

RNCS Series

Anti-Corrosive Tantalum Nitride Replacement Resistor

Stackpole Electronics, Inc.

Resistive Product Solutions

Features:

- Special Passivation for moisture sensitive applications
- Absolute TCR's to ± 25 ppm/ $^{\circ}$ C
- Available in industry standard sizes from 0402 to 2512
- E192 value is built to order with no part marking
- Resistance range from 10 Ω to 1M Ω
- Test proven immunity to humidity and moisture corrosion
- Absolute tolerances to 0.1%
- Ideal replacement for costly Tantalum Nitride resistors
- RoHS compliant / lead-free



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

Electrical Specifications								
Type / Code	Package Size	Power Rating (Watts) @ 70 $^{\circ}$ C	Maximum Working Voltage(1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance		
						0.1%	0.25%	0.5%
RNCS 10	0402	0.063W	25V	50V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	10 - 25K	10 - 25K	10 - 25K
RNCS 16	0603	0.063W (0.100W(2))	50V	100V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	25 - 332K	25 - 332K	25 - 332K
RNCS 20	0805	0.100W (0.125W(2))	100V	200V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	10 - 800K 10 - 1M 10 - 800K	10 - 800K	10 - 800K 10 - 1M 10 - 800K
RNCS 32	1206	0.125W (0.250W(2))	150V	300V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	10 - 1M	10 - 1M	10 - 1M
RNCS 57	2010	0.250W (0.500W(2))	150V	300V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	10 - 1M	10 - 1M	10 - 1M
RNCS 63	2512	0.500W (1.000W(2))	150V	300V	± 15 ppm/ $^{\circ}$ C ± 25 ppm/ $^{\circ}$ C ± 50 ppm/ $^{\circ}$ C	10 - 1M	10 - 1M	10 - 1M

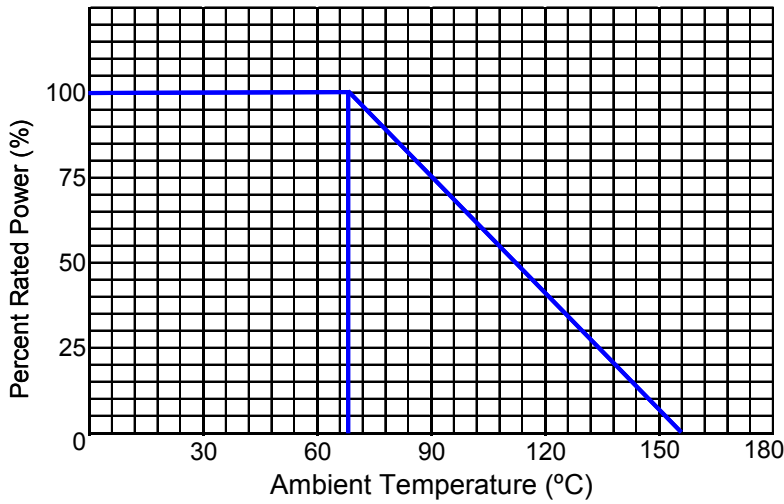
(1) Lesser of \sqrt{PR} or maximum working voltage.

(2) Higher power rating for each package size is valid if ambient temp $\leq 80^{\circ}$ C and terminal temp $\leq 105^{\circ}$ C

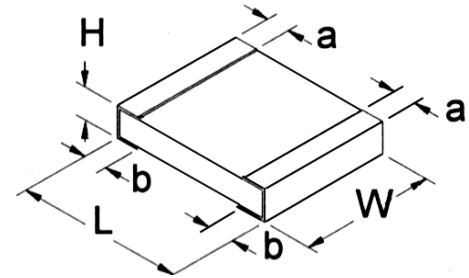
How to Order

SEI Type		Code			TCR	Nominal Resistance	Tolerance	Packaging					
RNCS		20			T9	4.75K	0.5%	R					
Type	Description	Code	Wattage	Size	TCR		Tolerance	Values		SEI Types	Pkg Qty	Code	Description
RNCS	Anti-corrosive Titanium-Nitride Replacement	10	0.063W	0402	T2	50ppm	$\pm 0.1\%$	E96, E24, E192 $\text{\textcircled{1}}$	10	10,000	R	7" reel	
		16	0.100W	0603	T9	25ppm	$\pm 0.25\%$	E96, E24, E192 $\text{\textcircled{1}}$	16, 20, 32	5,000	R		
		20	0.125W	0805	TD	15ppm	$\pm 0.5\%$	E96, E24, E192 $\text{\textcircled{1}}$		1,000	I		
		32	0.250W	1206				$\text{\textcircled{1}}$ Non-standard		4,000	R		
		57	0.500W	2010					57, 63	1,000	I		
		63	1.000W	2512									

Power Derating Curve:



Mechanical Specifications:



Mechanical Specifications						
Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Units
RNCS 10	0.039 ± 0.002	0.020 ± 0.002	0.012 ± 0.002	0.008 ± 0.004	0.008 ± 0.002	inches
	1.00 ± 0.05	0.50 ± 0.05	0.30 ± 0.05	0.20 ± 0.10	0.20 ± 0.10	mm
RNCS 16	0.061 ± 0.008	0.032 ± 0.008	0.018 ± 0.004	0.012 ± 0.008	0.012 ± 0.008	inches
	1.55 ± 0.20	0.80 ± 0.20	0.45 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	mm
RNCS 20	0.079 ± 0.008	0.049 ± 0.008	0.022 ± 0.004	0.012 ± 0.008	0.016 ± 0.008	inches
	2.00 ± 0.20	1.25 ± 0.20	0.55 ± 0.10	0.30 ± 0.20	0.40 ± 0.20	mm
RNCS 32	0.120 ± 0.008	0.061 ± 0.008	0.022 ± 0.004	0.017 ± 0.012	0.014 ± 0.008	inches
	3.05 ± 0.20	1.55 ± 0.20	0.55 ± 0.10	0.42 ± 0.30	0.35 ± 0.20	mm
RNCS 57	0.193 ± 0.006	0.090 ± 0.006	0.022 ± 0.004	0.024 ± 0.012	0.020 ± 0.010	inches
	4.90 ± 0.15	2.40 ± 0.15	0.55 ± 0.10	0.60 ± 0.30	0.50 ± 0.25	mm
RNCS 63	0.246 ± 0.006	0.122 ± 0.006	0.022 ± 0.004	0.024 ± 0.012	0.020 ± 0.010	inches
	6.30 ± 0.15	3.10 ± 0.15	0.55 ± 0.10	0.60 ± 0.30	0.50 ± 0.25	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 (1)	≤±0.02%	≤±0.1%
Thermal Shock	MIL - STD - 202F Method 107G -55°C - 125°C, 100 Cycles	≤±0.02%	≤±0.1%
Load Life	MIL - STD - 202F Method 108A RCWV, 70°C, 1.5 hours ON, 0.5 hours OFF, total 1000 - 1048 hours	≤±0.05%	≤±0.25%
Humidity (Steady State)	MIL - STD - 202F Method 103B 40°C, 90-95% RH, RCWV 1.5 hours ON, 0.5 hours OFF, total 1000 - 1048 hours	≤±0.1%	≤±0.5%
Resistance to Dry Heat	JIS - C 5202 - 7.2 1000 hours @ +125°C without load	≤±0.05%	≤±0.5%
Resistance to Soldering Heat	MIL - STD - 202F Method 210E 260 ± 5°C, 10 ± 1 second	≤±0.02%	≤±0.1%

(1) Storage Temperature: 25 ± 3°C; Humidity <80% RH