



**THE DATASHEET OF
RG1608P-103-B-T5**



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

Electrical Specification

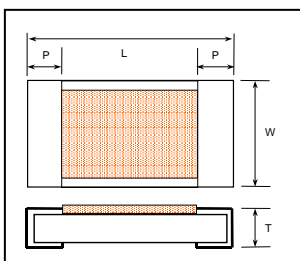
| Type | Size | Power Rating ar 85 °C | | | Resistance Tolerance (Code) | Resistance Range (ohm) | Temperature Coefficient (Code) | | Max. operating Voltage | Resistance Values (E-series) |
|------------|-----------|-----------------------|--------------------|--------|-----------------------------|------------------------|--------------------------------|--------------|------------------------|------------------------------|
| | | 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 |
| | | | | | | | 47-100K | 25(P), 10(N) | | |
| | | | | | | | 100-2.94K | 5(V) | | |
| | | | | | ±0.25% (C) | 47-100K | 47-100K | 25(P), 10(N) | | |
| | | | | | | | 100-2.94K | 5(V) | | |
| | | | | | | | 47-100K | 25(P), 10(N) | | |
| ±0.1% (B) | 47-100K | 100-2.94K | 5(V) | | | | | | | |
| | | 47-100K | 25(P), 10(N) | | | | | | | |
| ±0.05% (W) | 100-2.94K | 5(V) | | | | | | | | |
| ±0.02% (V) | 100-2.94K | 100-2.94K | 25(P), 10(N), 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 |
| | | | | | | | 47-360K | 25(P) | | |
| | | | | | | | 47-274K | 10(N) | | |
| | | | | | ±0.25% (C) | 47-274K | 47-274K | 25(P), 10(N) | | |
| | | | | | | | 100-4.99K | 5(V) | | |
| | | | | | | | 47-332K | 25(P) | | |
| | | | | | ±0.1% (B) | 47-332K | 47-274K | 10(N) | | |
| | | | | | | | 100-4.99K | 5(V) | | |
| | | | | | | | 47-332K | 25(P) | | |
| | | | | | ±0.05% (W) | 47-332K | 47-274K | 10(N) | | |
| 100-4.99K | 5(V) | | | | | | | | | |
| ±0.02% (V) | 100-4.99K | 100-4.99K | 25(P), 10(N), 5(V) | | | | | | | |
| RG2012 | 0805 | 0.1W | 0.125W | 0.25W | ±0.5% (D) | 10-1M | 10-46.4 | 50(Q) | 100V | E-24, E-96 |
| | | | | | | | 47-1M | 25(P) | | |
| | | | | | | | 47-475K | 10(N) | | |
| | | | | | ±0.25% (C) | 47-1M | 100-10K | 5(V) | | |
| | | | | | | | 47-1M | 25(P), 10(N) | | |
| | | | | | | | 100-10K | 5(V) | | |
| | | | | | ±0.1% (B) | 47-1M | 47-1M | 25(P) | | |
| | | | | | | | 47-475K | 10(N) | | |
| | | | | | | | 100-10K | 5(V) | | |
| | | | | | ±0.05% (W) | 47-475K | 47-475K | 25(P) | | |
| 47-475K | 10(N) | | | | | | | | | |
| 100-10K | 5(V) | | | | | | | | | |
| ±0.02% (V) | 100-10K | 100-10K | 25(P), 10(N), 5(V) | | | | | | | |
| RG3216 | 1206 | 0.125W | 0.25W | | ±0.5% (D) | 47-1M | 10-46.4 | 50(Q) | 150V | E-24, E-96 |
| | | | | | | | 10-1M | 25(P), 10(N) | | |
| | | | | | | | 100-33.2K | 5(V) | | |
| | | | | | ±0.25% (C) | 47-1M | 47-1M | 25(P), 10(N) | | |
| | | | | | | | 100-33.2K | 5(V) | | |
| | | | | | | | 47-1M | 25(P), 10(N) | | |
| | | | | | ±0.1% (B) | 47-1M | 100-33.2K | 5(V) | | |
| | | | | | | | 47-1M | 25(P), 10(N) | | |
| | | | | | | | 100-33.2K | 5(V) | | |
| | | | | | ±0.05% (W) | 47-1M | 47-1M | 25(P), 10(N) | | |
| 100-33.2K | 5(V) | | | | | | | | | |
| ±0.02% (V) | 100-33.2K | 100-33.2K | 25(P), 10(N), 5(V) | | | | | | | |

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

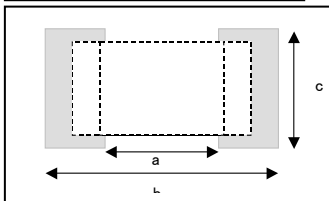
Performance

| 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°C (When high voltage : 70°C). 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°C, 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 : -55°C (30 min.)/Room Temp.(2 min.) / +125°C (30min.)/Room Temp.(2min.) | ±0.25% | ±0.10% | ±0.25% | ±0.10% | - | ±0.10% | ±(0.01%) |
| High temperature Exposure | +155°C for 1000 hours with no load | ±0.25% | ±0.10% | ±0.25% | ±0.10% | - | ±0.10% | ±(0.01%) |

Dimensions & Footprints



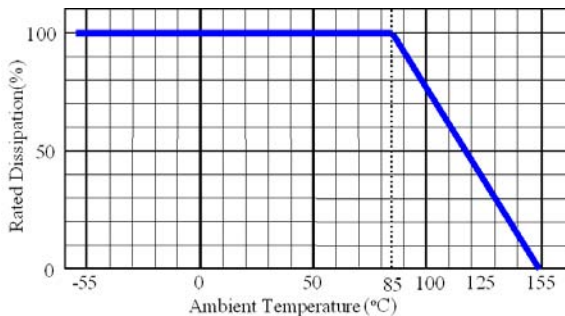
| | L | W | P | T |
|---------|-----------------------------|-----------------------------|----------------------------|------------------------------|
| RG 1005 | .040 ± .002 (1.0 ± 0.05) | .020 ± .002 (0.5 ± 0.05) | .008 ± .004 (0.2 ± 0.1) | .014 ± .002 (0.35 ± 0.05) |
| RG 1608 | .063 ± .008 (1.6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



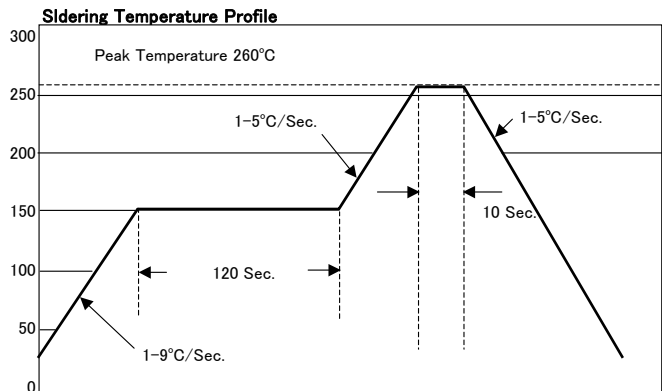
| | a | b | c |
|---------|-----|-----|-----|
| RG 1005 | 0.5 | 1.6 | 0.6 |
| RG 1608 | 1.0 | 3.0 | 1.2 |
| RG 2012 | 1.2 | 4.0 | 1.7 |
| RG 3216 | 2.0 | 5.0 | 2.0 |

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

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Reliability Test Data

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



●Load life test (85°C)



●Temperature cycle test

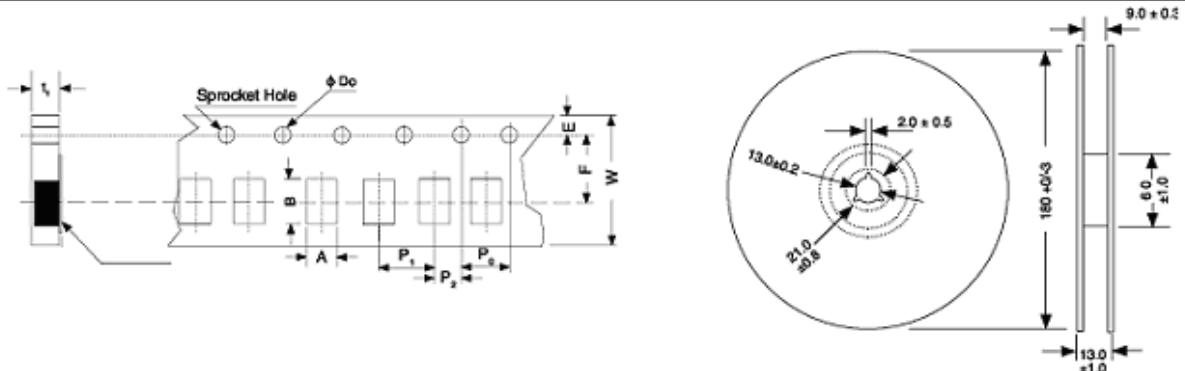


●High temperature expose test (155°C)





Tape & Reel Dimensions (mm)

| Type | A | B | E | F | W | P ₀ | P ₁ | P ₂ | t ₁ |
|--------|-------------|-------------|------------|------------|-----------|----------------|----------------|----------------|----------------|
| 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 | | | | | 4.0 ± 0.1 | | 0.6 ± 0.05 |
| RG2012 | 1.65 ± 0.2 | 2.4 ± 0.2 | | | | | 4.0 ± 0.1 | | 0.75 ± 0.05 |
| RG3216 | 1.9 ± 0.1 | 3.5 ± 0.1 | | | | | 4.0 ± 0.1 | | 1.0 ± 0.2 |



Looking for pricing, stock, or lifecycle information?

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