

- Features:
- Precision tolerances to $\pm 0.01\%$
 - TCR down to $\pm 5\text{ppm}/^\circ\text{C}$
 - E96 and E24 values are standard; E192 are built to order with no part marking
 - Wide R-value range
 - Consult factory for tighter tolerances
 - 2010 and 2512 sizes now available
 - RoHS compliant

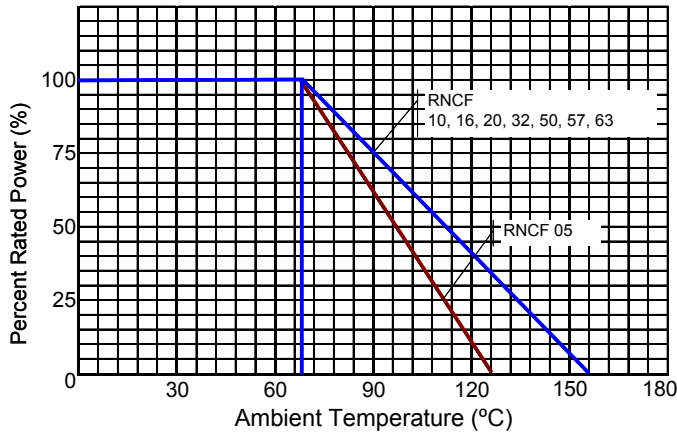


Electrical Specifications											
Type / Code	Package Size	Power Rating (Watts) @ 70°C	Maximum Working Voltage(1)	Maximum Overload Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance					
						0.01%	0.05%	0.1%	0.25%	0.5%	1%
RNCF 05	0201	0.032W (0.05W(2))	15V	30V	$\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	-	-	-	-	49.9 - 5K 49.9 - 33K	49.9 - 5K 49.9 - 33K
RNCF 10	0402	0.063W	25V	50V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	49.9 - 5K 49.9 - 12K	49.9 - 5K 49.9 - 12K	49.9 - 5K 10 - 100K 10 - 205K 10 - 205K	- 10 - 100K 10 - 205K 10 - 205K	- 10 - 100K 10 - 205K 1 - 205K	- 10 Ω - 100K 10 - 205K 1 - 205K
RNCF 16	0603	0.063W (0.1W(2))	50V	100V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 15K 24.9 - 100K	24.9 - 15K 4.7 - 332K 4.7 - 332K 4.7 - 332K	24.9 - 15K 4.7 - 390K 4.7 - 1M 4.7 - 1M	- 10 - 390K 2 - 1M 2 - 1M	- 10 - 390K 2 - 1M 1 - 1M	- 10 Ω - 390K 2 - 1M 1 - 1M
RNCF 20	0805	0.1W (0.125W(2))	100V	200V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 30K 24.9 - 200K	24.9 - 30K 4.7 - 511K 4.7 - 511K 4.7 - 511K	24.9 - 30K 4.7 - 800K 4.7 - 2M 4.7 - 2M	- 10 - 800K 1 - 2M 1 - 2M	- 10 - 800K 1 - 2M 1 - 2M	- 10 Ω - 800K 1 - 2M 1 - 2M
RNCF 32	1206	0.125W (0.25W(2))	150V	300V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 50K 24.9 Ω - 500K	24.9 - 50K 4.7 - 1M 4.7 - 1M 4.7 - 1M	24.9 - 50K 4.7 - 1M 4.7 - 2.5M 4.7 - 2.5M	- 10 - 1M 1 - 2.5M 1 - 2.5M	- 10 - 1M 1 - 2.5M 1 - 2.5M	- 10 Ω - 1M 1 - 2.5M 1 - 2.5M
RNCF 50	1210	0.2W (0.25W(2))	150V	300V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 50K 24.9 - 500K	24.9 - 50K 4.7 - 1M 4.7 - 1M 4.7 - 1M	24.9 - 50K 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	- 1 - 2.5M 1 - 2.5M 1 - 2.5M
RNCF 57	2010	0.25W (0.5W(2))	150V	300V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 100K 24.9 - 500K	24.9 - 100K 4.7 - 1M 4.7 - 1M	24.9 - 100K 4.7 - 1M 4.7 - 3M 4.7 - 3M	- 1 - 3M 1 - 3M 1 - 3M	- 1 - 3M 1 - 3M 1 - 3M	- 1 - 3M 1 - 3M 1 - 3M
RNCF 63	2512	0.5W (1W(2))	150V	300V	$\pm 5\text{ppm}/^\circ\text{C}$ $\pm 10\text{ppm}/^\circ\text{C}$ $\pm 25\text{ppm}/^\circ\text{C}$ $\pm 50\text{ppm}/^\circ\text{C}$	24.9 - 100K 24.9 - 500K	24.9 - 100K 4.7 - 1M 4.7 - 1M	24.9 - 100K 4.7 - 1M 4.7 - 3M 4.7 - 3M	- 1 - 3M 1 - 3M 1 - 3M	- 1 - 3M 1 - 3M 1 - 3M	- 1 - 3M 1 - 3M 1 - 3M

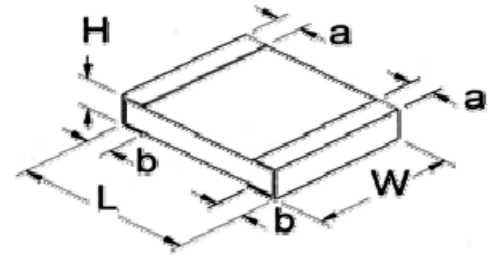
(1) Lesser of $\sqrt{\text{PR}}$ or maximum working voltage.

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

Power Derating Curve:



Mechanical Specification:



Mechanical Specifications						
Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Units
RNCF 05	0.024 ± 0.002 0.60 ± 0.05	0.012 ± 0.002 0.30 ± 0.05	0.009 ± 0.001 0.23 ± 0.030	0.005 ± 0.002 0.12 ± 0.05	0.005 ± 0.002 0.12 ± 0.05	inches mm
RNCF 10	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 ± 0.002 0.25 ± 0.10	inches mm
RNCF 16	0.063 ± 0.008 1.60 ± 0.20	0.032 ± 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
RNCF 20	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.008 1.25 ± 0.20	0.016 ± 0.006 0.50 ± 0.15	0.016 ± 0.008 0.40 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
RNCF 32	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
RNCF 50	0.122 ± 0.006 3.10 ± 0.20	0.090 ± 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
RNCF 57	0.193 ± 0.006 4.90 ± 0.15	0.090 ± 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
RNCF 63	0.246 ± 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 ≤0.05%	Typical	Test Method	
Moisture Resistance, Thermal Shock	$\Delta R \pm (0.25\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤0.1%	-55°C - 150°C, 100 cycles	
Load Life	$\Delta R \pm (0.2\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤0.2%	70±2°C, Maximum working voltage for 1000 hrs with 1.5 hrs ON and 0.5 hrs OFF	
	>7KΩ $\Delta R \pm 0.5\%$				
	$\Delta R \pm 0.5\%$ for high power rating				
Load Life in Moisture	$\Delta R \pm (0.3\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤0.25%	40±2°C, 90-95% RH Maximum working voltage for 1000 hrs with 1.5 hrs ON and 0.5 hrs OFF	
	$\Delta R \pm 0.5\%$ for high power rating				
Resistance to Soldering Heat	$\Delta R \pm (0.2\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤0.5%	260±5°C for 10 seconds	
Solderability	Min 95% coverage		≥0.95%	245±5°C for 3 seconds	
Bending Strength	$\Delta R \pm (0.2\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤0.05%	Bending amplitude 3mm for 10 seconds	
Dielectric Withstanding Voltage	by type		≤0.05%	Maximum overload voltage for 1 minute	
Short Time Overload	$\Delta R \pm (0.2\% + 0.05\Omega)$	$\Delta R \pm 0.05\%$	≤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	$\Delta R \pm 0.2\%$	$\Delta R \pm 0.05\%$		1 hour, -65°C, followed by 45 minutes of RCWV	
	$\Delta R \pm 0.5\%$ 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

How to Order

SEI Type		Code			TCR		Nominal Resistance	Tolerance		Packaging			
RNCF		20			T9		4.75K	0.5%		R			
Type	Description	Code	Wattage	Size	TCR			Tolerance	Values	SEI Types	Pkg Qty	Code	Description
RNCF	Precision Thin Film Chip Resistor	05	0.032W	0201	T1	100ppm		0.01%	E192 [Ⓞ] , E96, E24	5, 10	10,000	R	7" reel paper tape
		10	0.063W	0402	T2	50ppm		0.05%	E192 [Ⓞ] , E96, E24	16, 20, 32	5,000	R	
		16	0.063W	0603	T9	25ppm		0.1%	E192 [Ⓞ] , E96, E24		1,000	I	
		20	0.1W	0805	TB	10ppm		0.25%	E192 [Ⓞ] , E96, E24	50	5,000	R	
		32	0.125W	1206	TA	5ppm		0.5%	E192 [Ⓞ] , E96, E24	57, 63	4,000	R	
		50	0.2W	1210				1%	E96, E24		1,000	I	
		57	0.25W	2010									
		63	0.5W	2512									

Ⓞnon-standard

New part number format starting January 3rd, 2011:

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		
RNCF	Precision Thin Film Chip Resistors	0201	0.032W	Code	Tol	T	7" reel paper tape	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%					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		E	25	
		1206	0.125W	C	0.25%	K	7" reel paper tape			2010, 2512	4,000	C	50	
		1210	0.2W	D	0.5%					0603, 0805, 1206	1,000	D	100	
		2010	0.25W	F	1%					2010, 2512				
		2512	0.5W											