

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

■URG series **AEC-Q200 Compliant**

Lead free Halogen free RoHS Compliance

Features

- The tightest resistance tolerance: +/-0.01%
- The smallest temperature coefficient of resistance: ±1ppm/℃
- Long term stability with inorganic passivation
- Thin film structure enabling low noise and anti-sulfur

Applications

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

◆Part numbering system

URG 2012 L - 102 - L - T1

- URG: Series code
- 2012: Size: URG1608, URG2012, URG3216, URG5025, URG6432
- L: Temperature coefficient of resistance
- 102: Nominal resistance value (E-24: 3 digit, E-96: 4 digit, URG3216, URG5025, URG6432: all 4 digit)
- L: Resistance tolerance
- T1: Packaging quantity: T1(1,000pcs), T05(500pcs), T01(100pcs)

◆Electrical Specification

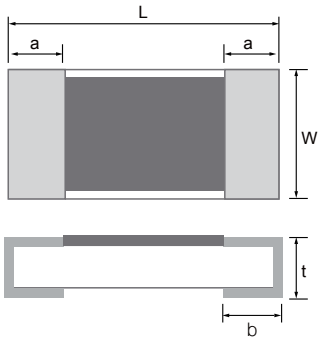
Type	Power ratings	Temperature coefficient of resistance	Resistance range(Ω) Resistance tolerance					Maximum voltage	Resistance value series	Operating temperature	Packaging quantity
			±0.01% (L)	±0.02% (P)	±0.05% (W)	±0.1% (B)	±0.5% (D)				
URG1608	1/16W	±1(K) *1 ±2(L) *2	250 ≦R ≦7.5K	100≦R≦7.5k				100V	E24, E96	-55℃ ~ 155℃	T1 T05 T01
URG2012	1/10W	±1(K) *1 ±2(L) *2	250 ≦R ≦36K	100≦R≦36k				150V			
URG3216	1/4W	±1(K) *1 ±2(L) *2	250 ≦R ≦68K	100≦R≦68k				200V			
URG5025	1/2W	±1(K) *1 ±2(L) *2	250 ≦R ≦100K	100≦R≦150k				300V			
URG6432	3/4W	±1(K) *1 ±2(L) *2	250 ≦R ≦100K	100≦R≦200k				300V			

*1: Applicable TCR K (±1.0) at temperature range 25℃~ 65℃
Applicable TCR K (±1.5) at temperature range -20℃~ 25℃, 65℃~125℃

*2: Applicable TCR L at temperature range -20℃~ 125℃

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

◆Dimensions



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

(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	±(0.02%+0.01Ω)
Life (biased)	70℃, 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℃, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	±(0.05%+0.01Ω)
Temperature shock	-65℃ (15min) ~ 150℃ (15min) 100cycles	±(0.02%+0.01Ω)
High temperature exposure	155℃, no bias, 1000hours	±(0.05%+0.01Ω)
Resistance to soldering heat	235±5℃, 30 seconds (reflow), (by MIL-PRF-55342)	±(0.01%+0.01Ω)

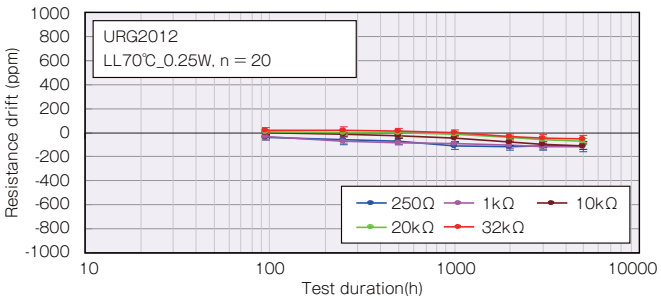
*1 Rated voltage is given by E= $\sqrt{R \times P}$
E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)
If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

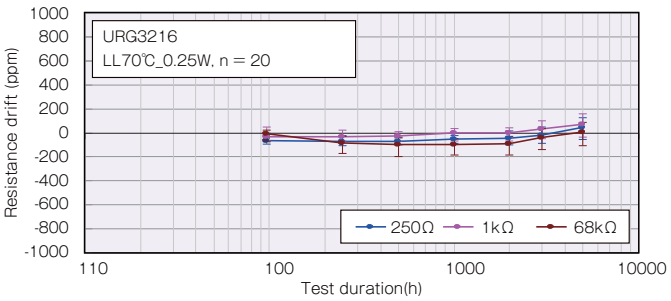
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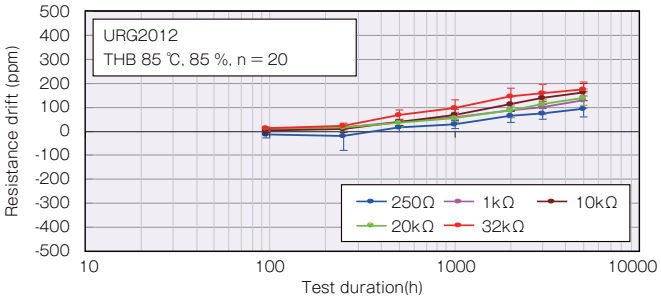
◆Reliability test data

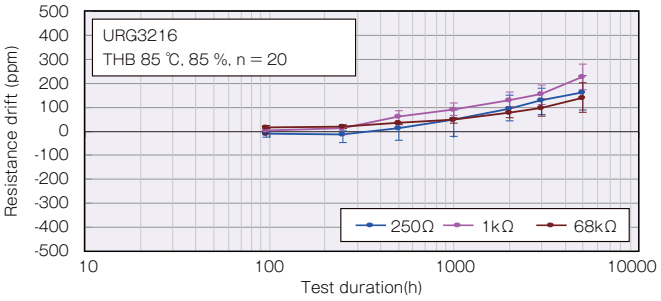
○Biased life test



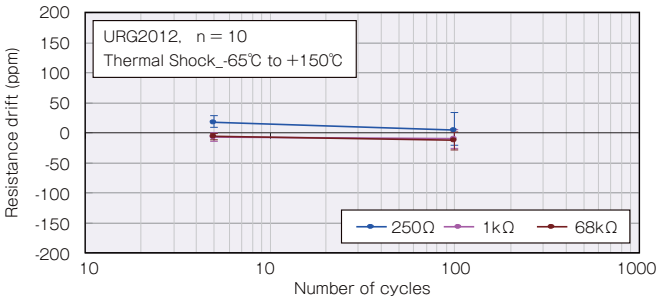


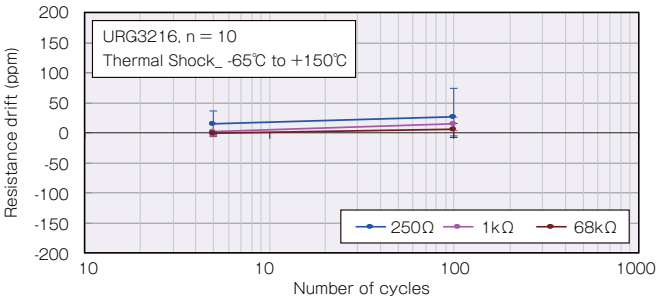
○High temperature high humidity (biased)



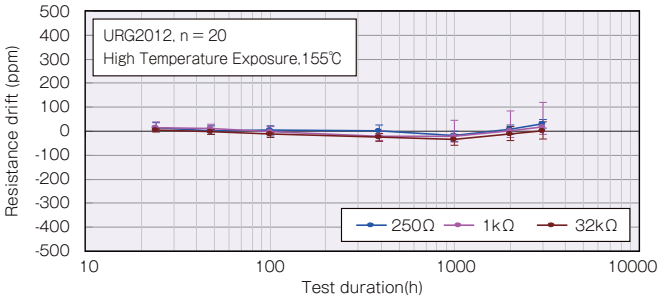


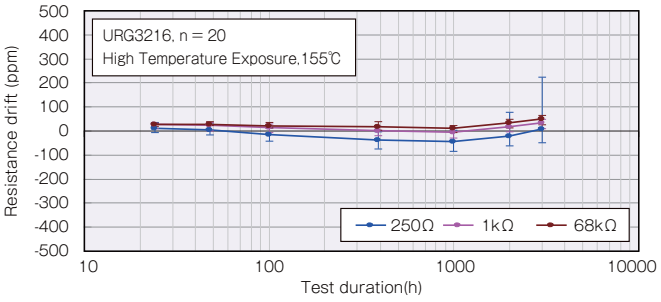
○Temperature shock





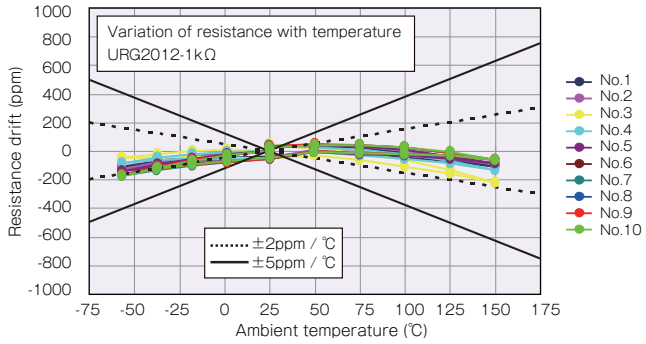
○High temperature exposure

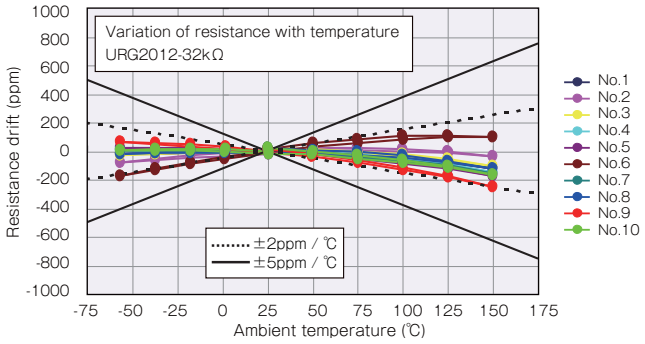




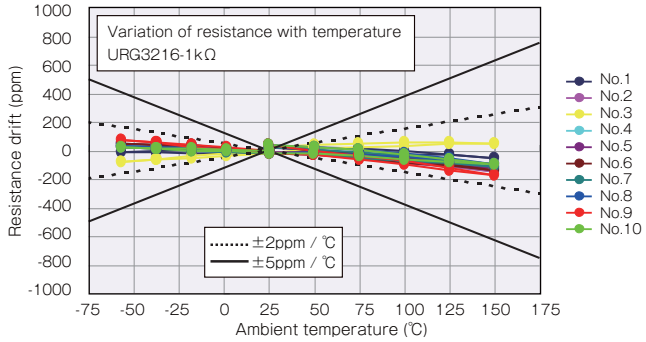
◆Temperature coefficient of Resistance

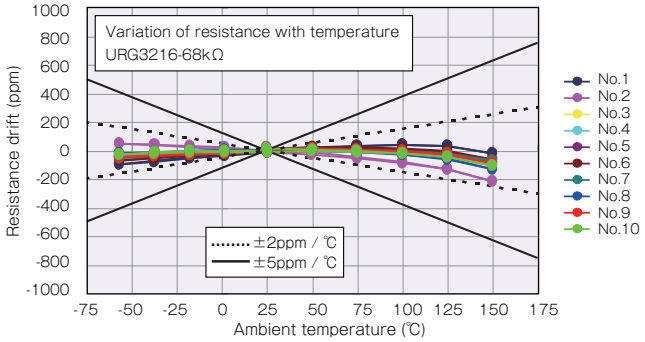
○URG2012





○URG3216





◆Derating Curve

