

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 100k | | 50V | E-24, E-96 | -55°C ~ 230°C | T1 |
| | | ± 25 (P) | 10 \leq R \leq 100k | | | | | |
| RGA1608 | 1/16W | ± 10 (N) | 47 \leq R \leq 274k | | 100V | | | |
| | | ± 25 (P) | 10 \leq R \leq 332k | 10 \leq R \leq 360k | | | | |
| RGA2012 | 1/10W | ± 10 (N) | 47 \leq R \leq 475k | | 150V | | | |
| | | ± 25 (P) | 10 \leq R \leq 1M | | | | | |

◆ Dimensions



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

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◆ Reliability test data

○ Biased life test



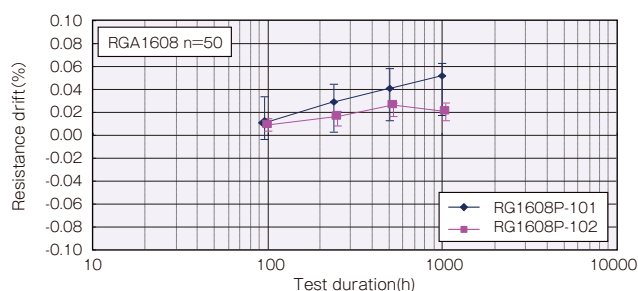
○ High temperature high humidity (biased)



○ Temperature shock



○ High temperature exposure



◆ Derating Curve



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