

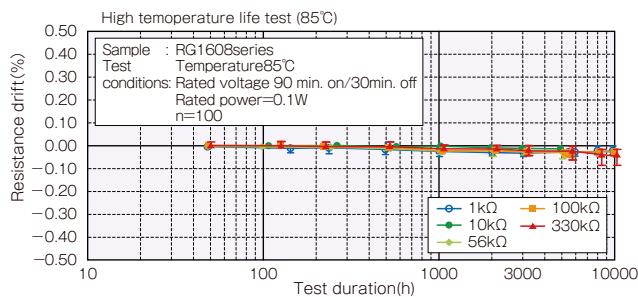
◆ Reliability specification

Test Items	Condition (test methods)	Low		Regular		High		Typical
		$\leq 47\Omega$	$\geq 47\Omega$	$\leq 47\Omega$	$\geq 47\Omega$	$\leq 47\Omega$	$\geq 47\Omega$	Low
Short time overload	2.5 x rated voltage, ^{*1} 5 seconds	$\pm 0.10\%$	$\pm 0.05\%$	$\pm 0.10\%$	$\pm 0.05\%$	—	$\pm 0.10\%$	$\pm (0.01\%)$
Life (biased)	70°C, rated voltage, ^{*1} 90min on 30min off, 1000hours	$\pm 0.25\%$	$\pm 0.10\%$	$\pm 0.50\%$	$\pm 0.25\%$	—	$\pm 0.50\%$	$\pm (0.01\%)$
High temperature high humidity	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	$\pm 0.25\%$	$\pm 0.10\%$	$\pm 0.50\%$	$\pm 0.25\%$	—	$\pm 0.50\%$	$\pm (0.05\%)$
Temperature shock	-55°C (30min) ~ 125°C (30min) 1000cycles	$\pm 0.25\%$	$\pm 0.10\%$	$\pm 0.25\%$	$\pm 0.10\%$	—	$\pm 0.10\%$	$\pm (0.01\%)$
High temperature exposure	155°C, no bias, 1000hours	$\pm 0.25\%$	$\pm 0.10\%$	$\pm 0.25\%$	$\pm 0.10\%$	—	$\pm 0.10\%$	$\pm (0.01\%)$
Resistance to soldering heat	260 ± 5 °C, 10 seconds (reflow)	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	$\pm 0.1\%$	—	$\pm 0.1\%$	$\pm (0.01\%)$

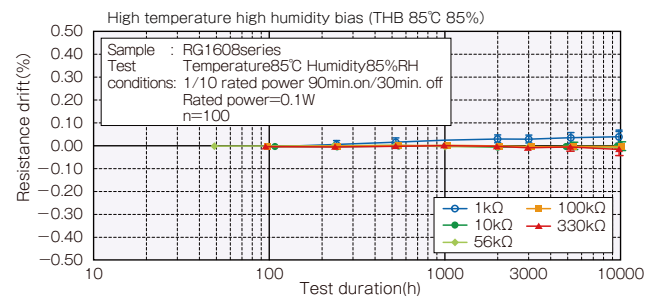
*1 Rated voltage is given by $E = \sqrt{R \times P}$ E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)
If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

◆ 10000 hour reliability test data

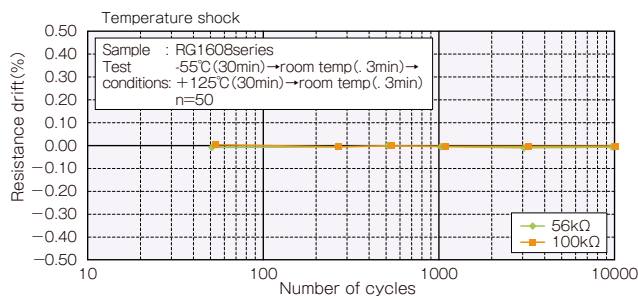
○ Biased life test



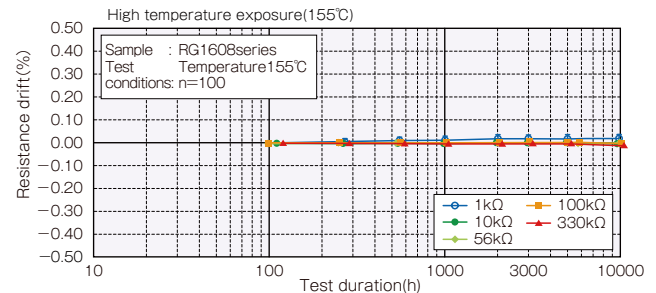
○ High temperature high humidity (biased)



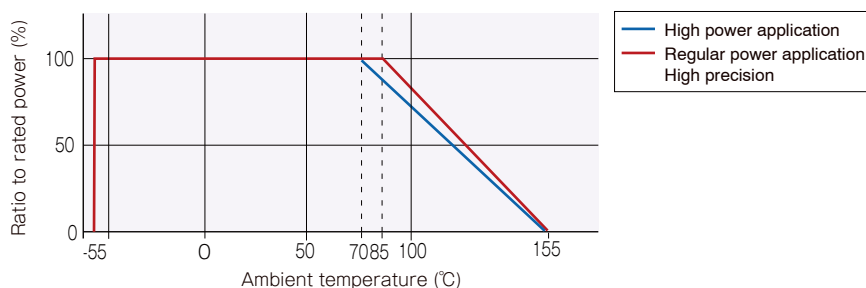
○ Temperature shock



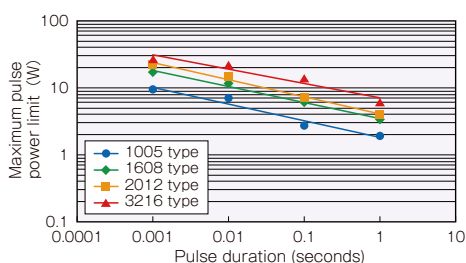
○ High temperature exposure



◆ Derating Curve



◆ 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 $\pm 0.5\%$.

The power at that voltage is defined as the maximum pulse power.