



Metal thin film chip resistors (the highest reliability and precision)

■ URG series

Features

- The tightest resistance tolerance: $\pm 0.01\%$
- The smallest temperature coefficient of resistance: $\pm 1 \text{ ppm}/^\circ\text{C}$
- Long term stability with inorganic passivation
- Thin film structure enabling low noise and anti-sulfur

Applications

- Industrial measurement, electrical scales
- High precision sensors, medical electronics

◆ Part numbering system

URG 2012 L - 102 - L - T1

Series code

Size: URG1608, URG2012,
URG3216, URG5025, URG6432

Temperature coefficient of resistance

Packaging quantity: T1(1,000pcs),
T05(500pcs), T01(100pcs)

Resistance tolerance

Nominal resistance value (E-24: 3 digit, E-96: 4 digit,
URG3216, URG5025, URG6432: all 4 digit)

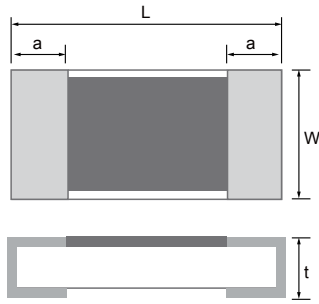
◆ Electrical Specification

Type	Power ratings	Temperature coefficient of resistance (ppm/ $^\circ\text{C}$)	Resistance range(Ω) Resistance tolerance					Maximum voltage	Resistance value series	Operating temperature	Packaging quantity
			$\pm 0.01\%$ (L)	$\pm 0.02\%$ (P)	$\pm 0.05\%$ (W)	$\pm 0.1\%$ (B)	$\pm 0.5\%$ (D)				
URG1608	1/16W	± 1 (K)	$100 \leq R \leq 7.5\text{k}$					100V			T1
		± 2 (L)									
URG2012	1/10W	± 1 (K)	$100 \leq R \leq 36\text{k}$					150V			T05
		± 2 (L)									
URG3216	1/4W	± 1 (K)	$100 \leq R \leq 68\text{k}$					200V	E24, E96	$-55^\circ\text{C} \sim 155^\circ\text{C}$	T01
		± 2 (L)									
URG5025	1/2W	± 1 (K)	$100 \leq R \leq 150\text{k}$					300V			T01
		± 2 (L)									
URG6432	3/4W	± 1 (K)	$100 \leq R \leq 200\text{k}$					300V			
		± 2 (L)									

*1 Applicable TCR range $-20^\circ\text{C} \sim 125^\circ\text{C}$

***Contact us for requirements not listed in above table.**

◆ Dimensions



Type	Size (inch)	L	W	a	t
URG1608	0603	1.60±0.20	0.80+0.25/-0.20	0.30±0.20	0.40+0.15/-0.10
URG2012	0805	2.00±0.20	1.25+0.25/-0.20	0.40±0.20	0.40+0.15/-0.10
URG3216	1206	3.20±0.20	1.60±0.25	0.50±0.25	0.40+0.15/-0.10
URG5025	2010	5.00±0.20	2.50±0.25	0.60±0.25	0.45+0.15/-0.10
URG6432	2512	6.40+0.20/-0.40	3.20±0.25	0.75±0.25	0.45±0.20

(unit : mm)

Thin film surface mount resistors

URG series

◆ Reliability specification

Test items	Condition (test methods (MIL-PRF-55342/JIS C5201-1))	Standard
Short time overload	2.5 x rated voltage, ^{*1} 5seconds	±0.02%+0.01Ω
Life (biased)	70°C, rated voltage, ^{*1} 90min on 30min off, 2000hours	±0.02%+0.01Ω(R≥250Ω)
		±0.05%+0.01Ω(R<250Ω)
High temperature high humidity	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	±0.05%+0.01Ω
Temperature shock	-65°C (15min) ~ 150°C (15min) 100cycles	±0.02%+0.01Ω
High temperature exposure	155°C, no bias, 1000hours	±0.05%+0.01Ω
Resistance to soldering heat	235±5°C, 30 seconds (reflow), (by MIL-PRF-55342)	±0.01%+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)

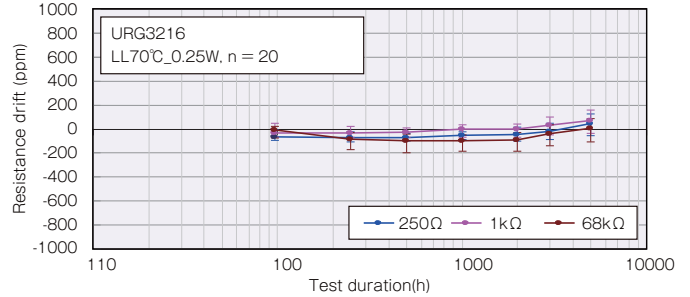
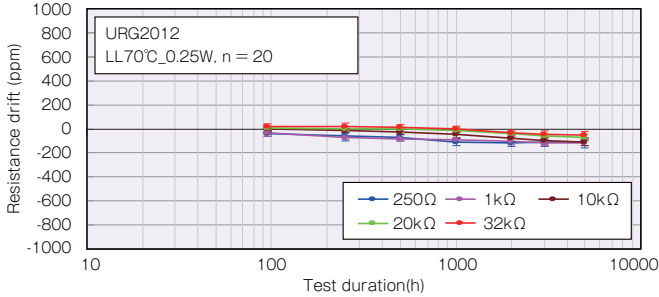
If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

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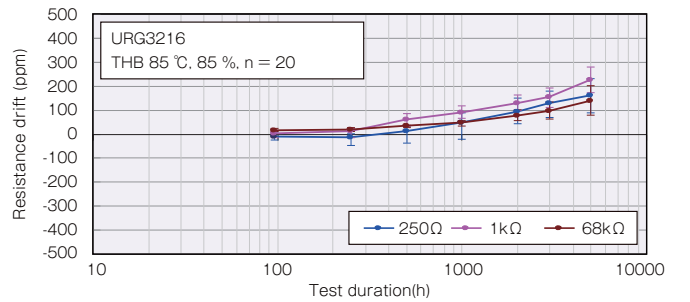
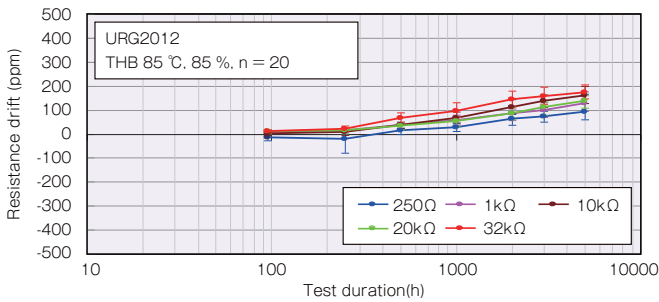
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◆ Reliability test data

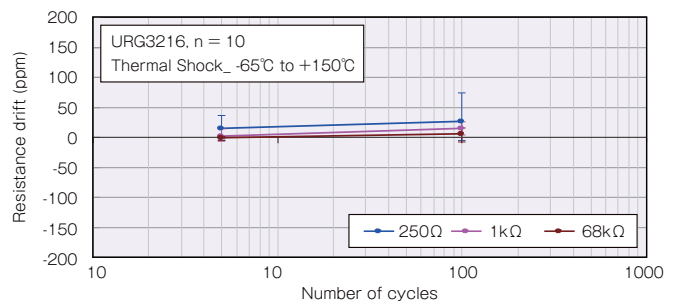
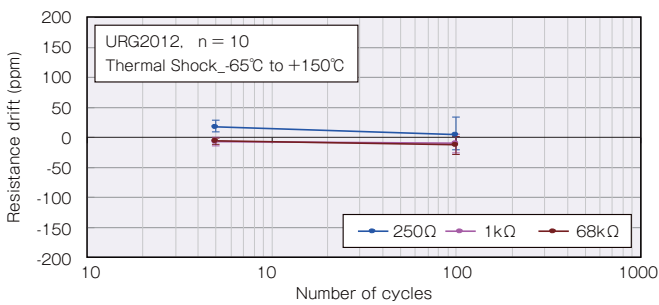
○ Biased life test



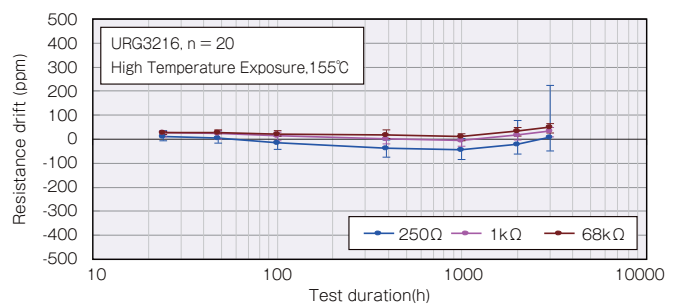
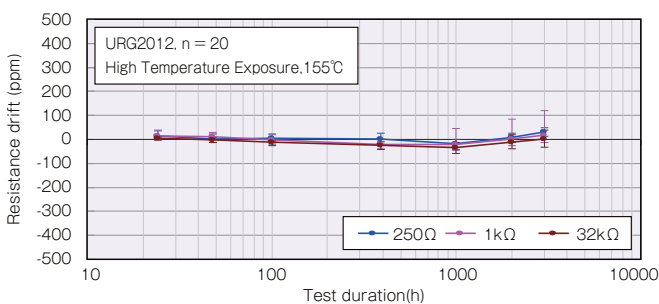
○ High temperature high humidity (biased)



○ Temperature shock

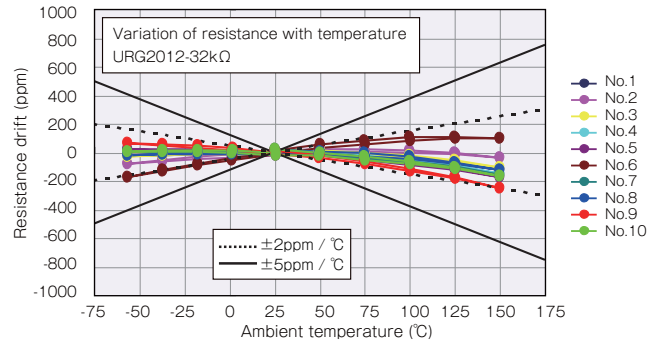
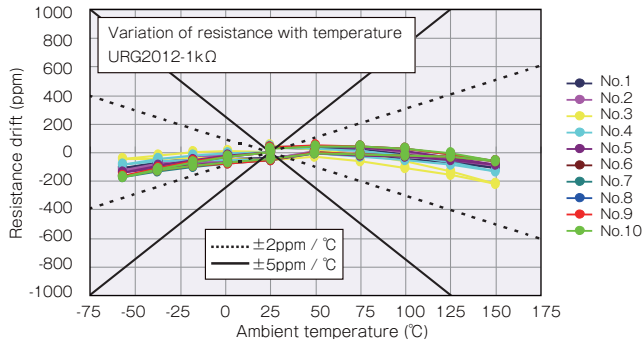


○ High temperature exposure

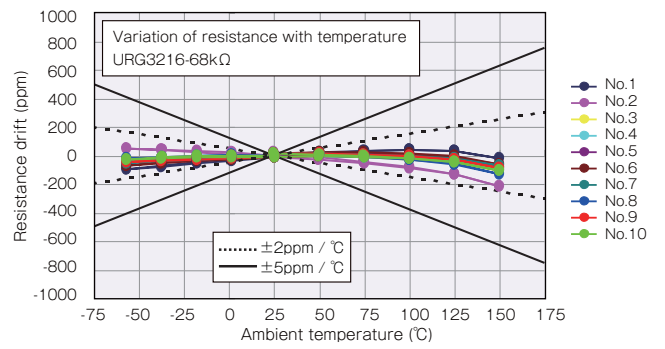
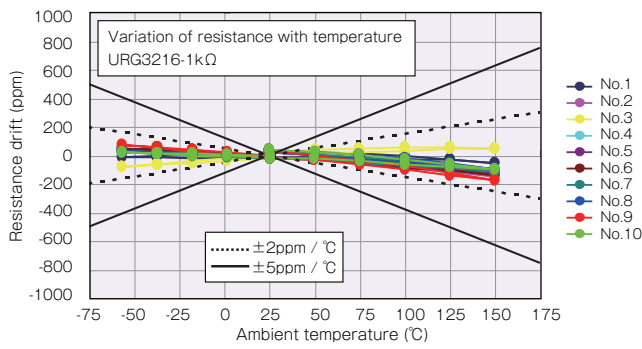


◆ Temperature coefficient of Resistance

○ URG2012



○ URG3216



◆ Derating Curve

