construction



## Printing Marking Instructions

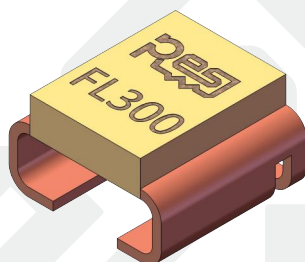
The printing marking on the product surface consists of: brand LOGO + product accuracy marking + resistance value marking.

### Size

### Illustration

### Demonstration

2726



RESI: Brand Logo  
F: Tolerance  
L300: Resistance

## Storage Instructions

- (1) Resistors should be stored at a temperature of 5 to 35°C, with a humidity of <60% RH. The humidity should be kept as low as possible.
- (2) Resistors should be protected from direct sunlight.
- (3) Resistors should be stored in a clean and dry environment free of harmful gases (HCl, Sulfuric acid, H<sub>2</sub>S, etc.).
- (4) Do not move the resistor from the packaging unless use it.
- (5) Under the above storage conditions, the resistor can be stored for at least 1 year.

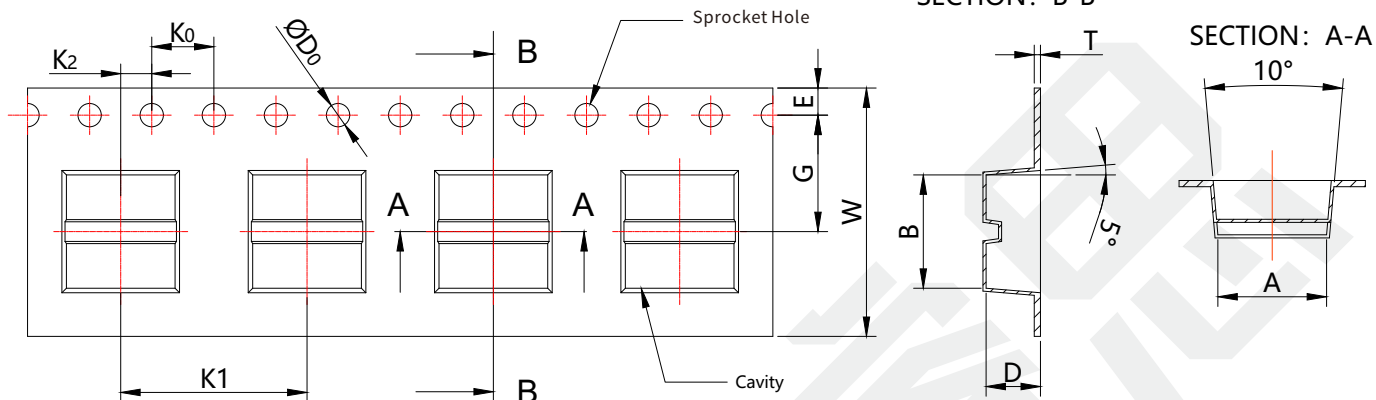
## Usage Suggestions

- (1) Please protect the surface of the resistor during use. Prevent defects such as scratches, bumps, and oil stains on the surface.
- (2) Do not use sharp tweezers to move the resistor. Scratches on the surface can cause resistance drift and resistor failure.
- (3) When installing and using resistors, avoid the impact of mechanical stress on the resistor.
- (4) The long-term operating power of resistors should be  $\leq$  rated power to avoid resistance drift caused by long-term overload.
- (5) Please refer to the derating curve when operating under high temperature conditions or poor heat dissipation environment.
- (6) If the operating conditions exceed the pulse specified in the pulse curve, a systematic evaluation is required.
- (7) If the resistor is not used after being moved from the packaging, it should be stored under vacuum to avoid risks such as poor welding caused by oxidation of the resistor.

## Packaging

Unit:mm

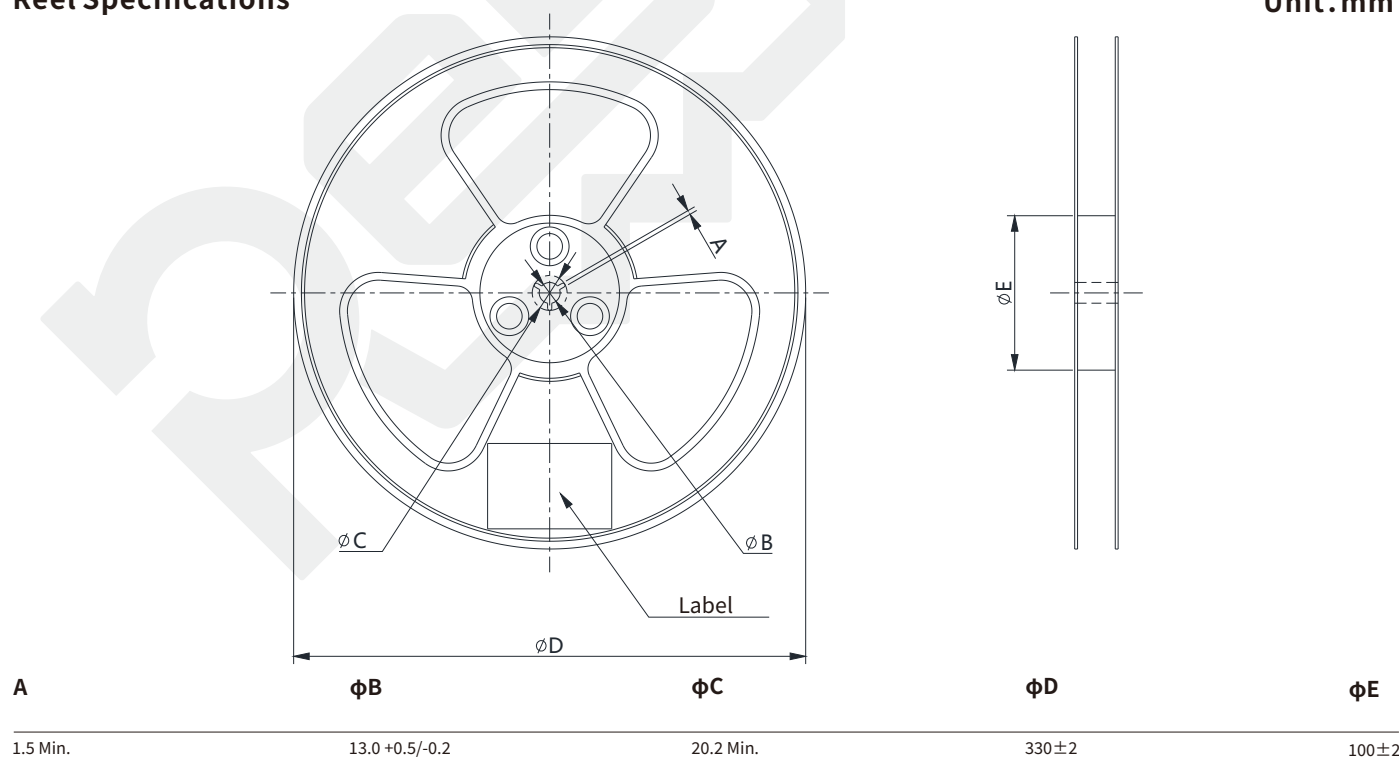
### Tape Specifications



| Resistance    | A             | B             | $\phi D_0$    | K0            | K1             | K2            | E              | G             | W              | D             | T              |
|---------------|---------------|---------------|---------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|
| 0.2m $\Omega$ | 7.0 $\pm$ 0.1 | 7.3 $\pm$ 0.1 | 1.5 $\pm$ 0.1 | 4.0 $\pm$ 0.1 | 12.0 $\pm$ 0.1 | 2.0 $\pm$ 0.1 | 1.75 $\pm$ 0.1 | 7.5 $\pm$ 0.1 | 16.0 $\pm$ 0.3 | 4.2 $\pm$ 0.1 | 0.4 $\pm$ 0.05 |
| 0.3m $\Omega$ | 7.0 $\pm$ 0.1 | 7.3 $\pm$ 0.1 | 1.5 $\pm$ 0.1 | 4.0 $\pm$ 0.1 | 12.0 $\pm$ 0.1 | 2.0 $\pm$ 0.1 | 1.75 $\pm$ 0.1 | 7.5 $\pm$ 0.1 | 16.0 $\pm$ 0.3 | 4.2 $\pm$ 0.1 | 0.4 $\pm$ 0.05 |
| 0.5m $\Omega$ | 7.0 $\pm$ 0.1 | 7.3 $\pm$ 0.1 | 1.5 $\pm$ 0.1 | 4.0 $\pm$ 0.1 | 12.0 $\pm$ 0.1 | 2.0 $\pm$ 0.1 | 1.75 $\pm$ 0.1 | 7.5 $\pm$ 0.1 | 16.0 $\pm$ 0.3 | 3.5 $\pm$ 0.1 | 0.4 $\pm$ 0.05 |
| 1.0m $\Omega$ | 7.0 $\pm$ 0.1 | 7.3 $\pm$ 0.1 | 1.5 $\pm$ 0.1 | 4.0 $\pm$ 0.1 | 12.0 $\pm$ 0.1 | 2.0 $\pm$ 0.1 | 1.75 $\pm$ 0.1 | 7.5 $\pm$ 0.1 | 16.0 $\pm$ 0.3 | 3.5 $\pm$ 0.1 | 0.4 $\pm$ 0.05 |

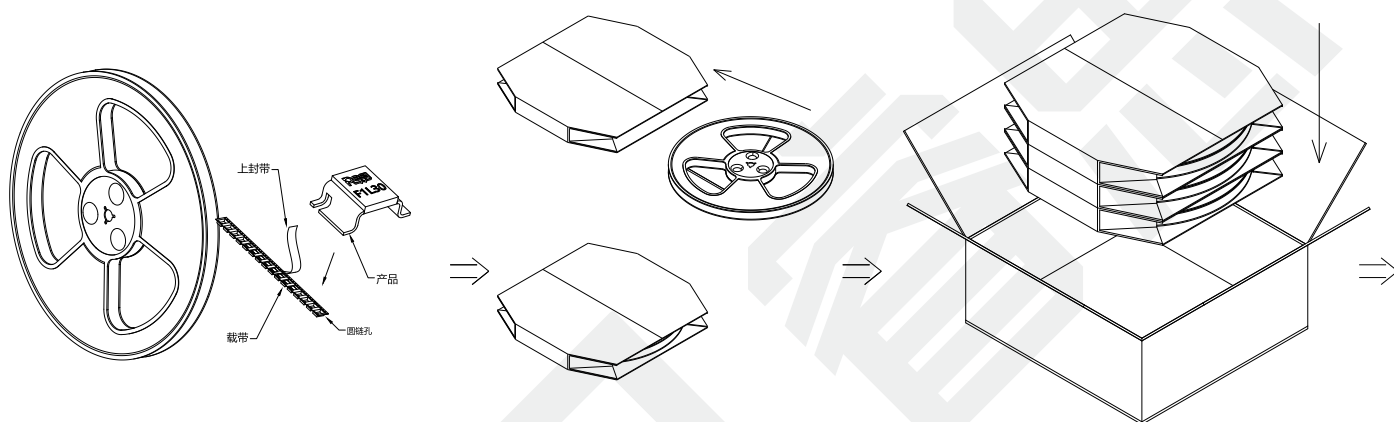
### Reel Specifications

Unit:mm



## Packaging

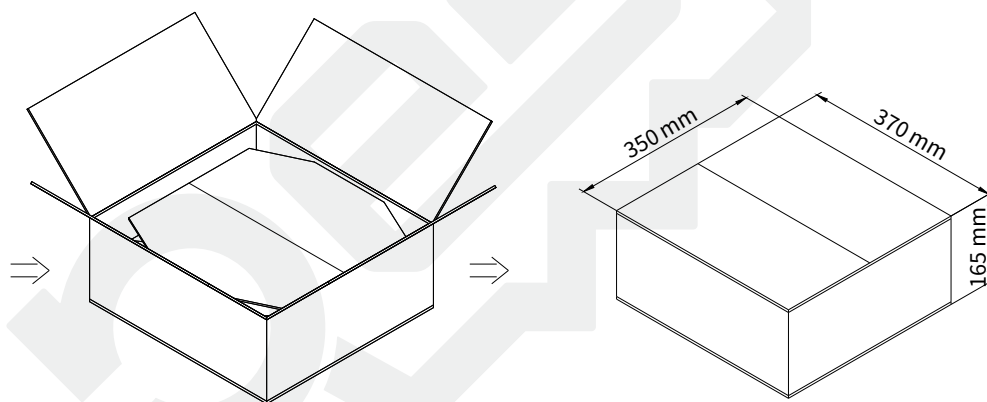
- (1) Every 1,200 resistor products are taped into one plastic tray.
- (2) Each plastic tray is fixed with a paper clamp, and the size of the paper clamp is approximately 335mm×340mm×37mm.
- (3) Every three paper clamps are placed into an outer carton, meaning the standard packaging per carton is 3,600 pcs.
- (4) The size of the standard outer carton is approximately 350mm×370mm×165mm.



1. Tape every 1,200 resistor products into one plastic tray.

2. Fix each plastic tray with a paper clamp, and the size of the paper clamp is approximately 335mm\*340mm\*37mm.

3. Place every three paper clamps into an outer carton for packaging, meaning the standard packaging per carton is 3,600 pcs.



4. It is required to fill with bubble film or pearl cotton before and after placing the paper clamps to prevent the products from shaking inside the carton.

5. The size of the standard outer carton is approximately 350mm×370mm×165mm.

## Popular Part Numbers

| Part Number     | Size | Tolerance | Resistance | TCR        | Power | Max.<br>Operating Current |
|-----------------|------|-----------|------------|------------|-------|---------------------------|
| PEWM2726DL200A9 | 2726 | ±0.5%     | 0.2mΩ      | ±75ppm/°C  | 12W   | 240A                      |
| PEWM2726FL200A9 | 2726 | ±1.0%     | 0.2mΩ      | ±75ppm/°C  | 12W   | 240A                      |
| PEWM2726JL200A9 | 2726 | ±5.0%     | 0.2mΩ      | ±75ppm/°C  | 12W   | 240A                      |
| PEWM2726DL300A9 | 2726 | ±0.5%     | 0.3mΩ      | ±75ppm/°C  | 11W   | 190A                      |
| PEWM2726FL300A9 | 2726 | ±1.0%     | 0.3mΩ      | ±75ppm/°C  | 11W   | 190A                      |
| PEWM2726JL300A9 | 2726 | ±5.0%     | 0.3mΩ      | ±75ppm/°C  | 11W   | 190A                      |
| PEWM2726DL500K9 | 2726 | ±0.5%     | 0.5mΩ      | ±100ppm/°C | 9W    | 134A                      |
| PEWM2726FL500K9 | 2726 | ±1.0%     | 0.5mΩ      | ±100ppm/°C | 9W    | 134A                      |
| PEWM2726JL500K9 | 2726 | ±5.0%     | 0.5mΩ      | ±100ppm/°C | 9W    | 134A                      |
| PEWM2726D1L00K9 | 2726 | ±0.5%     | 1.0mΩ      | ±100ppm/°C | 7W    | 83A                       |
| PEWM2726F1L00K9 | 2726 | ±1.0%     | 1.0mΩ      | ±100ppm/°C | 7W    | 83A                       |
| PEWM2726J1L00K9 | 2726 | ±5.0%     | 1.0mΩ      | ±100ppm/°C | 7W    | 83A                       |

## Revision

| Version | Revised Content | Date       | Approver |
|---------|-----------------|------------|----------|
| V0      | Initial Issue   | 2025.06.27 | LWW      |

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