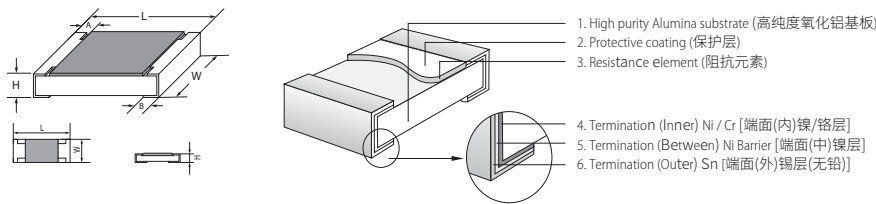


### Feature (特性)

- Small size & light weight 短小轻薄
- Reduction of assembly costs and matching with placement machine.  
可降低装置成本及配合机器组装
- Suitable for both wave & re-flow soldering. 适合波峰焊与回流焊
- Applications: Navigator (GPS), Mobile Phone, Telecom, PDA, Digital CATV Receiver, Meter.  
应用于GPS、移动电话、PDA、机顶盒、仪表

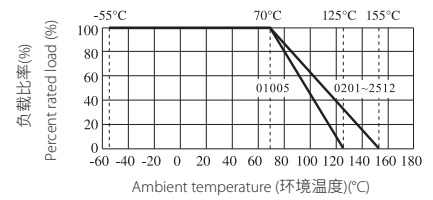


### Figures (形状)



### Derating Curve & Specification

#### 降功率曲线及性能



| Type 类型                                 | 01005      | 0201       | 0402       | 0603       | 0805       | 1206       | 1210       | 1812       | 2010       | 2512       |
|-----------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Size 尺寸                                 | 0402       | 0603       | 1005       | 1608       | 2012       | 3216       | 3225       | 4532       | 5025       | 6432       |
| Max. Working Voltage<br>最大工作电压          | 15V        | 25V        | 50V        | 75V        | 150V       | 200V       | 200V       | 200V       | 200V       | 200V       |
| Max. Overload Voltage<br>最大过负荷电压        | 30V        | 50V        | 100V       | 150V       | 300V       | 400V       | 500V       | 500V       | 500V       | 500V       |
| Dielectric withstanding Voltage<br>绝缘耐压 | -          | -          | 100V       | 300V       | 500V       | 500V       | 500V       | 500V       | 500V       | 500V       |
| Operating Temperature<br>工作温度范围         | -55~+125°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C | -55~+155°C |

| Type 类型                                        |   | 01005     | 0201      | 0402      | 0603      | 0805                            | 1206                            | 1210      | 1812      | 2010      | 2512      |
|------------------------------------------------|---|-----------|-----------|-----------|-----------|---------------------------------|---------------------------------|-----------|-----------|-----------|-----------|
| Dimension<br>尺寸<br>(mm)                        | L | 0.40±0.02 | 0.60±0.03 | 1.00±0.10 | 1.60±0.10 | 2.00±0.15                       | 3.10±0.15                       | 3.10±0.10 | 4.50±0.20 | 5.00±0.10 | 6.35±0.10 |
|                                                | W | 0.20±0.02 | 0.30±0.03 | 0.50±0.05 | 0.80±0.10 | 1.25 <sup>+0.15<br/>-0.10</sup> | 1.55 <sup>+0.15<br/>-0.10</sup> | 2.60±0.20 | 3.20±0.20 | 2.50±0.20 | 3.20±0.20 |
|                                                | H | 0.13±0.02 | 0.23±0.03 | 0.35±0.05 | 0.45±0.10 | 0.55±0.10                       | 0.55±0.10                       | 0.55±0.10 | 0.55±0.20 | 0.55±0.10 | 0.55±0.10 |
|                                                | A | 0.10±0.03 | 0.10±0.05 | 0.20±0.10 | 0.30±0.20 | 0.40±0.20                       | 0.45±0.20                       | 0.50±0.25 | 0.50±0.20 | 0.60±0.25 | 0.60±0.25 |
|                                                | B | 0.10±0.03 | 0.15±0.05 | 0.25±0.10 | 0.30±0.20 | 0.40±0.20                       | 0.45±0.20                       | 0.50±0.20 | 0.50±0.20 | 0.50±0.20 | 0.50±0.20 |
| Resistance Value of Jumper<br>零欧姆电阻阻值          |   | <50mΩ     |           |           |           |                                 |                                 |           |           |           |           |
| Rated Current of Jumper<br>零欧姆电阻额定电流           |   | 0.5A      | 0.5A      | 1A        | 1A        | 2A                              | 2A                              | 2A        | 2A        | 2A        | 2A        |
| Max.Overload Current of Jumper<br>零欧姆电阻最大过负荷电流 |   | 1A        | 1A        | 2A        | 2A        | 5A                              | 10A                             | 10A       | 10A       | 10A       | 10A       |

| Type 类型                                               | 01005      | 0201     | 0402        | 0603         | 0805            | 1206            | 1210          | 1812          | 2010       | 2512    |         |         |
|-------------------------------------------------------|------------|----------|-------------|--------------|-----------------|-----------------|---------------|---------------|------------|---------|---------|---------|
| Power Rating<br>额定功率                                  | 1/32W      | 1/20W    | 1/16W       | 1/10W        | 1/8W            | 1/4W            | 1/4W          | 1/3W          | 1/2W       | 3/4W    | 3/4W    | 1W      |
| Resistance Range of 0.5%(E-96)<br>0.5% 的阻值范围 (E-96)   | -          | -        | 1Ω~10MΩ     | 1Ω~10MΩ      | 1Ω~10MΩ         | -               | 1Ω~10MΩ       | -             | 1Ω~10MΩ    | 1Ω~10MΩ | 1Ω~10MΩ | 1Ω~10MΩ |
| Resistance Range of 1%,2%(E-96)<br>1%,2% 的阻值范围 (E-96) | 10Ω ~ 10MΩ | 1Ω~ 10MΩ | 0.01Ω~ 10MΩ | 0.1Ω≤R <10MΩ | 0.01Ω ≤R <0.1 Ω | 0.1Ω≤R <10MΩ    | 0.01Ω≤R <0.1Ω | 0.01Ω~10MΩ    |            |         |         |         |
| Resistance Range of 5%(E-24)<br>5% 的阻值范围 (E-24)       | 1Ω~10MΩ    |          |             | 0.01Ω~ 10MΩ  | 0.1Ω≤R <10MΩ    | 0.01Ω ≤R <0.1 Ω | 0.1Ω≤R <10MΩ  | 0.01Ω≤R <0.1Ω | 0.01Ω~10MΩ |         |         |         |

### Marking on the Resistors Body (电阻本体字码标示)

- No marking on resistor body due to tiny size in 01005, 0201 and 0402 series.  
01005, 0201, 0402因电阻本体太小, 故本体无标示字码
- $\pm 5\%$  tolerance product: the marking is 3 digits, the first 2 digits are the significant of the resistance and the 3rd digit denotes number of zeros following.  
 $\pm 5\%$ 公差产品字码是三位数, 前二位是阻值的有效数, 第三位表示有几个0
- 0805, 1206, 1210, 2010,  $2512 \leq \pm 1\%$ : the marking is 4 digits, the first 3 digits are the significant of the resistance and the 4th digit denotes number of zeros following.  
0805, 1206, 1210, 2010,  $2512 \leq \pm 1\%$ 公差产品字码有四位数字, 前三位是阻值的有效数, 第四位表示有几个0
- Standard E-96 series values of 0603  $\leq \pm 1\%$ : due to the small size of the resistor's body, 3 digits marking will be used to indicate the accurate resistance value by using the following Multiplier & Resistance Code.  
0603  $\leq \pm 1\%$ 公差 E-96系列标准阻值, 因电阻本体太小, 采用三位阻值代码(数字)及下列指数代码(字母)配合来指明标准的阻值。

**153**

153 = 15000 $\Omega$  = 15K $\Omega$

**6R8**

Below 10 $\Omega$ : 6R8 = 6.8 $\Omega$   
10 $\Omega$  以下标示: 6R8 = 6.8 $\Omega$

**2372**

2372 = 23700 $\Omega$  = 23.7K $\Omega$

**3R24**

Below 10 $\Omega$ : 3R24 = 3.24 $\Omega$   
10 $\Omega$  以下标示: 3R24 = 3.24 $\Omega$

### Multiplier Code (for 0603 $\leq \pm 1\%$ marking) [指数码 (0603 $\leq \pm 1\%$ 标示)]

| Code<br>代 码 | A      | B      | C      | D      | E      | F      | G      | H      | X         | Y         | Z         |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|
| Power<br>幂  | $10^0$ | $10^1$ | $10^2$ | $10^3$ | $10^4$ | $10^5$ | $10^6$ | $10^7$ | $10^{-1}$ | $10^{-2}$ | $10^{-3}$ |

### Standard E-96 series Resistance Value code (for 0603 $\leq \pm 1\%$ marking) [E-96系列标准阻值代码 (对0603 $\leq \pm 1\%$ 的字码)]

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

### So the resistance value are marked as the following examples (阻值标示如下):

**29B**

1.96K $\Omega$  =  $196 \times 10^1 \Omega$  = 29B

**10X**

12.4 $\Omega$  =  $124 \times 10^{-1} \Omega$  = 10X

- Standard E-24 and not belong to E-96 series values ( $\leq \pm 1\%$ ) of 0603 size: the marking is the same as 5% tolerance but marking as underline.  
0603 $\leq \pm 1\%$ 公差, 在标准 E-24 系列中, 但不属 E-96 系列的阻值, 标示和5%的公差相同, 但是在字码下多加一条线

**122**

122 = 1200 = 1.2 K $\Omega$

**680**

680 = 68 $\Omega$

### Performance Specifications (性能)

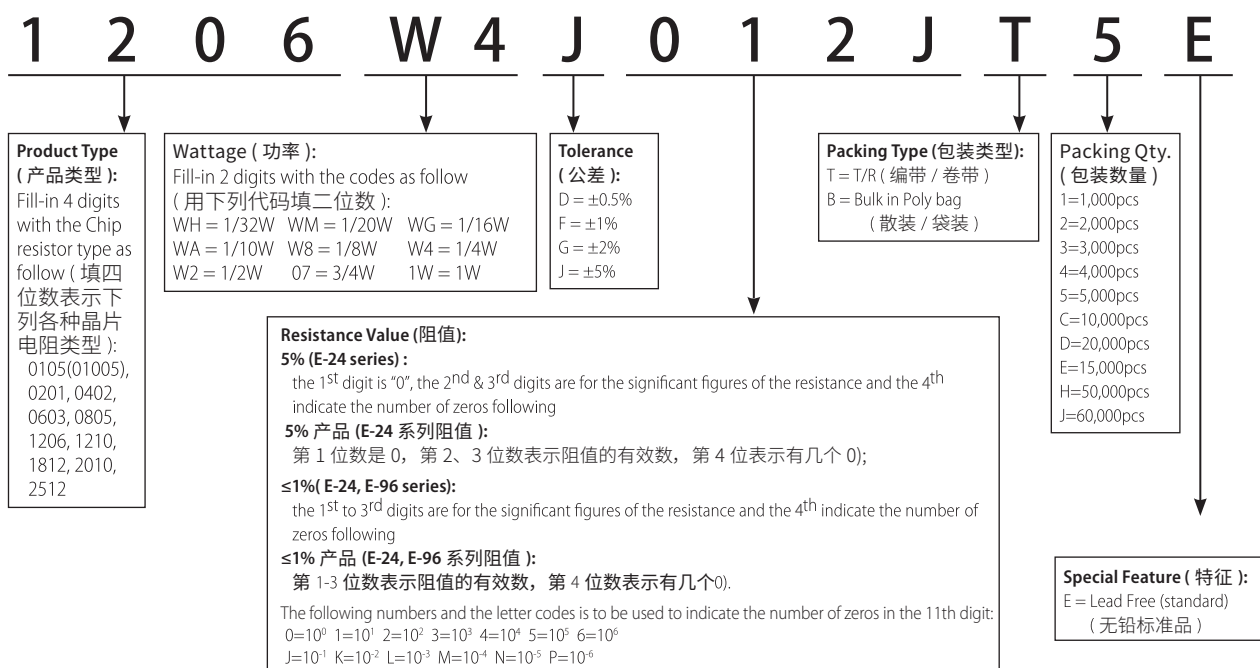
|                                 |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature coefficient         | 温度系数   | 01005: $1\Omega \leq R < 10\Omega$ : $-200 \sim +600 \text{ppm}/^\circ\text{C}$<br>$10\Omega \leq R < 100\Omega$ : $\pm 300 \text{ppm}/^\circ\text{C}$<br>$100\Omega \leq R \leq 10\text{M}\Omega$ : $\pm 200 \text{ppm}/^\circ\text{C}$ | 0603: $0.01\Omega \leq R \leq 0.03\Omega$ : $\pm 1500 \text{PPM}/^\circ\text{C}$<br>$0.03\Omega < R \leq 0.05\Omega$ : $\pm 1000 \text{PPM}/^\circ\text{C}$<br>$0.05\Omega < R < 1\Omega$ : $\pm 800 \text{PPM}/^\circ\text{C}$                                                                                                                                                                  |
|                                 |        | 0201: $1\Omega \leq R \leq 10\Omega$ : $-100 \sim +350 \text{ppm}/^\circ\text{C}$<br>$> 10\Omega$ : $\pm 200 \text{ppm}/^\circ\text{C}$                                                                                                  | $1\Omega \leq R \leq 10\Omega$ : $\pm 200 \text{PPM}/^\circ\text{C}$<br>$> 10\Omega$ : $\pm 100 \text{PPM}/^\circ\text{C}$                                                                                                                                                                                                                                                                       |
|                                 |        | 0402: $1\Omega \leq R \leq 10\Omega$ : $\pm 200 \text{ppm}/^\circ\text{C}$<br>$> 10\Omega$ : $\pm 100 \text{ppm}/^\circ\text{C}$                                                                                                         | 0805, 1206, 1210, 1812, 2010, 2512:<br>$0.01\Omega \leq R \leq 0.015\Omega$ : $\pm 1500 \text{ppm}/^\circ\text{C}$<br>$0.015\Omega < R \leq 0.03\Omega$ : $\pm 1000 \text{ppm}/^\circ\text{C}$<br>$0.03\Omega < R < 1\Omega$ : $\pm 800 \text{ppm}/^\circ\text{C}$<br>$1\Omega \leq R \leq 10\Omega$ : $\pm 200 \text{ppm}/^\circ\text{C}$<br>$> 10\Omega$ : $\pm 100 \text{ppm}/^\circ\text{C}$ |
| Short-time overload             | 短时间过负荷 | $\pm 5\%$ , $\pm 2\%$ : $\pm(2.0\% + 0.05\Omega)$<br>$\pm 1\%$ , $\pm 0.5\%$ : $\pm(1.0\% + 0.05\Omega)$<br>01005 $\pm 5\% \pm 1\%$ : $\pm(2.0\% + 0.05\Omega)$                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Insulation resistance           | 绝缘电阻   | $\geq 1,000 \text{ M}\Omega$                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Dielectric withstanding voltage | 绝缘耐压   | No evidence of flashover, mechanical damage, arcing or insulation breakdown<br>无击穿, 飞弧及可见机械性损伤                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Terminal bending                | 端子弯曲   | $\pm(1.0\% + 0.05\Omega)$                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Soldering heat                  | 耐焊接热   | $\pm(1.0\% + 0.05\Omega)$                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Solderability                   | 可焊性    | Coverage must be over 95%.                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Rapid change of temperature     | 温度快速变化 | $\pm 5\%$ , $\pm 2\%$ : $\pm(1.0\% + 0.05\Omega)$<br>$\pm 1\%$ , $\pm 0.5\%$ : $\pm(0.5\% + 0.05\Omega)$<br>01005 $\pm 5\% \pm 1\%$ : $\pm(1.0\% + 0.05\Omega)(-55^\circ\text{C} \sim 125^\circ\text{C})$                                |                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                 |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Humidity (Steady State)         | 恒定湿热   | $\pm 5\%$ , $\pm 2\%$ : $\pm(3.0\% + 0.05\Omega)$<br>$\pm 1\%$ , $\pm 0.5\%$ : $\pm(0.5\% + 0.05\Omega)$<br>01005 $\pm 5\% \pm 1\%$ : $\pm(2.0\% + 0.05\Omega)$                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                 |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Load life in humidity           | 湿度寿命   | $\pm 5\%$ , $\pm 2\%$ : $\pm(3.0\% + 0.05\Omega)$<br>$\pm 1\%$ , $\pm 0.5\%$ : $\pm(1\% + 0.05\Omega)$<br>01005: $\pm(3.0\% + 0.05\Omega)$                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                 |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |
| Load life                       | 负载寿命   | $\pm 5\%$ , $\pm 2\%$ : $\pm(3.0\% + 0.05\Omega)$<br>$\pm 1\%$ , $\pm 0.5\%$ : $\pm(1\% + 0.05\Omega)$<br>01005: $\pm(3.0\% + 0.05\Omega)$                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                 |        |                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                  |

• The values which are not of standard E-24 series (2% & 5%) and not of E-96 series (1%) could be offered on a case to case basis.

阻值如不在 E-24 系列 (2% & 5%) 及 E-96 系列 (1%) 可特别提供

### Ordering Procedure (Example: 1206 1/4W 5% 1.2 $\Omega$ T/R-5000)

订购方式 (例如: 1206 1/4W 5% 1.2  $\Omega$  T/R-5000)

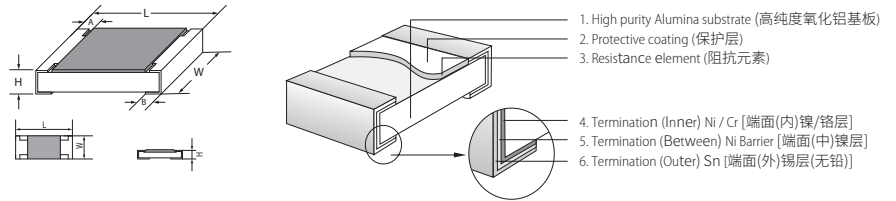


Remark: For more details, please check page 152, Part No. System. 注: 更多细节详见P152标准料号系统。

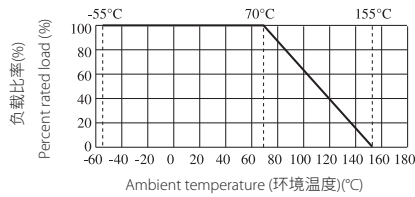
### Feature (特性)

- High Resistance 高阻值
- Suitable for reflow & wave soldering  
适合波峰焊与回流焊
- AV adapters, LCD back-light camera  
strobe etc. 适用于AV适配器, LCD背光电路,  
照相机快门等.

### Figures (型状)



### Derating Curve & Specification (降功率曲线及性能)



| Type<br>类型 | Max Working<br>Voltage<br>最大工作电压 | Max Overload<br>Voltage<br>最大过负荷电压 | Dielectric Withstanding<br>Voltage<br>绝缘耐压 | Operating<br>Temperature Range<br>工作温度范围 |
|------------|----------------------------------|------------------------------------|--------------------------------------------|------------------------------------------|
| 0603       | 75V                              | 150V                               | 300V                                       | -55~+155°C                               |
| 0805       | 150V                             | 300V                               | 500V                                       |                                          |
| 1206       | 200V                             | 400V                               | 500V                                       |                                          |
| 1210       | 200V                             | 500V                               | 500V                                       |                                          |

| Type<br>类型 | Size<br>尺寸 | Power Rating<br>额定功率 | L (mm)    | W (mm)                                 | H (mm)    | A (mm)    | B (mm)    | Resistance Range<br>(阻值范围)<br>5% (E24) |
|------------|------------|----------------------|-----------|----------------------------------------|-----------|-----------|-----------|----------------------------------------|
| 0603       | 1608       | 1/10W                | 1.60±0.10 | 0.80±0.10                              | 0.45±0.10 | 0.30±0.20 | 0.30±0.20 | 10M~100M                               |
| 0805       | 2012       | 1/8W                 | 2.00±0.15 | 1.25 <sup>+0.15</sup> <sub>-0.10</sub> | 0.55±0.10 | 0.40±0.20 | 0.40±0.20 |                                        |
| 1206       | 3216       | 1/4W                 | 3.10±0.15 | 1.55 <sup>+0.15</sup> <sub>-0.10</sub> | 0.55±0.10 | 0.45±0.20 | 0.45±0.20 |                                        |
| 1210       | 3225       | 1/2W                 | 3.10±0.10 | 2.60±0.20                              | 0.55±0.10 | 0.50±0.25 | 0.50±0.20 |                                        |

### Performance Specification (性能)

|                                 |        |                                                                                                  |
|---------------------------------|--------|--------------------------------------------------------------------------------------------------|
| Temperature coefficient         | 温度系数   | ±200ppm/°C                                                                                       |
| Short time overload             | 短时间过负荷 | ±(2.0%+0.05Ω)                                                                                    |
| Terminal bending                | 端子弯曲   | ±(1.0%+0.05Ω)                                                                                    |
| Solderability                   | 可焊性    | Coverage must be over 95%.                                                                       |
| Dielectric withstanding voltage | 绝缘耐压   | No evidence of flashover, mechanical damage, arcing or insulation breakdown<br>(无击穿, 飞弧及可见机械性损伤) |
| Soldering heat                  | 耐焊接热   | ±(1.0%+0.05Ω)                                                                                    |
| Rapid change of temperature     | 温度快速变化 | ±(1.0%+0.05Ω)                                                                                    |
| Load Life in humidity           | 湿度寿命   | ±(3.0%+0.05Ω)                                                                                    |
| Load life                       | 负载寿命   | ±(3.0%+0.05Ω)                                                                                    |
| Humidity (steady state)         | 恒定湿热   | ±(3.0%+0.05Ω)                                                                                    |
| Insulation resistance           | 绝缘电阻   | ≥1,000 MΩ                                                                                        |

### New/Old Part No. (新旧料号对照)

| New Part.no 新料号 | Old Part.no 旧料号                             |
|-----------------|---------------------------------------------|
| 0603WAJ****T5E  | 0603SAJ****T5E /0603WGJ****T5E              |
| 0805W8****T5E   | 0805S8****T5E /0805WA****T5E                |
| 1206W4****T5E   | 1206S4****T5E /1206W8****T5E                |
| 1210W2****T5E   | 1210U2****T5E /1210S3****T5E /1210W4****T5E |
| 181207****T4E   | 1812W2****T4E                               |
| 201007****T4E   | 201034****T4E /2010W2****T4E                |

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[MCR01MZPJ125](#) [MCR01MZPJ751](#) [MCR03EZHZ103](#) [MCR03EZPF2004](#) [MCR03EZPJ270](#) [MCR03EZPJ821](#) [MCR10EZPF1102](#)  
[MCR10EZPF2700](#) [MCR18EZPJ330](#) [RC1005F1152CS](#) [RC1005F1372CS](#) [RC1005F2052CS](#) [RC1005F471CS](#) [RC1005F4751CS](#)  
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[RC1005J512CS](#) [RC1005J683CS](#) [RC1005J823CS](#) [RC1608F333CS](#) [RC1608F5110CS](#) [RC1608J121CS](#) [RC2012F2493CS](#) [RC2012F2740CS](#)  
[RC2012J105CS](#)