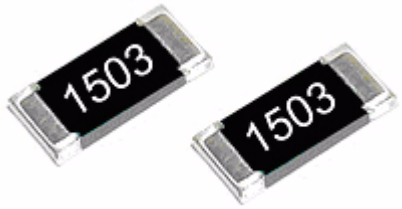
Features:

- Special Passivation for moisture sensitive applications
- Absolute TCR's to 15 ppm/ºC
- Test proven immunity to humidity and moisture corrosion
- Absolute tolerances to 0.1%
- Ideal replacement for costly Tantalum Nitride resistors
- RNCS 0603 and 1206 package sizes qualified to AEC-Q200
- RoHS compliant / lead-free



The RNCS/RNCH series employs a special manufacturing process to ensure high power, high precision, ultra stable performance, and long life in the harshest environments. In moisture comparison testing, the RNCS/RNCH series outperformed Nichrome Chip Resistors and demonstrated the anti-corrosive claims characterized by Tantalum Nitride resistor products.

Electrical Specifications

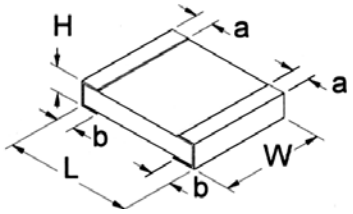
Type / Code	Power Rating (Watts) @ 70ºC	Maximum Working Voltage(1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance
					0.1%, 0.25%, 0.5%
RNCS0402	0.063W	25V	50V	±15 ppm/ºC	49.9 - 12K
				±25 ppm/ºC ±50 ppm/ºC	25 - 25K
RNCS0603(*)	0.063W	50V	100V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	25 - 332K
RNCH0603	0.1W	75V	150V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	25 - 220K
RNCS0805	0.1W	100V	200V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	10 - 1M
RNCH0805	0.25W	150V	300V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	25 - 680K
RNCS1206(*)	0.125W	150V	300V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	10 - 1M
RNCH1206	0.33W	200V	400V	±15 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC	25 - 1M
RNCS2010	0.25W (0.5W)(2)	150V	300V	±15 ppm/ºC	25 - 1M
				±25 ppm/ºC ±50 ppm/ºC	10 - 1M
RNCS2512	0.5W (1W)(2)	150V	300V	±15 ppm/ºC	25 - 1M
				±25 ppm/ºC ±50 ppm/ºC	10 - 1M

(1) Lesser of √PR or maximum working voltage

(2) Higher power rating for each package size is valid if ambient temp ≤80ºC and terminal temp ≤105ºC

(*) RNCS 0603 and 1206 package sizes qualified to AEC-Q200

Mechanical Specifications



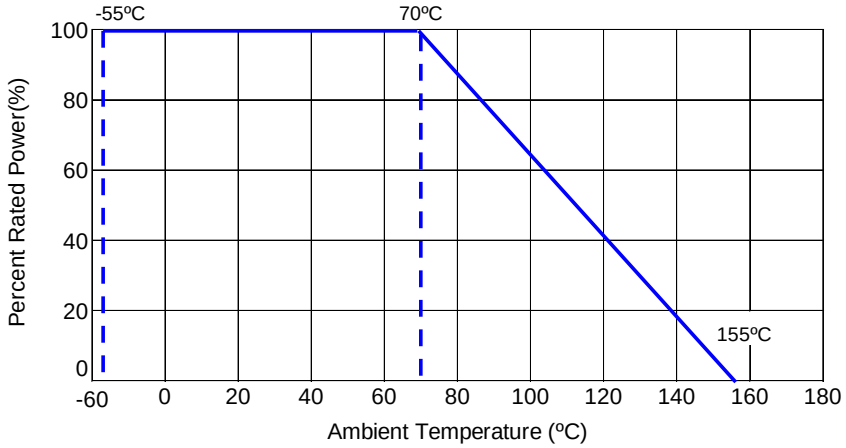
Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RNCS0402	0.039 ± 0.002 1.00 ± 0.05	0.020 ± 0.002 0.50 ± 0.05	0.012 ± 0.002 0.30 ± 0.05	0.008 ± 0.004 0.20 ± 0.10	0.008 ± 0.004 0.20 ± 0.10	inches mm
RNCS0603 RNCH0603	0.061 ± 0.008 1.55 ± 0.20	0.031 ± 0.008 0.80 ± 0.20	0.018 ± 0.004 0.45 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.008 0.30 ± 0.20	inches mm
RNCS0805 RNCH0805	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.008 1.25 ± 0.20	0.022 ± 0.004 0.55 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
RNCS1206 RNCH1206	0.120 ± 0.008 3.05 ± 0.20	0.061 ± 0.008 1.55 ± 0.20	0.022 ± 0.004 0.55 ± 0.10	0.017 ± 0.012 0.42 ± 0.30	0.014 ± 0.008 0.35 ± 0.20	inches mm
RNCS2010	0.193 ± 0.006 4.90 ± 0.15	0.094 ± 0.006 2.40 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.024 ± 0.012 0.60 ± 0.30	0.020 ± 0.010 0.50 ± 0.25	inches mm
RNCS2512	0.248 ± 0.006 6.30 ± 0.15	0.122 ± 0.006 3.10 ± 0.15	0.022 ± 0.004 0.55 ± 0.10	0.024 ± 0.012 0.60 ± 0.30	0.020 ± 0.010 0.50 ± 0.25	inches mm

Performance Characteristics

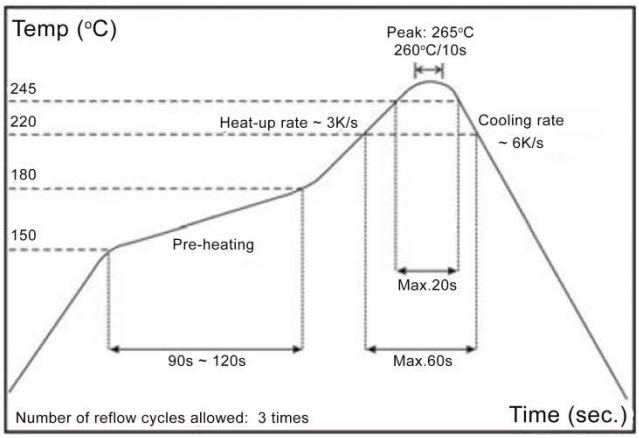
Test	Test Conditions	Test Results	
		Size 0603, 0805, 1206 2012, 2512	Size 0402
Short Time Overload	RCWV *2.5 or Max Overloading Voltage, 2 seconds	≤±0.02%	≤±0.1%
Thermal Shock	MIL - STD - 202F Method 107G -55ºC - 125ºC, 100 Cycles	≤±0.02%	≤±0.1%
Load Life	MIL - STD - 202F Method 108A RCWV, 70ºC, 1.5 hours ON, 0.5 hours OFF, total 1000 - 1048 hours	≤±0.05%	≤±0.25%
Biased Humidity	MIL - STD - 202 Method 103 1000 h. 85°C / 85% RH 10% of operating power	ΔR ± 0.2% >7KΩ ΔR ± 0.5% ΔR ± 0.5% for high power rating	
Resistance to Dry Heat	JIS - C 5202 - 7.2 1000 hours @ +125ºC without load	≤±0.05%	≤±0.5%
Resistance to Soldering Heat	MIL - STD - 202F Method 210E 260 ± 5ºC, 10 ± 1 second	≤±0.02%	≤±0.1%

RCWV (Rated continuous working voltage) = √(P*R) or Max. Operating Voltage whichever is lower
Storage Temperature: 25 ± 3ºC; Humidity <80% RH
Operating Temperature Range: -55ºC to +155ºC

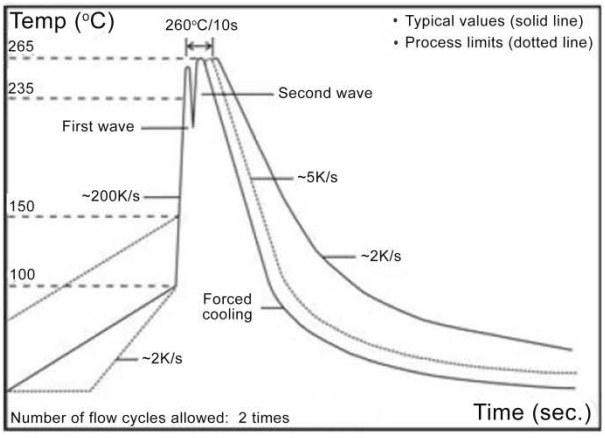
Power Derating Curve:



Soldering Condition:



IR Reflow Soldering



Wave Soldering (Flow Soldering)

(1) Time of IR reflow soldering at maximum temperature point 260°C : 10s
(2) Time of wave soldering at maximum temperature point 260°C : 10s
(3) Time of soldering iron at maximum temperature point 410°C : 5s

How to Order

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R	N	C	S	0	8	0	5	D	T	E	4	K	7	5

Product Series	
RNCS	Anti-corrosive Titanium-nitride Replacement
RNCH	High Power

Size
0402
0603
0805
1206
2010
2512

Tolerance		
Code	Tol	Value (1)
B	0.1%	E192, E96, E24
C	0.25%	
D	0.5%	

Packaging			
Code	Description	Size	Quantity
T	7" Reel Paper Tape	0402	10,000
		0603, 0805, 1206	5,000
		2010, 2512	4,000
K		0603, 0805, 1206 2010, 2512	1,000

TCR	
Code	ppm
S	15
E	25
C	50

Resistance Value
Four characters with the multiplier used as the decimal holder.
10 ohm = 10R0 800 Kohm = 800K 1 Mohm = 1M00

(1) E192 values are not marked, and may be subject to 20Kpc MOQ