

High temperature thin film chip resistors

■ RGA series

AEC-Q200 Compliant

Features

- Conductive epoxy compatible
- Operating temperature up to 230°C
- Resistance tolerance: $\pm 0.1\%$, TCR: $\pm 10\text{ppm}/^\circ\text{C}$
- Thin film structure enabling low noise and anti-sulfur

Applications

- Automotive electronics
- Equipment used in high temperature
- Downhole drilling



Thin film surface mount resistors



RGA series

◆ Part numbering system

RGA 2012 N - 104 - B - T1

Series code

Size: RGA1005, RGA1608, RGA2012

Temperature coefficient of resistance

Nominal resistance value (E-24: 3digit, E-96: 4digit)

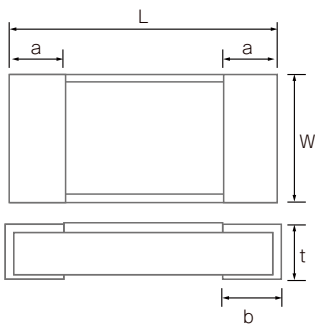
Packaging quantity:
T1 (1,000pcs), T5 (5,000pcs)

Resistance tolerance

◆ Electrical Specification

Type	Power ratings	Temperature coefficient of resistance (ppm/°C)	Resistance range(Ω) Resistance tolerance		Maximum voltage	Resistance value series	Operating temperature	Packaging quantity
			$\pm 0.1\%$ (B)	$\pm 0.5\%$ (D)				
RGA1005	1/32W	± 10 (N)	$47 \leq R \leq 100\text{k}$		50V	E-24, E-96	$-55^\circ\text{C} \sim 230^\circ\text{C}$	T1
		± 25 (P)						
RGA1608	1/16W	± 10 (N)	$47 \leq R \leq 274\text{k}$		100V	E-24, E-96	$-55^\circ\text{C} \sim 230^\circ\text{C}$	T5
		± 25 (P)						
RGA2012	1/10W	± 10 (N)	$47 \leq R \leq 475\text{k}$		150V	E-24, E-96	$-55^\circ\text{C} \sim 230^\circ\text{C}$	T5
		± 25 (P)						

◆ Dimensions



Type	Size (inch)	L	W	a	b	t
RGA1005	0402	$1.00 \pm 0.1 / -0.05$	0.50 ± 0.05	0.20 ± 0.10	0.25 ± 0.05	0.35 ± 0.05
RGA1608	0603	1.60 ± 0.20	$0.80 \pm 0.25 / -0.20$	0.30 ± 0.20	0.30 ± 0.20	$0.40 \pm 0.15 / -0.10$
RGA2012	0805	2.00 ± 0.20	$1.25 \pm 0.25 / -0.20$	0.40 ± 0.20	0.40 ± 0.20	$0.40 \pm 0.15 / -0.10$

(unit : mm)

◆ Reliability specification

Test items	Condition (test methods (MIL-PRF-55342/JIS C5201-1))	Standard
Short time overload	2.5 x rated voltage,*1 5seconds	±(0.1%+0.01Ω)
Life (biased)	125°C, rated voltage,*1 90min on 30min off, 1000hours	±(0.2%+0.05Ω)
High temperature high humidity	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	±(0.2%+0.01Ω)
Temperature shock	-55°C (30min) ~ 125°C (30min) 1000cycles	±(0.2%+0.01Ω)
High temperature exposure	155°C, no bias, 1000hours	±(0.2%+0.05Ω)
Vibration	Frequency 10Hz ~ 500Hz, vibration amplitude 1.5mm or acceleration 10gn test duration for each of 3 axis: 6 hours	±(0.2%+0.05Ω)
Resistance to soldering heat	260±5°C, 10 seconds (reflow)	±(0.5%+0.01Ω)

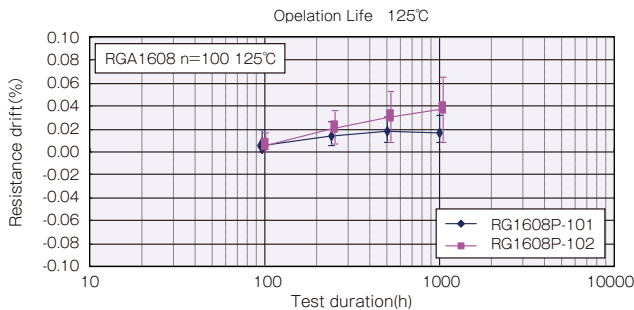
*1 Rated voltage is given by $E = \sqrt{R \times P}$
 E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)
 If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

Thin film surface mount resistors

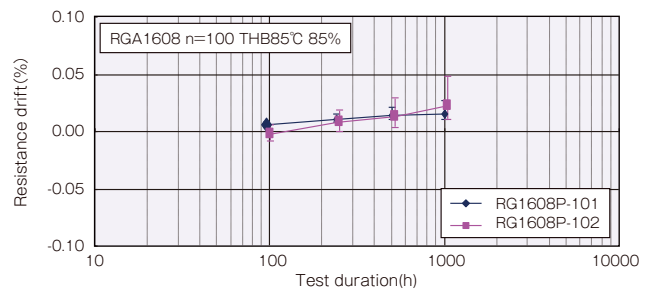
RGA series

◆ Reliability test data

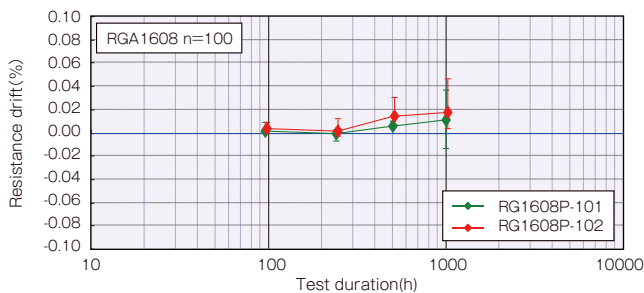
○ Biased life test



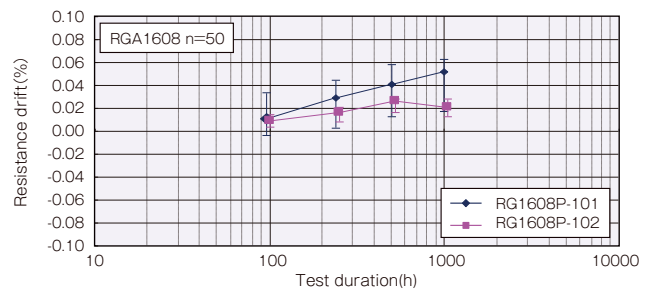
○ High temperature high humidity (biased)



○ Temperature shock



○ High temperature exposure



◆ Derating Curve

