

◆ **特点 Features**

**1W**

**The highest power is up to 1W**

**50PPM/**

**The lowest TCR is 50 PPM/ .**

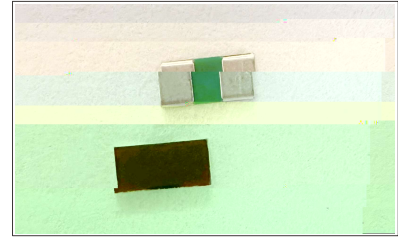
**0603**

**The small size to 0603**

**Suitable to current detecting resistors, such as power supply etc.**

**Compliant with RoHS directive**

**Halogen free requirement**



◆ **应用领域 Application**

**Switching Power Supply Over Current Protection Voltage Regulation Module (VRM) DC-DC Converter Charger Portable Devices etc.**

◆ **型号表示方法 Part Number**

|   |      |      |      |      |     |   |
|---|------|------|------|------|-----|---|
|   |      |      |      |      |     |   |
|   |      |      |      | Type |     |   |
| F | 1/4W |      |      | H    |     | Units: Decimal point should be expressed by R<br>Units in Decimal point should be expressed by M<br><br>Example<br>R001= 0.001<br>1M50= 1.5m<br>R010= 0.010 |
|   |      | 05   | 0805 | K    |     |   |
|   |      | 06   | 1206 | J    | 150 |   |
| J | 1W   | 0612 | 0612 | W    | 200 |   |

结构

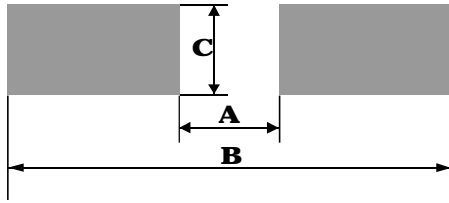
## Derating Curve

**◆特性 Characteristics**

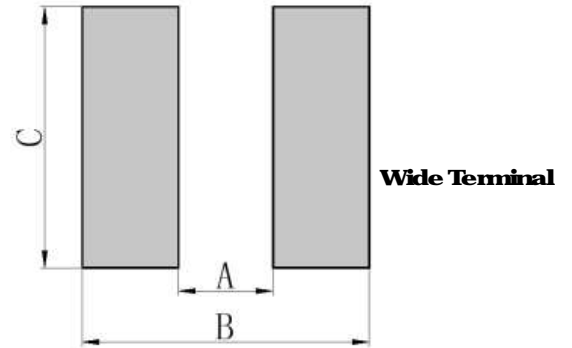
| Item   | Specifications                  | (IEC60115-1)<br>Test Methods (IEC60115-1)   |
|--|---------------------------------|---|
| <b>Solderability</b>                           | 95%<br>95% Cover Min            | IEC 60115-1 4.17<br>245 5 3s 0.3s<br>Lead-free solder bath at 245 5 for 3s 0.3s.  |
| <b>Resistance to Soldering Heat</b>            | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.18<br>270 5 10s 1s<br>Lead-free solder bath at 270 5 for 10s 1s.  |
| <b>Substrate Bending Test</b>                  | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.33<br>(Bending distance)<br>0603 0805 1206 0612 3mm<br>(Duration) 60s 5s.   |
| <b>TC.R</b>                                    | Within specified TC.R           | IEC 60115-1 4.8<br>+25 /+125 /+25   |
| <b>Rapid Change of Temperature</b>             | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.19<br>-55 (30min) normal temperature (1min) 155 (30min)<br>1000 cycles.   |
| <b>Short Time Overload</b>                     | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.13<br>5 rated power for 5s  |
| <b>Damp Heat Steady State</b>                  | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.24<br>40 2 93% 3%RH 1000<br>40 2 93% 3%RH 1000h rated current or limiting element current whichever is lower for 1.5h ON/0.5h OFF                                       |
| <b>70 Endurance at 70</b>                      | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.25.1<br>70 2 1000<br>70 2 1000h rated current or limiting element current whichever is lower for 1.5h ON/0.5h OFF   |
| <b>Endurance at Upper Category Temperature</b> | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.25.3<br>155 2 1000<br>155 2 ,1000h  |
| <b>Insulation Resistance Resistance</b>        | 1000M                           | IEC 60115-1 4.6<br>Apply DC 100V 15V between substrate and terminations for 1min, then check insulation resistance.   |
| <b>Voltage Proof</b>                           | No breakdown or flashover       | IEC 60115-1.4.7<br>0603:150V 0805:300V 1206 0612:400V 60s 5s<br>Apply max overload voltage of AC RMS at a rate of approximately 100V/s between substrate and terminations for 60s 5s. |
| <b>Component Solvent Resistance</b>            | No mechanical damage<br>R 1.0%R | IEC 60115-1 4.29<br>Iso-propyl alcohol(IPA), 23 5 ,10h  |

包装 Pa

◆ 推荐焊盘尺寸 Recommend Solder Pad Size



General



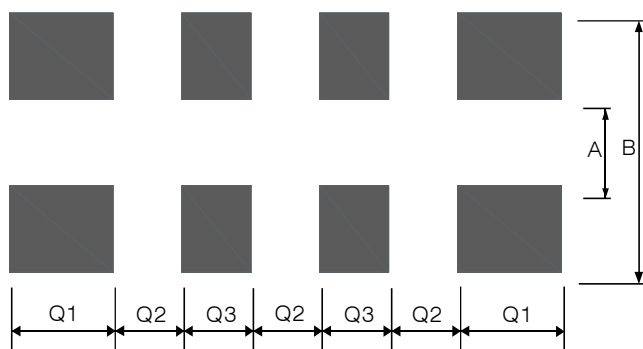
unit: mm

| Current Sensor/Metal Resistor (MI Series) |                       |      |     |     |
|---|-----------------------|------|-----|-----|
| Type                                      | Resistance Value Code | A    | B   | C   |
| 0603                                      | R002                  | 0.75 | 2.8 | 1.0 |
| 0805                                      | 1M50-R002             | 0.50 | 3.2 | 1.4 |
|   | R003-R005             | 0.80 |     |     |
| 1206                                      | R002-R004             | 0.80 | 4.4 | 1.8 |
|   | R005                  | 1.80 |     |     |
| 0612                                      | 0M50-R002             | 0.50 | 2.2 | 3.5 |

◆ 包装 Packaging

Packaging can refer to the Appendix

推荐焊盘尺寸表



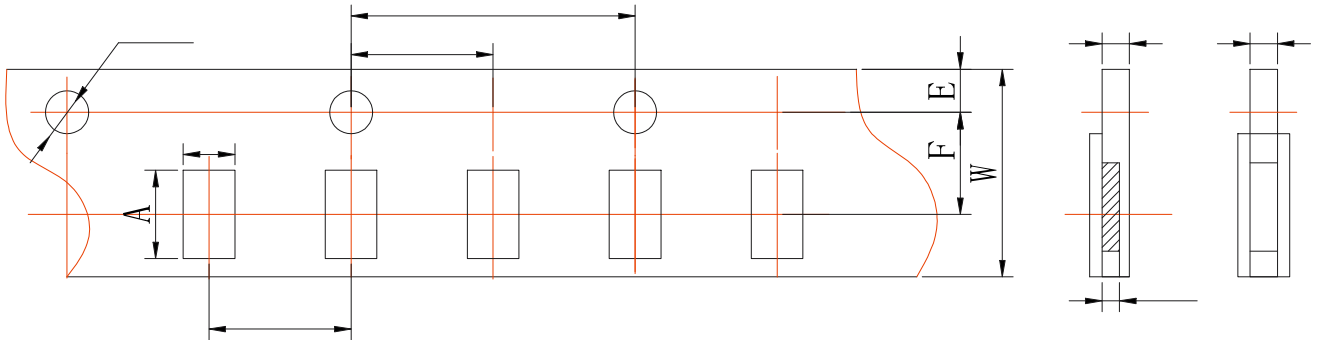
unit: mm

|      | A | B |  |  |  |
|------|---|---|--|--|--|
| 2R01 |   |   |  |  |  |
| 2R02 |   |   |  |  |  |
|      |   |   |  |  |  |

## ◆ 包装 Packaging

### ● Paper Taping

01005 0201 0402 2R01 4R01 2R02 4R02  
For 01005 0201 0402 2R01 4R01 2R02 4R02



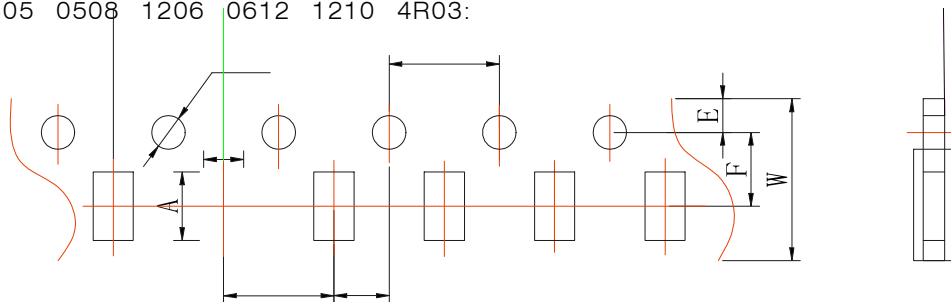
unit: mm

| Type  | A         | B         | W         | F         | E         |
|-------|-----------|-----------|-----------|-----------|-----------|
| 01005 | 0.45 0.02 | 0.25 0.02 | 8.00 0.02 | 3.50 0.05 | 1.75 0.05 |
| 0201  | 0.70 0.10 | 0.40 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 0402  | 1.15 0.10 | 0.65 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 2R01  | 0.97 0.05 | 0.77 0.05 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 4R01  | 1.57 0.05 | 0.77 0.05 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 2R02  | 1.45 0.10 | 1.20 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 4R02  | 2.20 0.10 | 1.20 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |

unit: mm

| Type  | P         | P0        | P1        | D0        | T1        | T         |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|
| 01005 | 2.00 0.05 | 4.00 0.10 | 2.00 0.05 | 1.55 0.02 | 0.17 0.02 | 0.31 0.02 |
| 0201  | 2.00 0.05 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.28 0.04 | 0.42 0.05 |
| 0402  | 2.00 0.05 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | /         | 0.44 0.05 |
| 2R01  | 2.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | /         | 0.60 0.10 |
| 4R01  | 2.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | /         | 0.60 0.10 |
| 2R02  | 2.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | /         | 0.60 0.10 |
| 4R02  | 2.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | /         | 0.60 0.10 |

0603 0805 0508 1206 0612 1210 4R03:  
For 0603 0805 0508 1206 0612 1210 4R03:





unit: mm

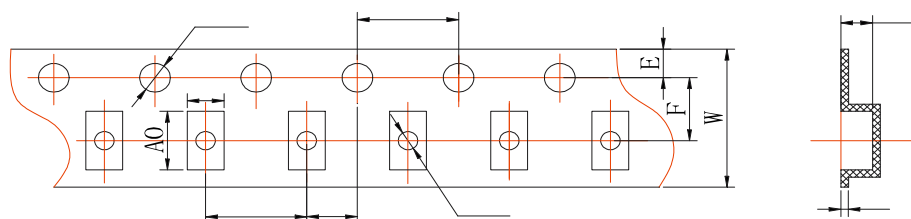
| Type | A         | B         | W         | F         | E         |
|------|-----------|-----------|-----------|-----------|-----------|
| 0603 | 1.80 0.10 | 1.05 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 0805 | 2.30 0.10 | 1.50 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 0508 | 2.30 0.10 | 1.50 0.10 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 1206 | 3.50 0.20 | 1.90 0.20 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 0612 | 3.50 0.20 | 1.90 0.20 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 1210 | 3.50 0.20 | 2.80 0.20 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |
| 4R03 | 3.50 0.20 | 1.90 0.20 | 8.00 0.20 | 3.50 0.05 | 1.75 0.10 |

unit: mm

| Type | P         | P0        | P1        | D0        | T  |                     |
|------|-----------|-----------|-----------|-----------|--|---------------------|
|      |           |           |           |           | Thick Film Resistor and Thin Film Resistor | Metal Foil Resistor |
| 0603 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.60 0.10                                  | 0.75 0.10           |
| 0805 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  | 0.95 0.10           |
| 0508 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  | 0.95 0.10           |
| 1206 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  | 0.95 0.10           |
| 0612 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  | 0.95 0.10           |
| 1210 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  |                     |
| 4R03 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50 0.10 | 0.75 0.10                                  |                     |

● Embossed Taping

2010 2512 1225  
For 2010 2512 1225



unit: mm

| Type | A0        | B0        | W          | F         | E         | t         |
|------|-----------|-----------|------------|-----------|-----------|-----------|
| 2010 | 5.50±0.15 | 2.82±0.15 | 12.00 0.10 | 5.50 0.10 | 1.75 0.10 | 0.25±0.05 |
| 2512 | 6.78±0.15 | 3.45±0.15 | 12.00 0.10 | 5.50 0.10 | 1.75 0.10 | 0.25±0.05 |
| 1225 | 6.78±0.15 | 3.45±0.15 | 12.00 0.10 | 5.50 0.10 | 1.75 0.10 | 0.25±0.05 |

unit: mm

| Type | P         | P0        | P1        | D0           | D1        | K0   |                     |
|------|-----------|-----------|-----------|--------------|-----------|--|---------------------|
|      |           |           |           |              |           | Thick Film Resistor and Thin Film Resistor | Metal Foil Resistor |
| 2010 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50+0.10/-0 | 1.50 0.10 | 0.84 0.10                                  | 0.84 0.10           |
| 2512 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50+0.10/-0 | 1.50 0.10 | 0.81 0.10                                  | 1.00 0.10           |
| 1225 | 4.00 0.10 | 4.00 0.10 | 2.00 0.05 | 1.50+0.10/-0 | 1.50 0.10 | 0.81 0.10                                  | 1.00 0.10           |



● Packaging Quantity

| Packaging style | 7<br>7inch dia.Reel |                                |   | 13<br>13inch dia.Reel |                   |  |
|-----------------|---------------------|--------------------------------|---|-----------------------|-------------------|--|
| Type            | 01005               | 0402 2R01<br>2R02 4R01<br>4R02 | 0603 0805<br>1206 1210<br>4R03 0508<br>0612 | 0201 0402             | 0603 0805<br>1206 |  |
| Quantity(pcs)   | 20000               |                                |   | 8 □ □ □               | 42R □ □ □         |  |

**IEC E-24、E-96系列电阻值代码对照表**  
**IEC E-24、E-96 Series Resistance Cross-reference List**

- E-24 E-24 series(  $10^n$  )  
 ( unit 0.001 0.01 0.1 1 10 100 1k 10k 100k 1M 10M 100M 1000M )

Table One:

|     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|
| 1.0 | 1.5 | 2.2 | 3.3 | 4.7 | 6.8 |
| 1.1 | 1.6 | 2.4 | 3.6 | 5.1 | 7.5 |
| 1.2 | 1.8 | 2.7 | 3.9 | 5.6 | 8.2 |
| 1.3 | 2.0 | 3.0 | 4.3 | 6.2 | 9.1 |

- E-96 E-96 series (  $10^n$  )  
 ( unit 0.001 0.01 0.1 1 10 100 1k 10k 100k 1M 10M 100M 1000M )

Table Two:

|      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|
| 1.00 | 1.33 | 1.78 | 2.37 | 3.16 | 4.22 | 5.62 | 7.50 |
| 1.02 | 1.37 | 1.82 | 2.43 | 3.24 | 4.32 | 5.76 | 7.68 |
| 1.05 | 1.40 | 1.87 | 2.49 | 3.32 | 4.42 | 5.90 | 7.87 |
| 1.07 | 1.43 | 1.91 | 2.55 | 3.40 | 4.53 | 6.04 | 8.06 |
| 1.10 | 1.47 | 1.96 | 2.61 | 3.48 | 4.64 | 6.19 | 8.25 |
| 1.13 | 1.50 | 2.00 | 2.67 | 3.57 | 4.75 | 6.34 | 8.45 |
| 1.15 | 1.54 | 2.05 | 2.74 | 3.65 | 4.87 | 6.49 | 8.66 |
| 1.18 | 1.58 | 2.10 | 2.80 | 3.74 | 4.99 | 6.65 | 8.87 |
| 1.21 | 1.62 | 2.15 | 2.87 | 3.83 | 5.11 | 6.81 | 9.09 |
| 1.24 | 1.65 | 2.21 | 2.94 | 3.92 | 5.23 | 6.98 | 9.31 |
| 1.27 | 1.69 | 2.26 | 3.01 | 4.02 | 5.36 | 7.15 | 9.53 |
| 1.30 | 1.74 | 2.32 | 3.09 | 4.12 | 5.49 | 7.32 | 9.76 |

● E 96 0603

E-96 series(0603) multiplied Cross-reference List and Resistance Cross-reference List

Table Three:

|            |        |        |        |        |        |        |        |        |           |           |           |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|
| multiplied | $10^0$ | $10^1$ | $10^2$ | $10^3$ | $10^4$ | $10^5$ | $10^6$ | $10^7$ | $10^{-1}$ | $10^{-2}$ | $10^{-3}$ |
| code       | A      | B      | C      | D      | E      | F      | G      | H      | X         | Y         | Z         |

Table Four:

| Code | E-96<br>E-96 resistance | Code | E-96<br>E-96 resistance | Code | E-96<br>E-96 resistance | Code | E-96<br>E-96 resistance |
|------|-------------------------|------|-------------------------|------|-------------------------|------|-------------------------|
| 01   | 100                     | 25   | 178                     | 49   | 316                     | 73   | 562                     |
| 02   | 102                     | 26   | 182                     | 50   | 324                     | 74   | 576                     |
| 03   | 105                     | 27   | 187                     | 51   | 332                     | 75   | 590                     |
| 04   | 107                     | 28   | 191                     | 52   | 340                     | 76   | 604                     |
| 05   | 110                     | 29   | 196                     | 53   | 348                     | 77   | 619                     |
| 06   | 113                     | 30   | 200                     | 54   | 357                     | 78   | 634                     |
| 07   | 115                     | 31   | 205                     | 55   | 365                     | 79   | 649                     |
| 08   | 118                     | 32   | 210                     | 56   | 374                     | 80   | 665                     |
| 09   | 121                     | 33   | 215                     | 57   | 383                     | 81   | 681                     |
| 10   | 124                     | 34   | 221                     | 58   | 392                     | 82   | 698                     |
| 11   | 127                     | 35   | 226                     | 59   | 402                     | 83   | 715                     |
| 12   | 130                     | 36   | 232                     | 60   | 412                     | 84   | 732                     |
| 13   | 133                     | 37   | 237                     | 61   | 422                     | 85   | 750                     |
| 14   | 137                     | 38   | 243                     | 62   | 432                     | 86   | 768                     |
| 15   | 140                     | 39   | 249                     | 63   | 442                     | 87   | 787                     |
| 16   | 143                     | 40   | 255                     | 64   | 453                     | 88   | 806                     |
| 17   | 147                     | 41   | 261                     | 65   | 464                     | 89   | 825                     |
| 18   | 150                     | 42   | 267                     | 66   | 475                     | 90   | 845                     |
| 19   | 154                     | 43   | 274                     | 67   | 487                     | 91   | 866                     |
| 20   | 158                     | 44   | 280                     | 68   | 499                     | 92   | 887                     |
| 21   | 162                     | 45   | 287                     | 69   | 511                     | 93   | 909                     |
| 22   | 165                     | 46   | 294                     | 70   | 523                     | 94   | 931                     |
| 23   | 169                     | 47   | 301                     | 71   | 536                     | 95   | 953                     |
| 24   | 174                     | 48   | 309                     | 72   | 549                     | 96   | 976                     |

## 厚膜电阻阻值

E-24 ( 0603 5%)

E-24 series: Express resistance value on the glass side with three digits, the first two digits should be significant and the third one denote number of zeros.

For example:

→ 30K

→ 33

E-96 E24 0508 0805 0612 1206 1225 1210 2010 2512 1% & 0.5%

E-96 series & E-24 series (0508 0805 0612 1206 1225 1210 2010 2512 1% & 0.5%):  
Express the resistance value with four digits, the first three digits are significant figures and the fourth denotes the number of zeros.

→ 100K

Express the resistance value with three code, the first two digit code denote the resistance of E-96 series, and the third code of letter denote the multiplier (see the table three and four).

2M

\* R The decimal point should be expressed by R .

→ 5.6

→ 22

\* 0 The jumper should be expressed by 0

For example:

→ 0

→ 0

\* 0402 For the chip resistor( 0402), there is no mark on the glass side.

## 薄膜电阻阻值代码及标记规则

Description for Resistance Value Code and Marking of Thin Film Chip Resistor

•

## 电流检测电阻阻值代码及标记规则

Description for Resistance Value Code and Marking of Current Sensing Thick Film Chip Resistor

**Application of the products in a special environment can deteriorate product performance:**

1. Use in various types of liquid, including water, oils, chemicals, and organic solvents.
2. Use outdoors where the products are exposed to direct sunlight, or in dusty places.
3. Use in places where the products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub> etc.
4. Use in places where the products are exposed to static electricity or electromagnetic waves.
5. Use in proximity to heat-producing components, plastic cords, or other flammable items.
6. Use involving sealing or coating the products with resin or other coating materials.
7. Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering.
8. The substrate of chip resistors is alumina. Cracks may occur at the connection of solder (solder fillet portion) due to the difference of the coefficient of thermal expansion from a mounting board when heat stress like heat cycle, etc. are repeatedly given to them. Care should be taken to the occurrence of the cracks when the change in ambient temperature or ON/OFF of load is repeated. The occurrence of the crack by heat stress may be influenced by the size of a pad, solder volume, heat radiation of mounting board etc., so please pay careful attention to designing when a big change in ambient temperature and conditions for use like ON/OFF of load can be assumed.

5 30 30% 70%

Pr-





---

## ■ 修订履历 Revision History

- 2023-02-20 - 附录：增加RH-MY04, RH-MY08产品编带包装  
Appendix: Add the taping parameters of RH-MY04,  
RH-MY08.
- 0201,0402,0603,0805 A,B,T  
Appendix: Modify the taping parameters A,B,T of  
0201,0402,0603,0805.
- 

Remark:Information provided above is intended to indicate product specifications only. Fenghua reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.