

Metal thin film chip resistors (Ultra-precision)

■ RG series (This series now includes the former RGH series.) AEC-Q200 Compliant

Features

- Ultimate chip resistors: the result of all of our thin film technology expertise including inorganic passivation
- Resistance drift: less than +/-0.1% after 10000 hour accelerated reliability test
- +/-0.02% of resistance tolerance and +/-5ppm/°C of temperature coefficient of resistance
- Excellent tolerance to power surges

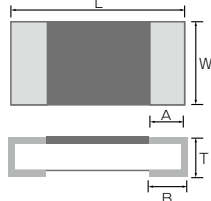
Applications

- Any applications that require precision resistors such as automotive electronics, industrial test and measurement equipment, and consumer electronics

Specifications

* Standard stock item: E-24 series with TOR P, Q, and R grades, as well as tolerance D and B grades. Other E-24 grades and E-96 series are made to order

Dimensions



Dimension (inch)	RG1005 (0402) OLD:RGH1005-2B included	RG1608 (0603) OLD:RGH1608-2C included	RG2012 (0805) OLD:RGH2012-2E included	RG3216 (1206)
L	1.00±0.05	1.60±0.20	2.00±0.20	3.20±0.20
W	0.50±0.05	0.80±0.20	1.25±0.20	1.60±0.20
A	0.20±0.10	0.30±0.20	0.40±0.20	0.50±0.25
B	0.25±0.05	0.30±0.20	0.40±0.20	0.50±0.20
T	0.35±0.05	0.40±0.10	0.40±0.10	0.40±0.10

NOTE Obsolete : RGH1005-2B (0402) RGH:1608-2C (0603) RGH2012-2E (0805)
Alternative P/N : RG1005 (0402) RG1608 (0603) RG2012 (0805)

Electrical characteristics

Series name	RG1005	RG1608
Rated power*1	High power application 1/8W (OLD : RGH1005-2B) Regular power application 1/16W High precision 1/32W	1/6W (OLD : RGH1608-2C) 1/10W 1/16W
E series offered	10~46.4, 47~97.6, 100~294k, 3k~100k	10~46.4, 47~97.6, 100~499k, 5.1k~270k, 274k~332k, 340k~360k
Resistance range (Ω)	10~46.4, 47~97.6, 100~294k, 3k~100k	10~46.4, 47~97.6, 100~499k, 5.1k~270k, 274k~332k, 340k~360k
Resistance tolerance (%)	±0.02% (P) ±0.05% (W) ±0.1% (B) ±0.25% (C) ±0.5% (D)	±0.02% (P) ±0.05% (W) ±0.1% (B) ±0.25% (C) ±0.5% (D)
Temperature coefficient of resistance (ppm/°C)	±5 (V) ±10 (N) ±25 (P) ±50 (Q) ±100 (R)	±5 (V) ±10 (N) ±25 (P) ±50 (Q) ±100 (R)
Maximum voltage	75V	100V
Operating temperature	-55°C~155°C	-55°C~155°C
Packaging	5,000pcs 10,000pcs	CodeT5 CodeT10

Series name	RG2012	RG3216
Rated power*1	High power application 1/4W (OLD : RGH2012-2E) Regular power application 1/8W High precision 1/10W	1/4W 1/8W
E series offered	10~46.4, 47~97.6, 100~10k, 10.2k~475k, 487k~1M	10~46.4, 47~97.6, 100~33.2k, 34k~1M
Resistance range (Ω)	10~46.4, 47~97.6, 100~10k, 10.2k~475k, 487k~1M	10~46.4, 47~97.6, 100~33.2k, 34k~1M
Resistance tolerance (%)	±0.02% (P) ±0.05% (W) ±0.1% (B) ±0.25% (C) ±0.5% (D)	±0.02% (P) ±0.05% (W) ±0.1% (B) ±0.25% (C) ±0.5% (D)
Temperature coefficient of resistance (ppm/°C)	±5 (V) ±10 (N) ±25 (P) ±50 (Q)	±5 (V) ±10 (N) ±25 (P) ±50 (Q)
Maximum voltage	150V	200V
Operating temperature	-55°C~155°C	-55°C~155°C
Packaging	5,000pcs	CodeT5

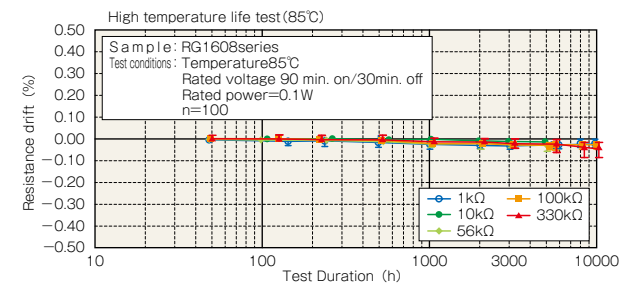
*1 Depending on customer's reliability requirements, power rating between high power and regular power can be selected.
· Contact us for RG3225 with 1/2W rated power.

Reliability characteristics

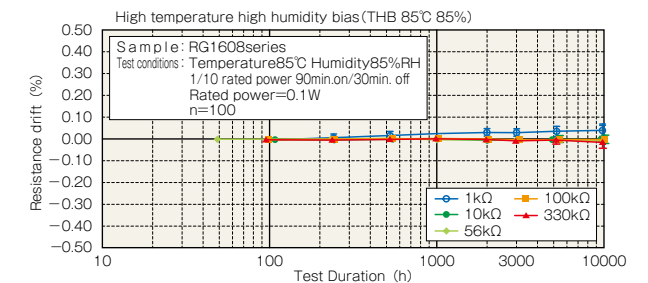
Item	Test Method	Specification: drift limits for each power rating						(Typical)
		Low ≤47Ω	Regular ≥47Ω	Regular ≤47Ω	High ≥47Ω	High ≤47Ω	High ≥47Ω	
Short time Overload	Applied voltage : 2.5 times. Test duration: 5 seconds. (When maximum operating voltage: 2 times or less)	±0.10%	±0.05%	±0.10%	±0.05%	-	±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%)

10000 hour reliability test data

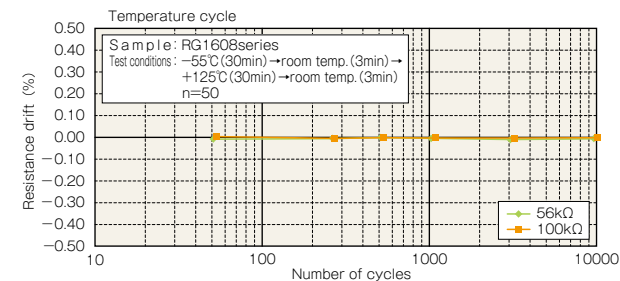
Life test



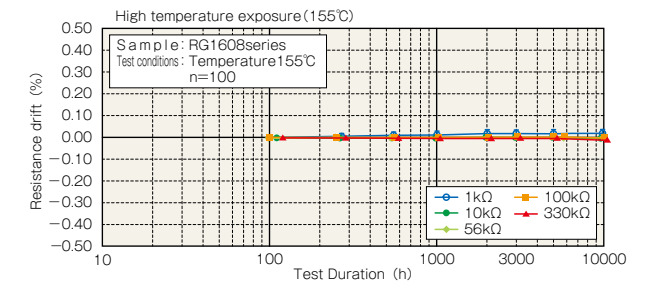
High temperature high humidity bias test



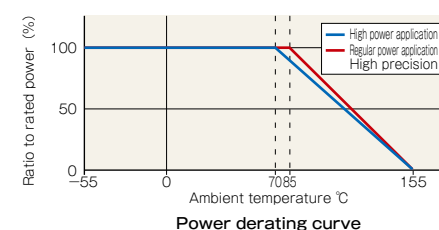
Temperature cycle test



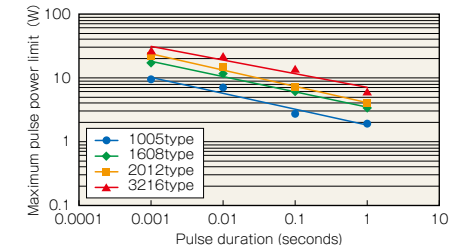
High temperature exposure test



Power derating characteristics



Maximum pulse power limit



Test procedure

Voltage pulse is applied to the test samples mounted on the test board. After each pulse, resistance drift is measured. Pulse voltage is increased until the drift exceeds +/-0.5%. The power at that voltage is defined as the maximum pulse power.

Part numbering system

