

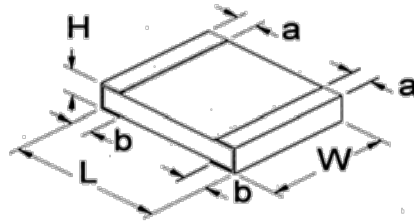
- Features:
- Precision tolerances to $\pm 0.01\%$
 - TCR down to $\pm 5\text{ppm}/^\circ\text{C}$
 - Wide R-value range
 - Lower values may be available
 - Consult factory for tighter tolerances
 - 2010 and 2512 sizes now available
 - RoHS compliant



Electrical Specifications										
Type / Code	Power Rating (Watts) @ 70°C	Maximum Working Voltage(1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance					
					0.01%	0.05%	0.1%	0.25%	0.5%	1%
RNCF0201	0.032W (0.05W(2))	15V	30V	$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	-	-	-	49.9 - 5K 49.9 - 33K	49.9 - 5K 49.9 - 33K
RNCF0402	0.063W	25V	50V	$\pm 5\text{ ppm}/^\circ\text{C}$	49.9 - 5K	49.9 - 5K	49.9 - 5K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	49.9 - 12K	49.9 - 12K	10 - 100K	10 - 100K	10 - 100K	10 - 100K
				$\pm 15\text{ ppm}/^\circ\text{C}$	49.9 - 12K	-	49.9 - 70K	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	-	10 - 205K 10 - 205K	10 - 205K 10 - 205K	10 - 205K 1 - 205K	10 - 205K 1 - 205K
RNCF0603	0.063W (0.1W(2))	50V	100V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 15K	24.9 - 15K	24.9 - 15K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 100K	4.7 - 332K	4.7 - 390K	10 - 390K	10 - 390K	10 - 390K
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 100K	-	4.7 - 332K	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 332K	4.7 - 1M 4.7 - 1M	2 - 1M 2 - 1M	2 - 1M 1 - 1M	2 - 1M 1 - 1M
RNCF0805	0.1W (0.125W(2))	100V	200V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 30K	24.9 - 30K	24.9 - 30K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 200K	4.7 - 511K	4.7 - 800K	10 - 800K	10 - 800K	10 - 800K
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 200K	4.7 - 1M	4.7 - 1M	4.7 - 1M	4.7 - 1M	4.7 - 1M
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 511K	4.7 - 2M 4.7 - 2M	1 - 2M 1 - 2M	1 - 2M 1 - 2M	1 - 2M 1 - 2M
RNCF1206	0.125W (0.25W(2))	150V	300V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 50K	24.9 - 50K	24.9 - 50K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 500K	4.7 - 1M	4.7 - 1M	10 - 1M	10 - 1M	10 - 1M
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 500K	-	4.7 - 1M	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 1M	4.7 - 2.5M 4.7 - 2.5M	1 - 2.5M 1 - 2.5M	1 - 2.5M 1 - 2.5M	1 - 2.5M 1 - 2.5M
RNCF1210	0.2W (0.25W(2))	150V	300V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 50K	24.9 - 50K	24.9 - 50K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 500K	4.7 - 1M	4.7 - 1M	-	-	-
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 500K	-	4.7 - 1M	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 1M	4.7 - 2.5M 4.7 - 2.5M	1 - 2.5M 1 - 2.5M	1 - 2.5M 1 - 2.5M	1 - 2.5M 1 - 2.5M
RNCF2010	0.25W (0.5W(2))	150V	300V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 100K	24.9 - 100K	24.9 - 100K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 500K	4.7 - 1M	4.7 - 1M	-	-	-
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 500K	-	4.7 - 1M	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 1M	4.7 - 3M 4.7 - 3M	1 - 3M 1 - 3M	1 - 3M 1 - 3M	1 - 3M 1 - 3M
RNCF2512	0.5W (1W(2))	150V	300V	$\pm 5\text{ ppm}/^\circ\text{C}$	24.9 - 100K	24.9 - 100K	24.9 - 100K	-	-	-
				$\pm 10\text{ ppm}/^\circ\text{C}$	24.9 - 500K	4.7 - 1M	4.7 - 1M	-	-	-
				$\pm 15\text{ ppm}/^\circ\text{C}$	24.9 - 500K	-	4.7 - 1M	-	-	-
				$\pm 25\text{ ppm}/^\circ\text{C}$ $\pm 50/100\text{ ppm}/^\circ\text{C}$	-	4.7 - 1M	4.7 - 3M 4.7 - 3M	1 - 3M 1 - 3M	1 - 3M 1 - 3M	1 - 3M 1 - 3M

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

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



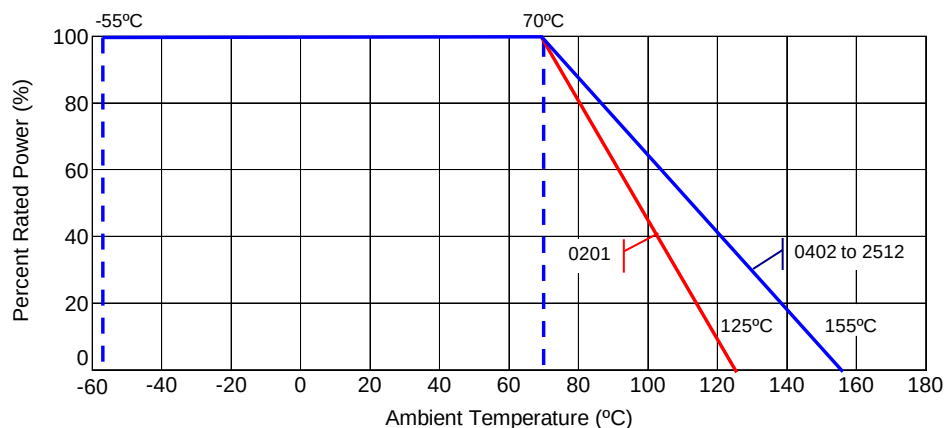
Mechanical Specifications						
Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RNCF0201	0.024 ± 0.002 0.60 ± 0.05	0.012 ± 0.002 0.30 ± 0.05	0.009 ± 0.001 0.23 ± 0.03	0.005 ± 0.002 0.12 ± 0.05	0.005 ± 0.002 0.12 ± 0.05	inches mm
RNCF0402	0.039 ± 0.002 1.00 ± 0.05	0.020 ± 0.002 0.50 ± 0.05	0.014 ± 0.002 0.35 ± 0.05	0.008 ± 0.004 0.20 ± 0.10	0.010 ± 0.004 0.25 ± 0.10	inches mm
RNCF0603	0.063 ± 0.008 1.60 ± 0.20	0.031 ± 0.008 0.80 ± 0.20	0.016 ± 0.006 0.40 ± 0.15	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.008 0.30 ± 0.20	inches mm
RNCF0805	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.008 1.25 ± 0.20	0.020 ± 0.006 0.50 ± 0.15	0.016 ± 0.008 0.40 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
RNCF1206	0.126 ± 0.008 3.20 ± 0.20	0.063 ± 0.008 1.60 ± 0.20	0.020 ± 0.006 0.50 ± 0.15	0.020 ± 0.012 0.50 ± 0.30	0.016 ± 0.008 0.40 ± 0.20	inches mm
RNCF1210	0.122 ± 0.008 3.10 ± 0.20	0.094 ± 0.006 2.40 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.020 ± 0.012 0.50 ± 0.30	0.016 ± 0.008 0.40 ± 0.20	inches mm
RNCF2010	0.193 ± 0.006 4.90 ± 0.15	0.094 ± 0.006 2.40 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.024 ± 0.012 0.60 ± 0.30	0.020 ± 0.010 0.50 ± 0.25	inches mm
RNCF2512	0.248 ± 0.006 6.30 ± 0.15	0.122 ± 0.006 3.10 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.024 ± 0.012 0.60 ± 0.30	0.020 ± 0.010 0.50 ± 0.25	inches mm

Performance Characteristics					
Test	Specification	Specification for Tolerances = 0.01%	Specification for Tolerances = 0.05%	Typical for Tolerances ≥ 0.1%	Test Method
Moisture Resistance, Thermal Shock	ΔR±0.25%	ΔR±0.01%	ΔR±0.05%	≤0.1%	-55°C - 150°C, 100 cycles
Load Life	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%	≤0.2%	70±2°C, Maximum working voltage for 1000 hrs with 1.5 hrs ON and 0.5 hrs OFF
	>7KΩ ΔR ± 0.5% ΔR±0.5% for high power rating				
Load Life in Moisture	ΔR±0.3%	ΔR±0.01%	ΔR±0.05%	≤0.25%	40±2°C, 90-95% RH Maximum working voltage for 1000 hrs with 1.5 hrs ON and 0.5 hrs OFF
	ΔR±0.5% for high power rating				
Resistance to Soldering Heat	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%	≤0.05%	260±5°C for 10 seconds
Solderability	Min 95% coverage			≥95%	245±5°C for 3 seconds
Bending Strength	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%	≤0.05%	Bending amplitude 3mm for 10 seconds
Dielectric Withstanding Voltage	by type			≤0.05%	Maximum overload voltage for 1 minute
Short Time Overload	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%	≤0.05%	RCWV*2.5 or Maximum overload voltage for 5 seconds
Insulation Resistance	>1GΩ			≥1GΩ	Apply 100V _{DC} for 1 minute
Low Temperature Operation	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%		1 hour, -65°C, followed by 45 minutes of RCWV
	ΔR±0.5% for high power rating				

Operating Temperature Range: -55°C to +125°C (0201); -55°C to +155°C (0402 to 2512)

Reference Standards: MIL-STD-202, JIS-C 5201-1

Power Derating Curve:



How to Order

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R	N	C	F	0	8	0	5	D	T	E	4	K	7	5
Product Series		Size	Power	Tolerance			Packaging				TCR		Resistance Value (2)	
RNCF	Precision Thin Film Chip Resistors	0201	0.032W	Code	Tol	Value (1)	Code	Description	Size	Quantity	Code	ppm	Four characters with the multiplier used as the decimal holder. 24.9 ohm = 24R9 10 Kohm = 10K0 1 Mohm = 1M00	
		0402	0.063W	T	0.01%	E192, E96, E24	T	7" Reel Paper Tape	0201, 0402	10,000	Y	5		
		0603	0.063W	A	0.05%				0603, 0805	5,000	T	10		
		0805	0.1W	B	0.1%				1206, 1210	4,000	S	15		
		1206	0.125W	C	0.25%				2010, 2512	4,000	E	25		
		1210	0.2W	D	0.5%	E96, E24	K	7" Reel Paper Tape	All Sizes	1,000	C	50		
		2010	0.25W	F	1%						D	100		
		2512	0.5W											

- (1) E192 values are not marked, and may be subject to 20Kpc MOQ
(2) Values below 10 ohm and above 1 Mohm may be subject to 20Kpc MOQ