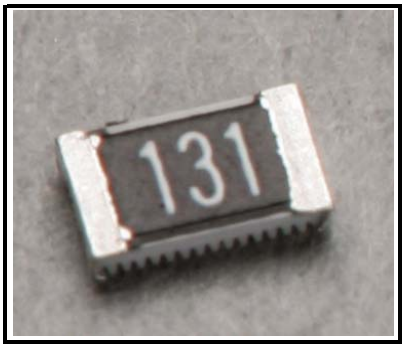
Ultra Precision ±0.01% Tol, ±2ppm TCR Thin Film Chip Resistors



FEATURES

- Unmatched Reliability and Excellent Stability at different environmental conditions
- Low noise, THIN FILM (NiCr) construction
- EIA Standard case size(0603, 0805, 1206)
- RoHS Compliance and 100% Lead-Free (Matte Sn termination finished)

APPLICATIONS

- Automotive
- Scale, Test & Measurement
- Optical & Telecommunication
- Medical and Industrial Equipment

Electrical Specification

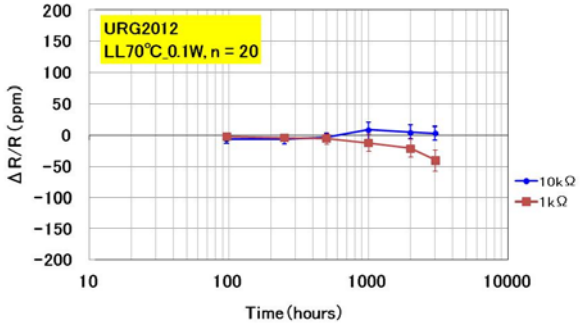
Type	Size (in inch)	Power Rating at 70 °C	Resistance Tolerance (Code)	Resistance Range (ohm)	Temperature Coefficient (Code) *1) (ppm/°C)	Max. operating Voltage	Resistance Values (E-series)	Packaging (Code)
URG1608	0603	1/16W	±0.01%(L) ±0.02%(P)	100 – 7.5K	±2 (L)	100V	E-24, E-96	Tape & Reel (T&R) T1 = 1000pcs T05 = 500pcs
URG2012	0805	1/10W		100 – 36K	±2 (L)	150V		
URG3216	1206	1/4W		100 – 68K	±2 (L)	200V		

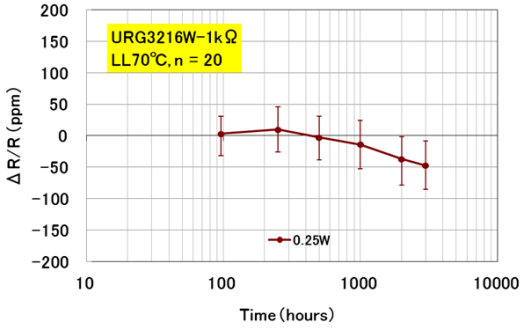
*1) Assurance temperature range : -20°C～125°C

Reliability Test Data

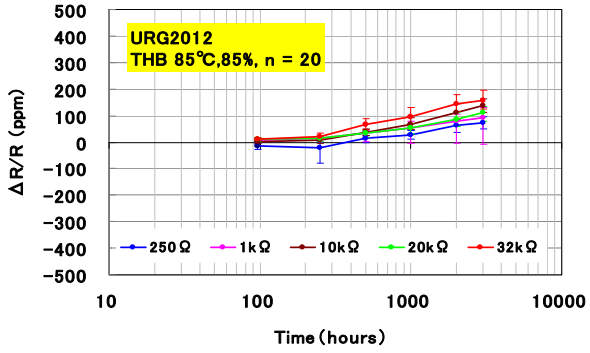
Item	Test Method (MIL-PRF-55342/JIS C5201-1)	ΔR Limits
Short Time Overload	2.5 times of Rated Load X 5sec.	+/- 0.02%
Load Life	70°C Rated Load 90min. On/ 30min. Off per Cycle X 2000	+/- 0.02%
Temp. Hum. Bias	85°C 85% RH 1/10 power loaded 90min. On/ 30min. Off per Cycle X 2000	+/- 0.05%
Thermal Shock	-65°C (30min)/room temp.(2min) / +150°C(30min)/room temp.(2min), 100 cycles, no bias	+/- 0.02%
High Temperature	155°C for 100h, no bias	+/- 0.02%

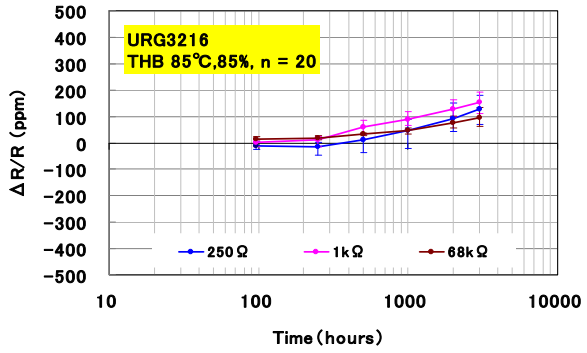
Load Life Test Data for 3,000Hrs @ 70°C at Rated Power



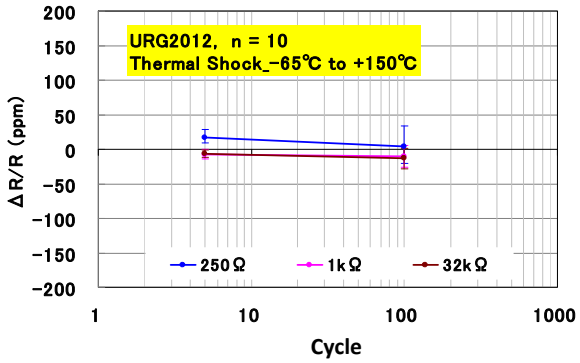


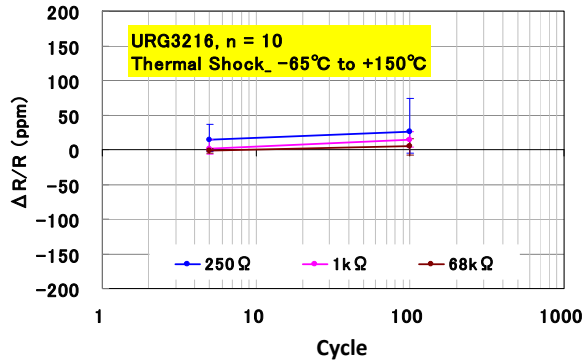
Temperature Humidity Bias



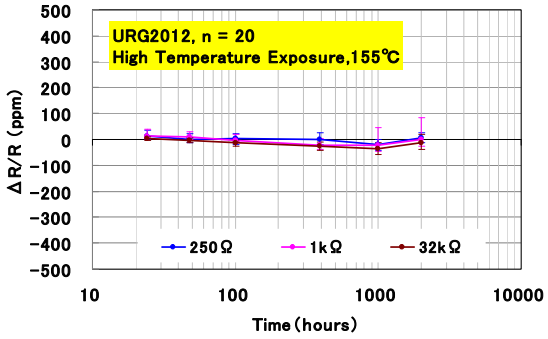


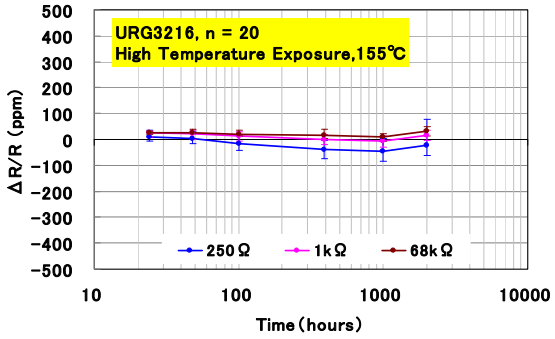
Thermal Shock



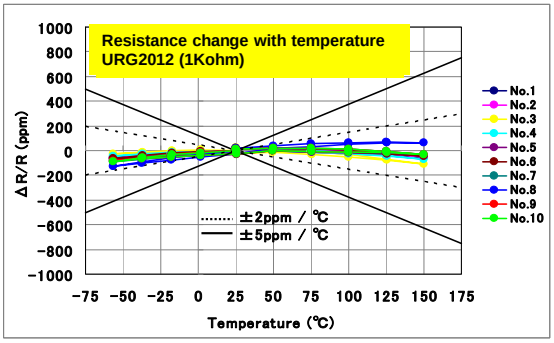


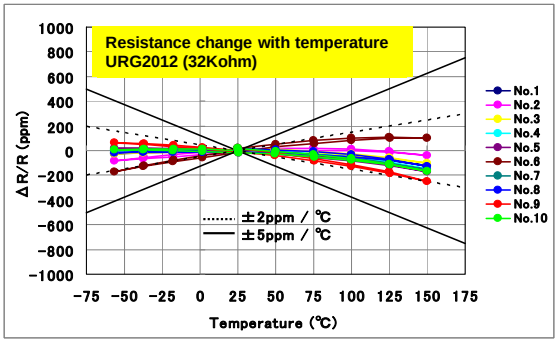
High Temperature Exposure at 155℃ with no power



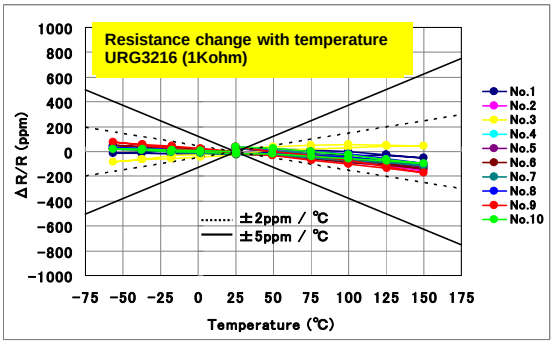


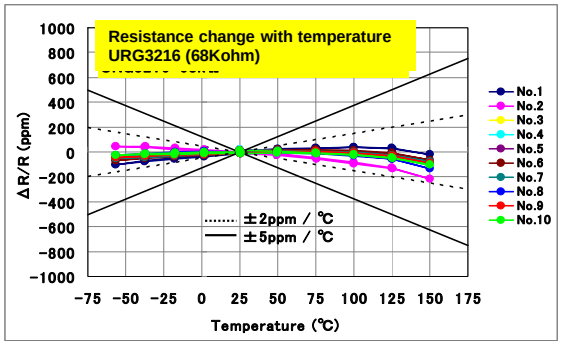
Typical TCR Curve and Thermal Characteristic of Resistance value



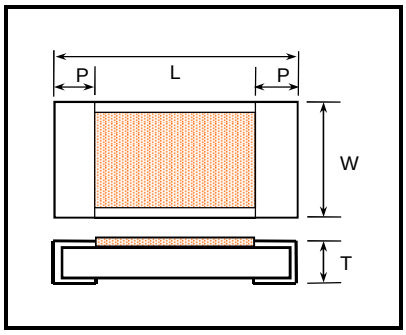


Typical TCR Curve and Thermal Characteristic of Resistance value





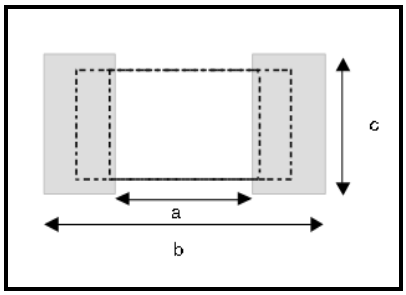
Dimensions & Footprints



Dimension inch(mm)

TYPE	L	W	P	T
URG1608	.063 ± .004 (1.6 ± 0.1)	.031 ± .006 (0.8 ± 0.15)	.012 ± .006 (0.3 ±0.15)	0.016 ± .004 (0.4 ± 0.1)
URG2012	.079 ± .008 (2.0 ± 0.2)	.049 ± .008 (1.25 ± 0.2)	.016 ± .008 (0.4 ± 0.2)	0.016 ± .004 (0.4 ± 0.1)
URG3216	.126 ± .008 (3.2 ± 0.2)	.063 ± .008 (1.6 ± 0.2)	.02 ± .01 (0.5 ± 0.25)	0.016 ± .004 (0.4 ± 0.1)

Recommended Mounting Footprints

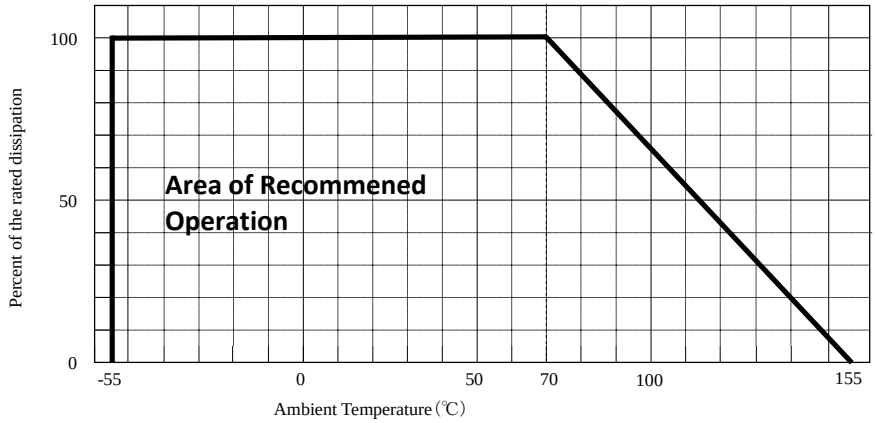


Dimension inch(mm)

TYPE	a	b	c
URG1608	.040 (1.0)	.118 (3.0)	.047 (1.2)
URG2012	.047 (1.2)	.157 (4.0)	.067 (1.7)
URG3216	.079 (2.0)	.197 (5.0)	.079 (2.0)

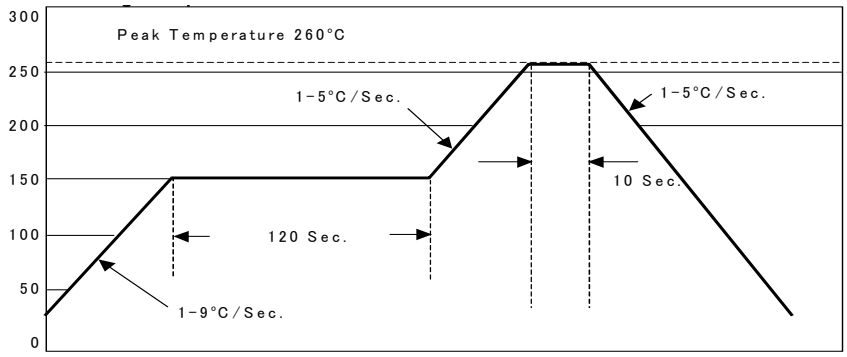
Power Derating Curve

For operation above 70degC, power rating must be derated according to the following chart.



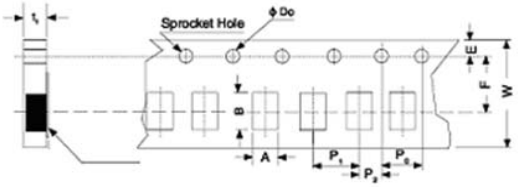
Recommended Reflow Curve

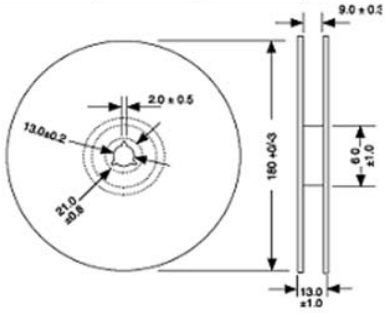
Soldering Temperature Profile



Tape & Reel Dimensions (mm)

Type	A	B	E	F	W	P0	P1	P2	t1
URG1608	1.1 ± 0.1	1.9 ± 0.1	1.75 ± 0.1	3.5 ± 0.05	8.0 ± 0.3	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	0.6 ± 0.05
URG2012	1.65 ± 0.2	2.4 ± 0.2							0.75 ± 0.05
URG3216	1.9 ± 0.1	3.5 ± 0.1							1.0 ± 0.2





Ordering information

URG	2012	L	-	104	-	L	-	T1
TYPE	Size	TCR		R-Values		Tolerance		Package
	1608 2012 3216	L = 2ppm/°C		3 digits for E24 series (Ex.101=100 ohm) 4 digits for E96 series (Ex.4992=49.9K ohm) URG3216 only 4digits for all values E24 & E96 (Ex. 1000=100 ohm)		L =±0.01% P=±0.02%		Tape & Reel T1 = 1000pcs T&R T05 = 500pcs T&R

Notice

For non-standard R-values requests, please contact our technical support.