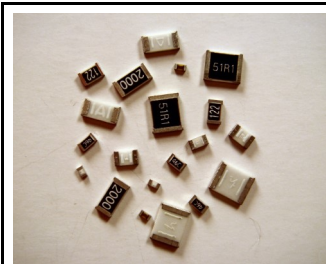




**Product Family:** [Ultra Reliable Chip Resistor](#)  
**Part Number Series:** [UCR Series \(Ultra Tight Tolerance\)](#)



**Construction:**

- High Purity Alumina Substrate
- Ni alloy thin-film resistive element
- SiO<sub>2</sub> protective barrier
- Wrap around electrodes
- 100% matte tin over Ni terminations
- Anti-Sulfur

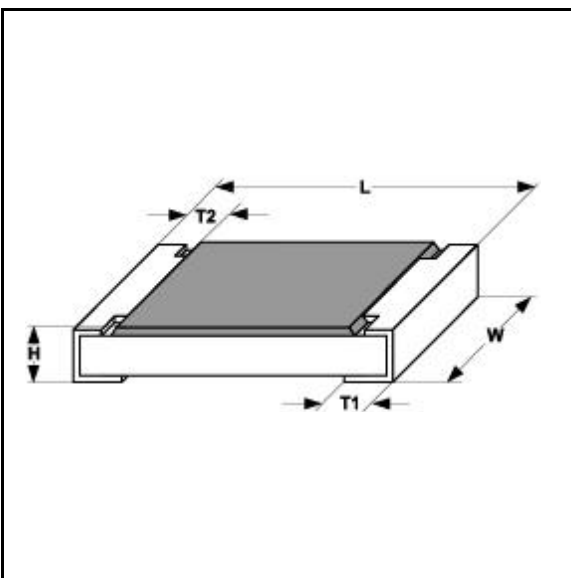
**Features:**

- 0603, 0805 and 1206 sizes
- TCR's to  $\pm 2$  ppm/ $^{\circ}$ C
- Tolerances to 0.01%
- SiO<sub>2</sub> barrier provides exceptional stability and reliability, Automotive Grade
- High volume production suitable for commercial and special applications

**Description:**

These ultra precision, highly stable precision chip resistors are perfect for demanding applications where high reliability and environmental stability is a must, such as automotive or test and measure applications. The incorporation of a SiO<sub>2</sub> protective barrier protects the products and allows for a very stable product with excellent long term reliability.

**Product Dimensions:**



Dimension	UCR0603 (1608)	UCR0805 (2012)	UCR1206 (3216)
L	0.063 $\pm$ 0.008	0.079 $\pm$ 0.008	0.126 $\pm$ 0.008
W	0.031 $\pm$ 0.008	0.049 $\pm$ 0.008	0.063 $\pm$ 0.008
H	0.016 $\pm$ 0.004	0.016 $\pm$ 0.004	0.016 $\pm$ 0.004
T1	0.012 $\pm$ 0.008	0.016 $\pm$ 0.008	0.018 $\pm$ 0.008
T2	0.012 $\pm$ 0.008	0.016 $\pm$ 0.008	0.016 $\pm$ 0.008

All dimensions are shown in inches. Metric case sizes are shown in parenthesis.

**Part Numbering:** Ex: UCR0805M2002T-T05

Product Designator	Size W x L (English)	Temp. Coefficient of Resistance (TCR)	Resistance Value	Resistance Tolerance	T&R Packaging Quantity
UCR	0603 0805 1206	L = $\pm 2$ ppm/ $^{\circ}$ C M = $\pm 5$ ppm/ $^{\circ}$ C	4 digits with the first 3 being significant. The last digit specifies the number of zeros.	T = $\pm 0.01\%$ Q = $\pm 0.02\%$ A = $\pm 0.05\%$ B = $\pm 0.10\%$ D = $\pm 0.50\%$	-T05 = 500 -T1 = 1,000 (see note)

Note: Refer to available package sizes in the Electrical Specifications section of this document. When requesting quotes or ordering parts, it is not necessary to add the T&R package quantity (-T##) to the end of the part number. This will be added by us based on the quantity ordered.

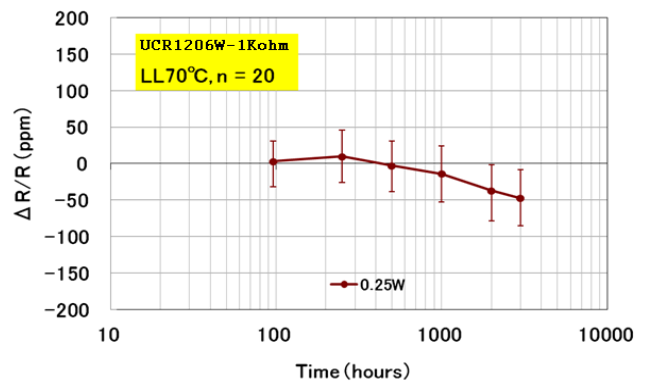
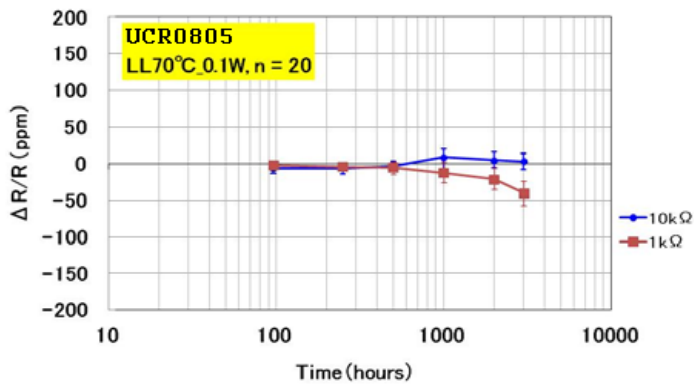
**Electrical Specifications:**

Type	UCR0603	UCR0805	UCR1206
Power Rating @ 70°C	1/16 Watt	1/10 Watt	1/4 Watt
Tolerance% (code)	±0.01% (T) ±0.02% (Q) ± 0.05% (A) ±0.10% (B) ±0.50% (D)	±0.01% (T) ±0.02% (Q) ± 0.05% (A) ±0.10% (B) ±0.50% (D)	±0.01% (T) ±0.02% (Q) ± 0.05% (A) ±0.10% (B) ±0.50% (D)
Resistance Range (Ω)	100 ~ 7.5k	100 ~ 36k	100 ~ 68k
Resistance Offering	E-24, E-96 Values		
TCR ppm/°C (code)	±2 (L) ±5 (V)	±2 (L) ±5 (V)	±2 (L) ±5 (V)
Max Operating Voltage	100 V	150 V	200 V
Operating Temperature	-55°C ~ 155°C		
Packaging	500pcs/reel (T05) 1,000 pcs/reel (T1)	500pcs/reel (T05) 1,000 pcs/reel (T1)	500pcs/reel (T05) 1,000 pcs/reel (T1)

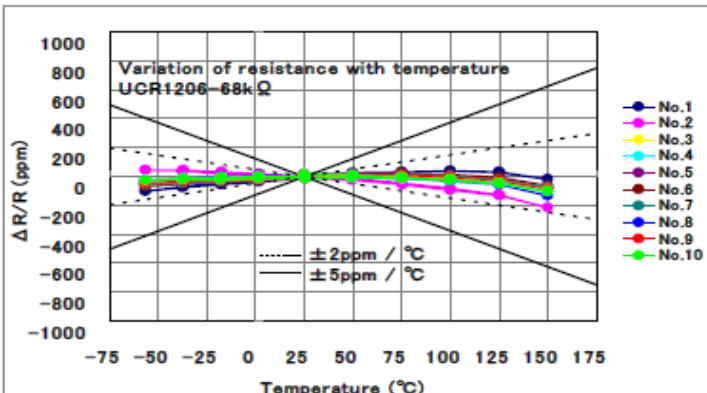
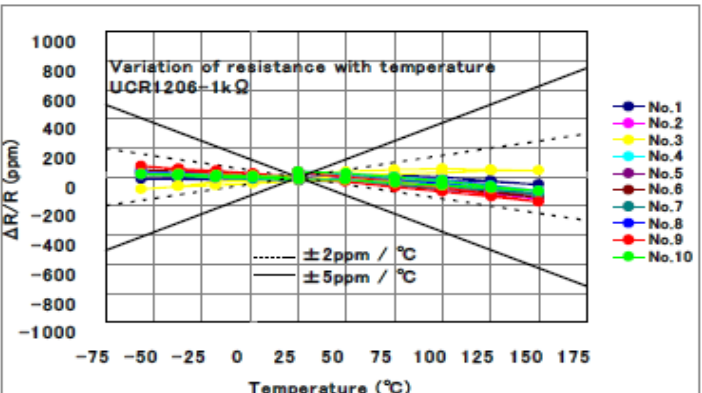
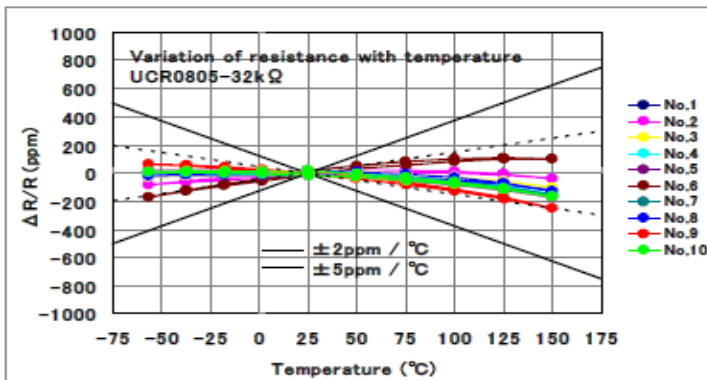
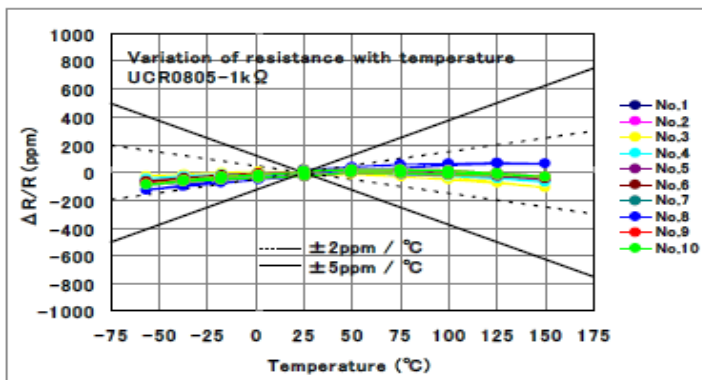
**Reliability Specifications:**

Test	Test Method	Typical ΔR Limits
Short Time Overload	Applied voltage: 2.5X rated voltage or 2X maximum operating voltage, whichever is less. Test duration: 5 seconds	± 0.02%
Load Life	Test Temperature: 70°C Applied voltage: rated voltage Test period: 2000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF,	± 0.02%
Moisture Load Life	Test Condition: 85°C/85% RH Applied voltage: 1/10 rated power Test period: 2000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF	± 0.05%
Temperature Cycle	Repeat 100 cycles as follows: -65°C(30 min.) / Room temp (2 min) / +150°C(30 min.) / Room temp (2 min)	± 0.02%
High Temperature Exposure	+155°C for 100 hours with no load	± 0.02%

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

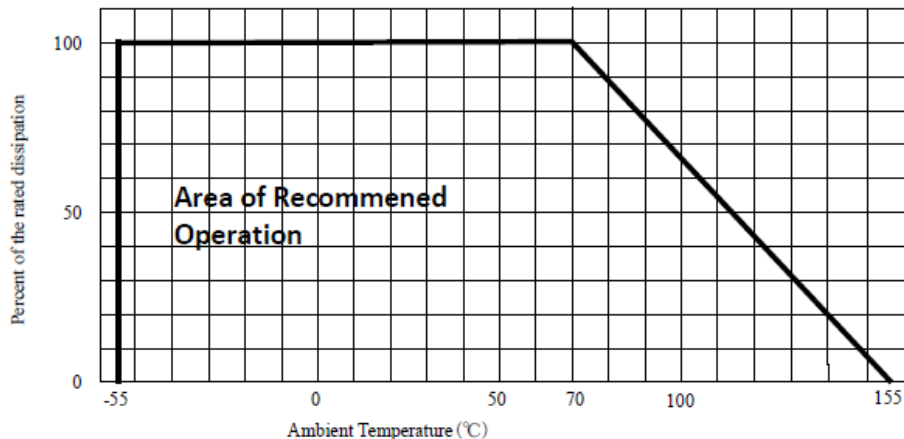


**Typical TCR Curve and Thermal Characteristic of Resistance:**

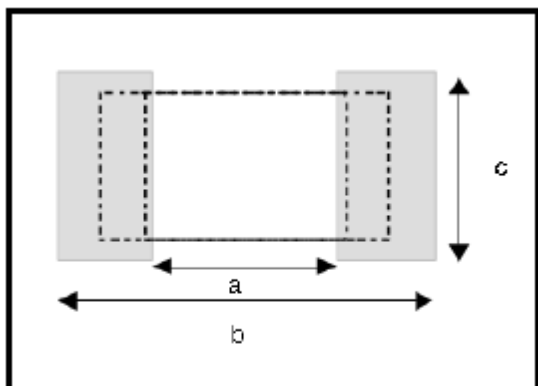


**Power Derating Curve:**

For operation above 75degC, power rating must be derated according to the following chart.



**Recommended Mounting Footprints:**



TYPE	Dimension inch(mm)		
	a	b	c
UCR0603	.040 (1.0)	.118 (3.0)	.047 (1.2)
UCR0805	.047 (1.2)	.157 (4.0)	.067 (1.7)
UCR1206	.079 (2.0)	.197 (5.0)	.079 (2.0)