

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)

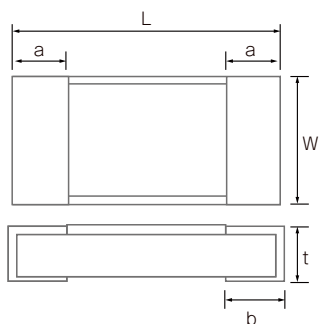
Packaging quantity:
T1 (1,000pcs), T5 (5,000pcs)

Resistance tolerance

◆ Electrical Specification

Type	Power ratings	Temperature coefficient of resistance	Resistance range(Ω) Resistance tolerance		Maximum voltage	Resistance value series	Operating temperature	Packaging quantity
		(ppm/°C)	±0.1% (B)	±0.5% (D)				
RGA1005	1/32W	±10(N)	47≤R≤100k		50V	E-24, E-96	-55℃ ~ 230℃	T1 T5
		±25(P)	10≤R≤100k					
RGA1608	1/16W	±10(N)	47≤R≤274k		100V			
		±25(P)	10≤R≤332k	10≤R≤360k				
RGA2012	1/10W	±10(N)	47≤R≤475k		150V			
		±25(P)	10≤R≤1M					

◆ Dimensions



Type	Size (inch)	L	W	a	b	t
RGA1005	0402	$1.00 \pm 0.1 / -0.05$	0.50 ± 0.10	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	$\pm (0.1\%+0.01\Omega)$
Life (biased)	125°C, rated voltage,*1 90min on 30min off, 1000hours	$\pm (0.2\%+0.05\Omega)$
High temperature high humidity	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	$\pm (0.2\%+0.01\Omega)$
Temperature shock	-55°C (30min) ~ 125°C (30min) 1000cycles	$\pm (0.2\%+0.01\Omega)$
High temperature exposure	155°C, no bias, 1000hours	$\pm (0.2\%+0.05\Omega)$
Vibration	Frequency 10Hz ~ 500Hz, vibration amplitude 1.5mm or acceleration 10gn test duration for each of 3 axis: 6 hours	$\pm (0.2\%+0.05\Omega)$
Resistance to soldering heat	260 $\pm$ 5°C, 10 seconds (reflow)	$\pm (0.5\%+0.01\Omega)$

*1 Rated voltage is given by $E=\sqrt{R \times P}$

E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)

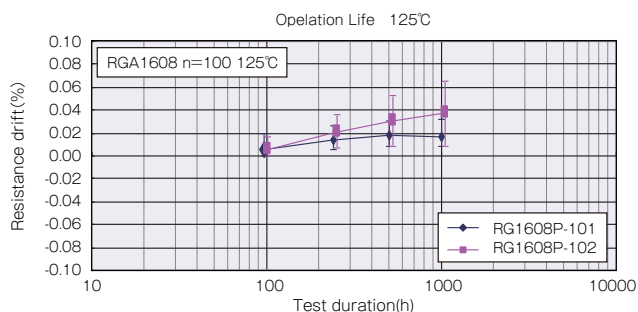
If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

Thin film surface mount resistors

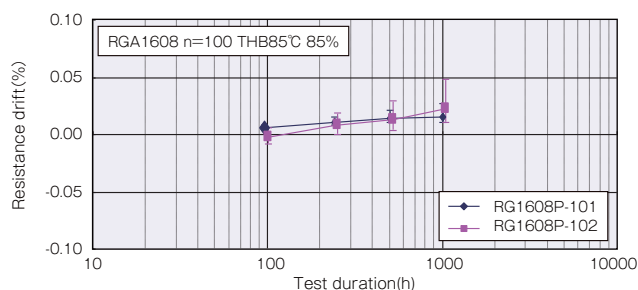
RGA series

◆ Reliability test data

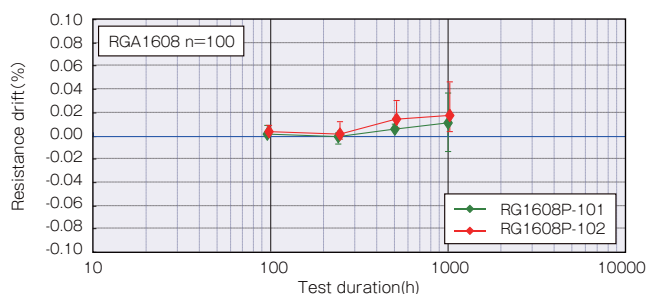
○ Biased life test



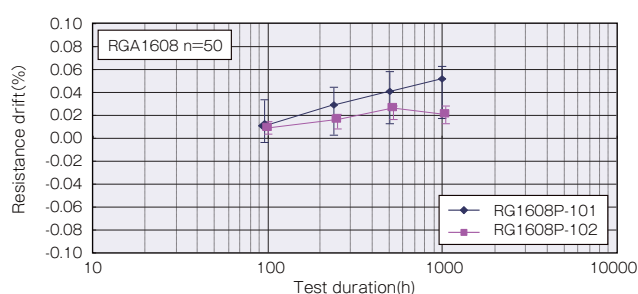
○ High temperature high humidity (biased)



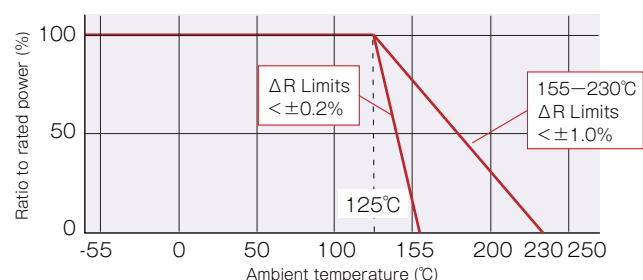
○ Temperature shock



○ High temperature exposure



◆ Derating Curve



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