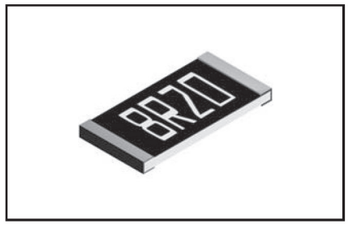
# High Precision Chip Resistors

- Thin film passivated NiCr resistor
- Very tight tolerance from ±0.01%~1%
- Extremely low TCR from ±5~±50PPM/℃
- Wide R-value range 1Ω~3MΩ




## ■ GENERAL SPECIFICATIONS

| Model | Power Rating at 70℃ | Max Operating Voltage | Max Overloading Voltage | Resistance Tolerance(%) | Resistance Range | TCR (ppm/℃) |
|---|---|---|---|---|---|---|
| AR02 (0402) | 1/16W | 25V | 50V | [±0.10]<br>[±0.25]<br>[±0.50] | 10KΩ~205KΩ | ±25<br>±50 |
| AR03 (0603) | 1/16W | 50V | 100V | [±0.05] | 4.7Ω~105KΩ | ±25<br>±50 |
| | | | | [±0.10] | 4.7Ω~1MΩ | |
| | | | | [±0.25]<br>[±0.50] | 2Ω~1MΩ | |
| AR05 (0805) | 1/10W | 100V | 200V | [±0.05] | 4.7Ω~1MΩ | ±25<br>±50 |
| | | | | [±0.10] | 4.7Ω~2.5MΩ | |
| | | | | [±0.25]<br>[±0.50] | 1Ω~2.5MΩ | |
| AR06 (1206) | 1/8W | 150V | 300V | [±0.05] | 4.7Ω~1MΩ | ±25<br>±50 |
| | | | | [±0.10] | 4.7Ω~2.5MΩ | |
| | | | | [±0.25]<br>[±D 0.5] | 1Ω~2MΩ | |
| AR10 (2010) | 1/4W | 150V | 300V | [±0.05] | 4.7Ω~1MΩ | ±25<br>±50 |
| | | | | [±0.10] | 4.7Ω~3MΩ | |
| AR12 (2512) | 1/2W | | | [±0.25]<br>[±0.50] | 1Ω~3MΩ | |

## ■ CHARACTERISTICS

| TEST | Specification | | Method |
|---|---|---|---|
| | Tol.≤0.05% | Tol.>0.05% | |
| TCR | As Spec | | MIL-STD-202F Method 304<br>+25/-55/+25/+125/+25℃ |
| Operating Temp. Range | | | -55℃~+155℃ |
| Short Time Overload | △R±0.05% | △R±0.5% | JIS-C-5202-5.5 |
| | △R±0.5% for high power rating | | RCWV×2.5 or maximum Overloading Voltage, 5secs. |
| Dielectric Withstand Voltage | By Type | | MIL-STD-202F Method 301<br>Apply maximum Overloading Voltage for 1minute |
| Insulation Resistance | >1000MΩ | | MIL-STD-202F Method 302<br>Apply 100VDC for 1minute |
| Thermal Shock | △R±0.05% | △R±0.25% | MIL-STD-202F Method 107G<br>-55℃~+150℃, 100Cycles |
| Load Life | △R±0.05% | △R±0.2% | MIL-STD-202F Method 108A |
| | >7KΩ △R±0.5% | | RCWV, 70℃, 1.5 hours on, 0.5 hours off |
| | △R±0.5% for high power rating | | Total 1000~1048 hours |
| Humidity (Steady State) | △R±0.05% | △R±0.3% | MIL-STD-202F Method 103B<br>40℃, 90~95℃RH, RCWV 1.5hours on |
| | △R±0.5% for high power rating | | Total 1000~1048 hours |
| Resistance to Dry Heat | △R±0.05% | △R±0.2% | JIS-C-5202-7.2<br>96 hours, +155℃ without load |
| Low Temp. Operation | △R±0.05% | △R±0.2% | JIS-C-5202-7.1 |
| | △R±0.5% for high power rating | | 1 hours, -65℃, followed by 45 minute of RCWV |
| Bending Strength | △R±0.05% | △R±0.2% | JIS-C-5202-6.1.4<br>Bending Amplitude 3mm for 10secs |
| Solderability | 95% Minimum coverage | | MIL-STD-202F Method 208H<br>235℃±5℃, 2±5(secs) |
| Resistance to Soldering Heat | △R±0.05% | △R±0.2% | MIL-STD-202F Method 210E<br>260±5℃, 10±1 secs |

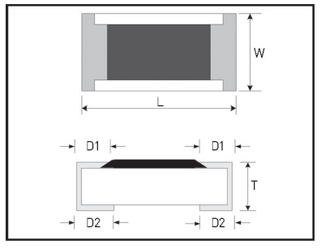
* Storage Temperature: 25±3℃, Humidity < 80% RH





## ■ DIMENSIONS [mm]

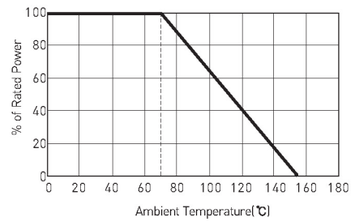
| Model | Dimensions [mm] | | | | |
|---|---|---|---|---|---|
| | L | W | T | D1 | D2 |
| Ar02 | 0.100±0.05 | 0.50±0.05 | 0.30±0.05 | 0.20±0.10 | 0.20±0.10 |
| AR03 | 1.55±0.10 | 0.80±0.10 | 0.45±0.10 | 0.30±0.20 | 0.30±0.20 |
| AR05 | 2.00±0.15 | 1.25±0.15 | 0.55±0.10 | 0.30±0.20 | 0.45±0.25 |
| AR06 | 3.05±0.15 | 1.55±0.15 | 0.55±0.10 | 0.42±0.20 | 0.35±0.25 |
| AR10 | 4.90±0.15 | 2.40±0.15 | 0.55±0.10 | 0.60±0.30 | 0.50±0.25 |
| AR12 | 6.30±0.15 | 3.10±0.15 | 0.55±0.10 | 0.60±0.30 | 0.50±0.25 |



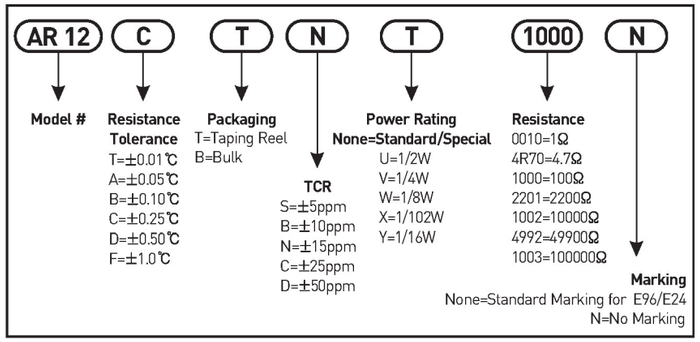

## ■ SPECIAL SPECIFICATIONS

| Model | Power Rating At 70℃ | Operating Temp. Range | Max Operating Voltage | Max Overloading Voltage | Resistance Tolerance(%) | Resistance Range | TCR (ppm/℃) |
|---|---|---|---|---|---|---|---|
| AR02 (0402) | 1/16W | -55℃ ~ +155℃ | 25V | 50V | [±0.01]<br>[±0.05]<br>[±0.10] | 49.9Ω~3KΩ<br>49.9Ω~12KΩ | ±5<br>±10<br>±15 |
| AR03 (0603) | 1/16W | -55℃ ~ +155℃ | 50V | 100V | [±0.01]<br>[±0.05]<br>[±0.10] | 25Ω~15KΩ<br>25Ω~100KΩ | ±5<br>±10<br>±15 |
| | | | | | [±0.10] | 4.7Ω~332KΩ | ±10 |
| AR05 (0805) | 1/10W | -55℃ ~ +155℃ | 100V | 200V | [±0.01]<br>[±0.05]<br>[±0.10] | 25Ω~30KΩ<br>25Ω~200KΩ | ±5<br>±10<br>±15 |
| | | | | | [±0.05]<br>[±0.10] | 4.7Ω~500KΩ | ±10 |
| AR06 (1206) | 1/8W | -55℃ ~ +155℃ | 150V | 300V | [±0.01]<br>[±0.05]<br>[±0.10] | 25Ω~50KΩ<br>25Ω~500KΩ | ±5<br>±10<br>±15 |
| | | | | | [±0.10] | 4.7Ω~1MΩ | ±10 |
| AR10 (2010) | 1/4W | -55℃ ~ +155℃ | 150V | 300V | [±0.01]<br>[±0.05]<br>[±0.10] | 25Ω~100KΩ<br>25Ω~500KΩ | ±5<br>±10<br>±15 |
| | | | | | [±0.10] | 4.7Ω~1MΩ | ±10 |
| AR12 (2512) | 1/2W | -55℃ ~ +155℃ | 150V | 300V | [±0.01]<br>[±0.05]<br>[±0.10] | 25Ω~100KΩ<br>25Ω~500KΩ | ±5<br>±10<br>±15 |
| | | | | | [±0.10] | 4.7Ω~1MΩ | ±10 |

## ■ DERATING CURVE




## ■ ORDERING PROCEDURE EXAMPLE




## ■ RECOMMEND LAND PATTERN

| Model | Dimension [mm] | | |
|---|---|---|---|
| | A | B | C |
| AR12 | 4.90 | 1.60 | 3.10±0.2 |
| AR10 | 3.60 | 1.40 | 2.50±0.2 |
| AR06 | 2.00 | 1.15 | 1.70±0.2 |
| AR05 | 1.00 | 1.00 | 1.35±0.2 |
| AR03 | 0.80 | 1.00 | 0.90±0.2 |
| AR02 | 0.50 | 0.50 | 0.60±0.2 |