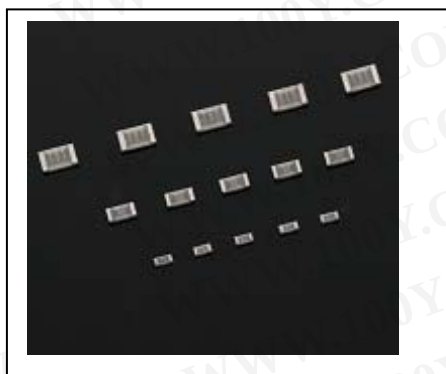


# Ultra precision 0.02%, 0.05%, 0.1%, 0.25%, 0.5%, tolerance Thin Film Chip Resistor



## FEATURES

- High Reliability and Excellent Stability at different environmental conditions
- Low noise, THIN FILM(NiCr) construction
- EIA Standard case size(0402, 0603, 0805, 1206)
- RoHS Compliance and 100% Lead-Free (Matte Sn termination finished)

## APPLICATIONS

- Automotive
- Test & Measurement
- Optical & Telecommunication
- Medical and Industrial Equipment

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勝特力电子(上海) 86-21-34970699  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## Electrical Specification

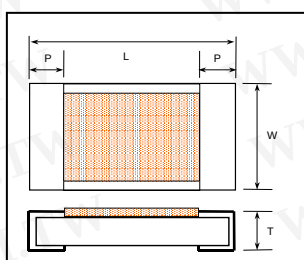
| Type   | Size | Power Rating ar 85 °C |         |        | Resistance Tolerance (Code) | Resistance Range (ohm) | Temperature Coefficient (Code) |              | Max. operating Voltage | Resistance Values (E-series) |
|--------|------|-----------------------|---------|--------|-----------------------------|------------------------|--------------------------------|--------------|------------------------|------------------------------|
|        |      | Low (ultra precision) | Regular | High   |                             |                        | (ohm)                          | (ppm/°C)     |                        |                              |
| RG1005 | 0402 | 0.032W                | 0.063W  | 0.125W | ±0.5% (D)                   | 10-100K                | 10-46.4                        | 100(R)       | 25V                    | E-24, E-96                   |
|        |      |                       |         |        | ±0.25% (C)                  | 47-100K                | 47-100K                        | 25(P), 10(N) |                        |                              |
|        |      |                       |         |        |                             |                        | 100-2.94K                      | 5(V)         |                        |                              |
|        |      |                       |         |        |                             |                        | 47-100K                        | 25(P), 10(N) |                        |                              |
|        |      |                       |         |        |                             |                        | 100-2.94K                      | 5(V)         |                        |                              |
| RG1608 | 0603 | 0.063W                | 0.1W    | 0.166W | ±0.5% (D)                   | 10-360K                | 10-46.4                        | 50(Q)        | 75V                    | E-24, E-96                   |
|        |      |                       |         |        | ±0.25% (C)                  | 47-274K                | 47-360K                        | 25(P)        |                        |                              |
|        |      |                       |         |        |                             |                        | 47-274K                        | 10(N)        |                        |                              |
|        |      |                       |         |        |                             |                        | 100-4.99K                      | 5(V)         |                        |                              |
|        |      |                       |         |        |                             |                        | 47-274K                        | 25(P), 10(N) |                        |                              |
| RG2012 | 0805 | 0.1W                  | 0.125W  | 0.25W  | ±0.5% (D)                   | 10-1M                  | 10-46.4                        | 50(Q)        | 100V                   | E-24, E-96                   |
|        |      |                       |         |        | ±0.25% (C)                  | 47-1M                  | 47-1M                          | 25(P)        |                        |                              |
|        |      |                       |         |        |                             |                        | 47-475K                        | 10(N)        |                        |                              |
|        |      |                       |         |        |                             |                        | 100-10K                        | 5(V)         |                        |                              |
|        |      |                       |         |        |                             |                        | 47-1M                          | 25(P), 10(N) |                        |                              |
| RG3216 | 1206 | 0.125W                | 0.25W   | 0.25W  | ±0.5% (D)                   | 47-1M                  | 10-46.4                        | 50(Q)        | 150V                   | E-24, E-96                   |
|        |      |                       |         |        | ±0.25% (C)                  | 47-1M                  | 10-1M                          | 25(P), 10(N) |                        |                              |
|        |      |                       |         |        |                             |                        | 100-33.2K                      | 5(V)         |                        |                              |
|        |      |                       |         |        |                             |                        | 47-1M                          | 25(P), 10(N) |                        |                              |
|        |      |                       |         |        |                             |                        | 100-33.2K                      | 5(V)         |                        |                              |

# Ultra precision 0.02%, 0.05%, 0.1%, 0.25%, 0.5%, tolerance Thin Film Chip Resistor

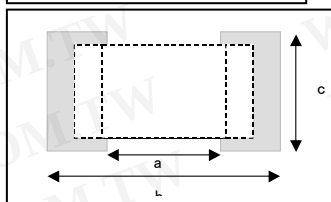
## Performance

| Item                      | Test Method                                                                                                                             | Specification: drift limits for each power rating |        |         |        |      |        | (Typical) |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------|---------|--------|------|--------|-----------|
|                           |                                                                                                                                         | Low                                               |        | Regular |        | High |        |           |
|                           |                                                                                                                                         | ≤47Ω                                              | ≥47Ω   | ≤47Ω    | ≥47Ω   | ≤47Ω | ≥47Ω   |           |
| Short time Overload       | Applied voltage : 2.5 times. Test duration: 5 seconds. (When maximum operating voltage: 2 times or less)                                | ±0.10%                                            | ±0.05% | ±0.10%  | ±0.05% | -    | ±0.10% | ±(0.01%)  |
| Load Life                 | Test temperature : 85℃ (When high voltage : 70℃). Applied voltage : rated voltage. Repeat 1000 hours as follow : 90 mins on/30mins off. | ±0.25%                                            | ±0.10% | ±0.50%  | ±0.25% | -    | ±0.50% | ±(0.01%)  |
| Moisture load life        | Test condition: 85℃, 85% RH. Applied power : 1/10 rated power. Repeat 1000 hours as follow : 90 mins on/30mins off.                     | ±0.25%                                            | ±0.10% | ±0.50%  | ±0.25% | -    | ±0.50% | ±(0.05%)  |
| Temperature Cycle         | Repeat 1000 cycle as follow :<br>-55℃ (30 min.)/Room Temp.(2 min.) / +125℃ (30min.)/Room Temp.(2min.)                                   | ±0.25%                                            | ±0.10% | ±0.25%  | ±0.10% | -    | ±0.10% | ±(0.01%)  |
| High temperature Exposure | +155℃ for 1000 hours with no load                                                                                                       | ±0.25%                                            | ±0.10% | ±0.25%  | ±0.10% | -    | ±0.10% | ±(0.01%)  |

## Dimensions & Footprints



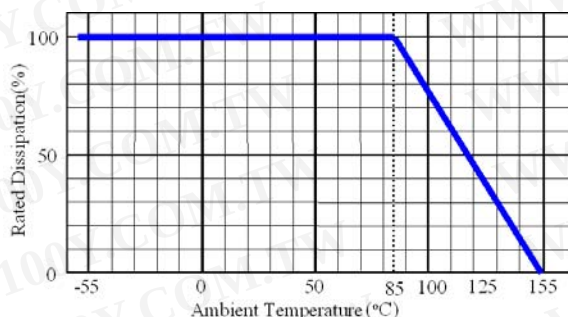
|          | Dimensions inch (mm)        |                             |                            |                              |
|----------|-----------------------------|-----------------------------|----------------------------|------------------------------|
|          | L                           | W                           | P                          | T                            |
| R G 1005 | .040 ± .002<br>(1.0 ± 0.05) | .020 ± .002<br>(0.5 ± 0.05) | .008 ± .004<br>(0.2 ± 0.1) | .014 ± .002<br>(0.35 ± 0.05) |
| R G 1608 | .063 ± .008<br>(1.6 ± 0.2)  | .031 ± .008<br>(0.8 ± 0.2)  | .012 ± .008<br>(0.3 ± 0.2) | 0.016 ± .004<br>(0.4 ± 0.1)  |
| R G 2012 | .079 ± .008<br>(2.0 ± 0.2)  | .049 ± .008<br>(1.25 ± 0.2) | .016 ± .008<br>(0.4 ± 0.2) | 0.016 ± .004<br>(0.4 ± 0.1)  |
| R G 3216 | .126 ± .008<br>(3.2 ± 0.2)  | .063 ± .008<br>(1.6 ± 0.2)  | .02 ± .01<br>(0.5 ± 0.25)  | 0.016 ± .004<br>(0.4 ± 0.1)  |



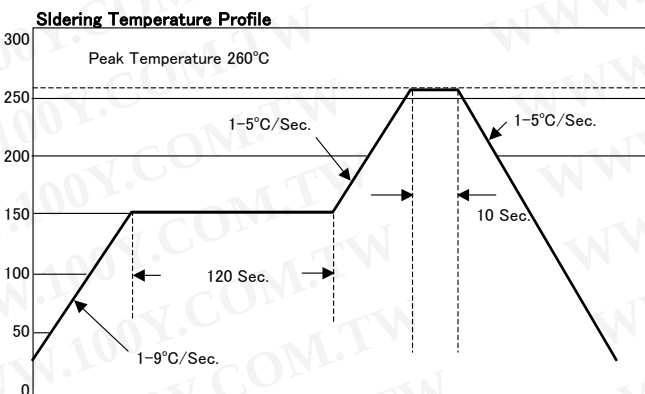
|          | Dimensions (mm) |     |     |
|----------|-----------------|-----|-----|
|          | a               | b   | c   |
| R G 1005 | 0.5             | 1.6 | 0.6 |
| R G 1608 | 1.0             | 3.0 | 1.2 |
| R G 2012 | 1.2             | 4.0 | 1.7 |
| R G 3216 | 2.0             | 5.0 | 2.0 |

## Power Derating Curve

:For operation above 85degC, power rating must be derated according to the following chart



## Recommended Reflow Curve



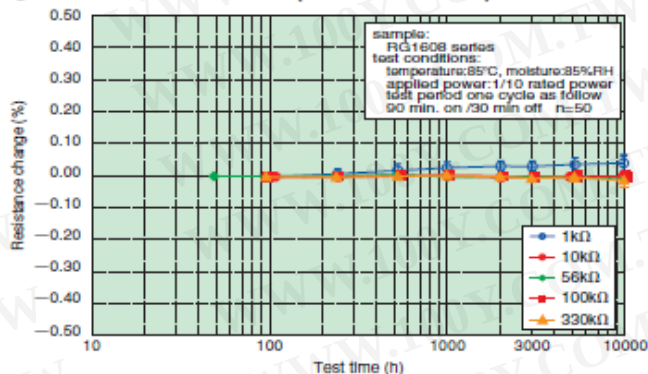
## Ordering information

|      |                              |                                                                    |   |                                                                                                |   |                                                   |   |                    |
|------|------------------------------|--------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------|---|---------------------------------------------------|---|--------------------|
| RG   | 1608                         | N                                                                  | - | 104                                                                                            | - | W                                                 | - | T5                 |
| TYPE | Size                         | TCR                                                                |   | R-Values                                                                                       |   | Tolerance                                         |   | Package            |
|      | 1005<br>1608<br>2012<br>3216 | V=5ppm/°C<br>N=10ppm/°C<br>P=25ppm/°C<br>Q=50ppm/°C<br>R=100ppm/°C |   | 3 digits for E24 series<br>(Ex.104=100K ohm)<br>4 digits for E96 series<br>(Ex.4992=49.9K ohm) |   | P=0.02%<br>W=0.05%<br>B=0.1%<br>C=0.25%<br>D=0.5% |   | T1=1000<br>T5=5000 |

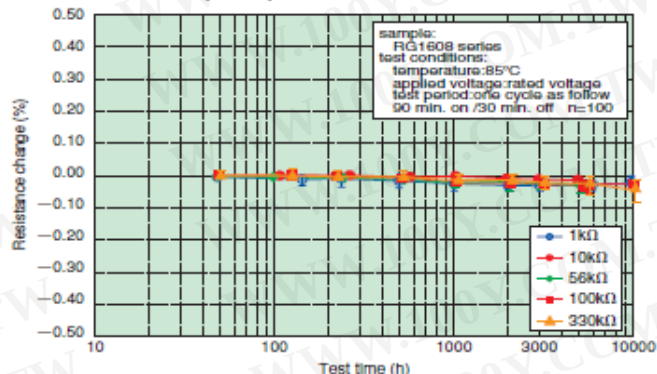
Ultra precision 0.02%, 0.05%, 0.1%, 0.25%, 0.5%, tolerance  
Thin Film Chip Resistor

Reliability Test Data

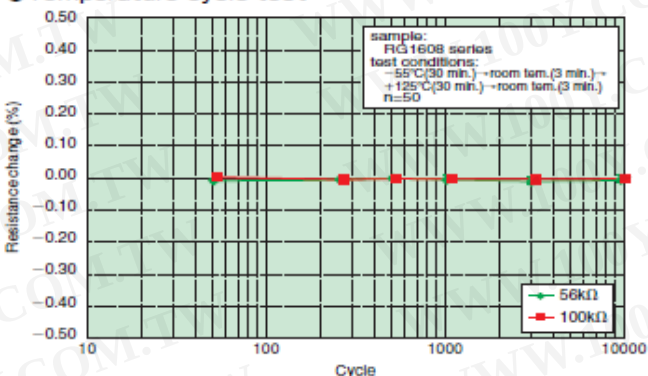
●Moisture and life test (THB 85°C 85%)



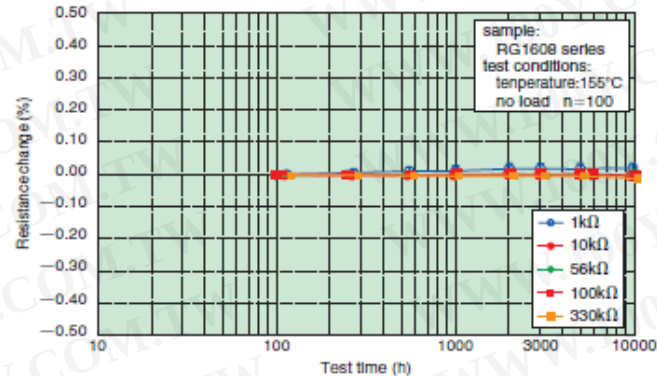
●Load life test (85°C)



●Temperature cycle test

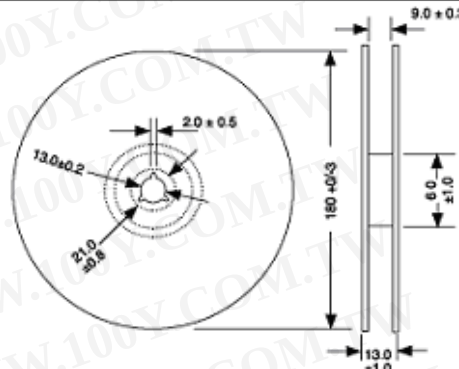
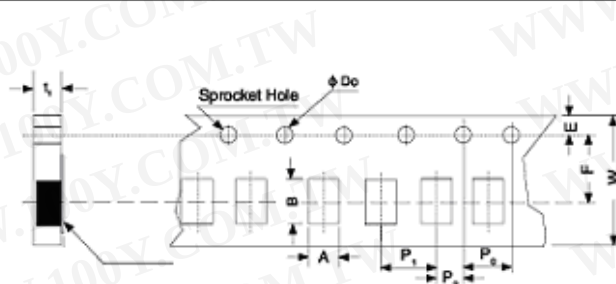


●High temperature expose test (155°C)



Tape & Reel Dimensions (mm)

| Type   | A           | B           | E          | F          | W         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | t <sub>1</sub> |
|--------|-------------|-------------|------------|------------|-----------|----------------|----------------|----------------|----------------|
| RG1005 | 0.63 ± 0.05 | 1.13 ± 0.05 | 1.75 ± 0.1 | 3.5 ± 0.05 | 8.0 ± 0.3 | 4.0 ± 0.1      | 2.0 ± 0.05     | 2.0 ± 0.05     | 0.43 ± 0.05    |
| RG1608 | 1.1 ± 0.1   | 1.9 ± 0.1   |            |            |           |                | 0.6 ± 0.05     |                |                |
| RG2012 | 1.65 ± 0.2  | 2.4 ± 0.2   |            |            |           |                | 0.75 ± 0.05    |                |                |
| RG3216 | 1.9 ± 0.1   | 3.5 ± 0.1   |            |            |           |                | 1.0 ± 0.2      |                |                |



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