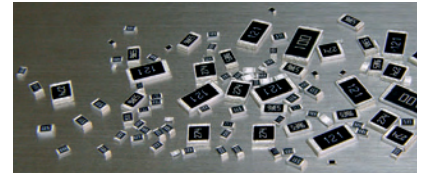
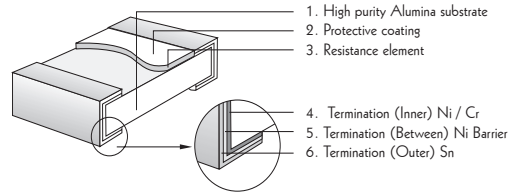
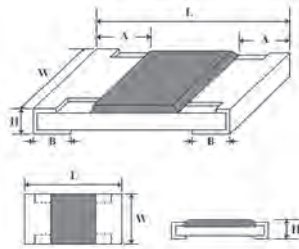


Feature

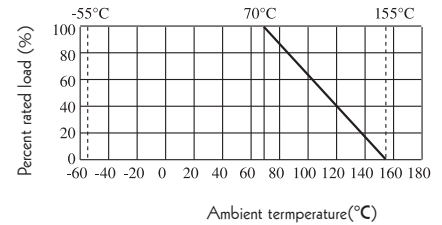
- Small size & light weight
- Reduction of assembly costs and matching with placement machine
- Suitable for both flow & re-flow soldering
- Applications: Navigator (GPS), Mobile Phone, Telecom, PDA, Setbox, Meter.



Figures



Derating Curve & Specification



| Type | 0201 | 0402 | 0603 | 0805 | 1206 | 1210 | 2010 | 2512 |
|---------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Max. Working Voltage | 25V | 50V | 50V | 150V | 200V | 200V | 200V | 200V |
| Max. Overload Voltage | 50V | 100V | 100V | 300V | 400V | 400V | 400V | 400V |
| Dielectric withstanding Voltage | - | 100V | 300V | 500V | 500V | 500V | 500V | 500V |
| Operating Temperature | -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 | 0201 | 0402 | 0603 | 0805 | 1206 | 1210 | 2010 | 2512 | |
|---------------------------------|-----------|-------------|--------------------|--|--|--|--|--|--|
| Power Rating at 70°C | 1/20W | 1/16W | 1/16W (1/10W-S) | 1/10W (1/8W-S) | 1/8W (1/4W-S) | 1/4W (1/3W-S) * | 1/2W (3/4W-S) | 1W | |
| Dimension | L (mm) | 0.60 ± 0.03 | 1.00 ± 0.10 | 1.60 ± 0.10 | 2.00 ± 0.15 | 3.10 ± 0.15 | 3.10 ± 0.10 | 5.00 ± 0.10 | 6.35 ± 0.10 |
| | W (mm) | 0.30 ± 0.03 | 0.50 ± 0.05 | 0.80 ^{+0.15} _{-0.10} | 1.25 ^{+0.15} _{-0.10} | 1.55 ^{+0.15} _{-0.10} | 2.60 ^{+0.15} _{-0.10} | 2.50 ^{+0.15} _{-0.10} | 3.20 ^{+0.15} _{-0.10} |
| | H (mm) | 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 ± 0.10 | 0.55 ± 0.10 |
| | A (mm) | 0.10 ± 0.05 | 0.20 ± 0.10 | 0.30 ± 0.20 | 0.40 ± 0.20 | 0.45 ± 0.20 | 0.50 ± 0.25 | 0.60 ± 0.25 | 0.60 ± 0.25 |
| | B (mm) | 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 |
| Resistance Value of Jumper | <50mΩ | <50mΩ | <50mΩ | <50mΩ | <50mΩ | <50mΩ | <50mΩ | <50mΩ | |
| Rated Current of Jumper | 0.5A | 1A | 1A | 2A | 2A | 2A | 2A | 2A | |
| Max. Current of Jumper | 1A | 2A | 2A | 5A | 10A | 10A | 10A | 10A | |
| Resistance Range of 0.5% (E-96) | 10Ω ~ 1MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | |
| Resistance Range of 1% (E-96) | 10Ω ~ 1MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | |
| Resistance Range of 2% (E-24) | 10Ω ~ 1MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | |
| Resistance Range of 5% (E-24) | 1Ω ~ 1MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | 1Ω ~ 10MΩ | |

* 1210 size in 1/2W could be provided specially (1210U2)

Marking on the Resistors Body

- For 0201 & 0402 size, no marking on the body due to the small size of the resistor.
- $\pm 5\%$ 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.



153 = 15000 Ω = 15K Ω ; 120 = 12 Ω



Below 10 Ω : 6R8 = 6.8 Ω

- 0805, 1206, 1210, 2010, 2512 $\pm 1\%$: the marking is 4 digits, the first 3 digits are the significant of the resistance and the 4th digit denotes number of zeros following.



2372 = 23700 Ω = 23.7K Ω ; 1430 = 143 Ω



Below 10 Ω : 3R24 = 3.24 Ω

- Standard E-96 series values of 0603 $\pm 1\%$: 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.

Multiplier Code (for 0603 1% marking)

| Code | A | B | C | D | E | F | G | H | X | Y | Z |
|------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| Multiplier | 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 1% marking)

| Value | Code | Value | Code | Value | Code | Value | Code | Value | Code | Value | Code |
|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| 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:



1.96K Ω = 196 \times 10¹ Ω = 29B



12.4 Ω = 124 \times 10⁻¹ = 10X

- Standard E-24 and not belong to E-96 series values ($\pm 1\%$) of 0603 size: the marking is te same as 5% tolerance but marking as underline.



122 = 1200 = 1.2 K Ω



680 = 68 Ω

Performance Specifications

| | |
|-----------------------------------|---|
| Temperature coefficient | 1Ω~10Ω ≤ ±400PPM/°C 11Ω~100Ω ≤ ±200PPM/°C >100Ω ±100PPM/°C (0201: >100Ω ±200PPM/°C) |
| Short-time overload | ±5%, ± 2%: ±(2.0% + 0.1Ω) Max. ±1%, ± 0.5%: ±(1.0% + 0.1Ω) Max. |
| Insulation resistance | ≥ 1,000 Mega Ohm |
| Dielectronic withstanding voltage | No evidence of flashover, mechanical damage, arcing or insulation breakdown |
| Terminal bending | ±(1.0% + 0.05Ω) Max. |
| Soldering heat | ±(1.0% + 0.05Ω) Max. |
| Solderability | Min. 95% coverage |
| Temperature cycling | ±5%, ± 2%: ±(1.0% + 0.05Ω) Max. ±1%, ± 0.5%: ±(0.5% + 0.05Ω) Max. |
| Humidity (Steady State) | ±5%, ± 2%: ±(3.0% + 0.1Ω) Max. ±1%, ± 0.5%: ±(0.5% + 0.1Ω) Max. |
| Load life in humidity | ±5%, ± 2%: ±(3.0% + 0.1Ω) Max. ±1%, ± 0.5%: ±(1.0% + 0.1Ω) Max. |
| Load life | ±5%, ± 2%: ±(3.0% + 0.1Ω) Max. ±1%, ± 0.5%: ±(1.0% + 0.1Ω) Max. |

Ordering Procedure (Example: 1206 1/4W-S 5% 1.2 Ω T/R-5000)

• 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.

