Features:

- Precision tolerances to ±0.01%
- TCR down to ±5ppm/ºC
- 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) @ 70ºC	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	15V	30V	±25 ppm/ºC	-				49.9 - 5K	
				±50 ppm/ºC	-				49.9 - 33K	
RNCF0402	0.063W	25V	50V	±5 ppm/ºC	49.9 - 5K					
				±10 ppm/ºC	49.9 - 12K					
				±15 ppm/ºC	49.9 - 12K		49.9 - 70K			
				±25 ppm/ºC	-	49.9 - 12K	10 - 255K			
				±50 ppm/ºC	-	49.9 - 12K	10 - 255K		1 - 255K	
RNCF0603	0.063W	50V	100V	±25 ppm/ºC	-			2 - 4.64		
				±50 ppm/ºC	-			1 - 4.64		
	0.1W	75V	150V	±5 ppm/ºC	24.9 - 15K					
				±10 ppm/ºC	24.9 - 100K	4.7 - 332K	4.7 - 332K			
				±15 ppm/ºC	24.9 - 100K	4.7 - 332K	4.7 - 332K			
				±25 ppm/ºC	24.9 - 100K	4.7 - 332K	4.7 - 1M			
				±50 ppm/ºC	24.9 - 100K	4.7 - 332K	4.7 - 1M			
RNCF0805	0.1W	100V	200V	±25 ppm/ºC	-		1.1M - 2M			
				±50 ppm/ºC	-		1.1M - 2M			
	0.125W	150V	300V	±5 ppm/ºC	24.9 - 30K					
				±10 ppm/ºC	24.9 - 200K	4.7 - 511K	4.7 - 511K			
				±15 ppm/ºC	24.9 - 200K	4.7 - 511K	4.7 - 1M			
				±25 ppm/ºC	24.9 - 200K	4.7 - 511K	4.7 - 1M	1 - 1M		
				±50 ppm/ºC	24.9 - 200K	4.7 - 511K	4.7 - 1M	1 - 1M		
RNCF1206	0.125W	150V	300V	±25 ppm/ºC	-		1.1M - 2.49M			
				±50 ppm/ºC	-		1.1M - 2.49M			
	0.25W	200V	400V	±5 ppm/ºC	24.9 - 49.9K					
				±10 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±15 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±25 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±50 ppm/ºC	24.9 - 499K	4.7 - 1M				
RNCF1210	0.25W	150V	300V	±25 ppm/ºC	-		1.1M - 2.49M			
				±50 ppm/ºC	-		1.1M - 2.49M			
	0.33W	200V	400V	±5 ppm/ºC	24.9 - 49.9K					
				±10 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±15 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±25 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±50 ppm/ºC	24.9 - 499K	4.7 - 1M				

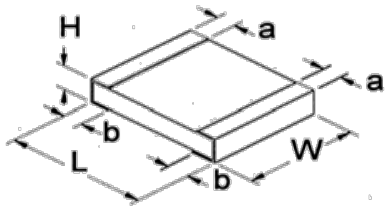
(1) Lesser of √PR or maximum working voltage.

Electrical Specifications (cont.)

Type / Code	Power Rating (Watts) @ 70ºC	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%
RNCF2010	0.25W	150V	300V	±25 ppm/ºC	-		1.1M - 3M			
				±50 ppm/ºC	-		1.1M - 3M			
	0.33W	200V	400V	±5 ppm/ºC	24.9 - 49.9K					
				±10 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±15 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±25 ppm/ºC	24.9 - 499K	4.7 - 1M				
				±50 ppm/ºC	24.9 - 499K	4.7 - 1M				
RNCF2512	0.5W	150V	300V	±5 ppm/ºC	24.9 - 100K					
				±10 ppm/ºC	24.9 - 499K	24.9 - 1M				
				±15 ppm/ºC	24.9 - 499K	24.9 - 1M				
				±25 ppm/ºC	-	24.9 - 1M	24.9 - 3M			
				±50 ppm/ºC		24.9 - 1M	24.9 - 3M			
	0.75W	200V	400V	±10 ppm/ºC	24.9 - 2K	4.7 - 2K		1 - 2K		
				±15 ppm/ºC	24.9 - 2K	4.7 - 2K		1 - 2K		
				±25 ppm/ºC	24.9 - 2K	4.7 - 2K	1 - 2K			
				±50 ppm/ºC	24.9 - 2K	4.7 - 2K	1 - 2K			
	1W	200V	400V	±25 ppm/ºC	-		4.7 - 100	1 - 100		
				±50 ppm/ºC	-		4.7 - 100	1 - 100		

(1) Lesser of √PR or maximum working voltage.

Mechanical Specifications

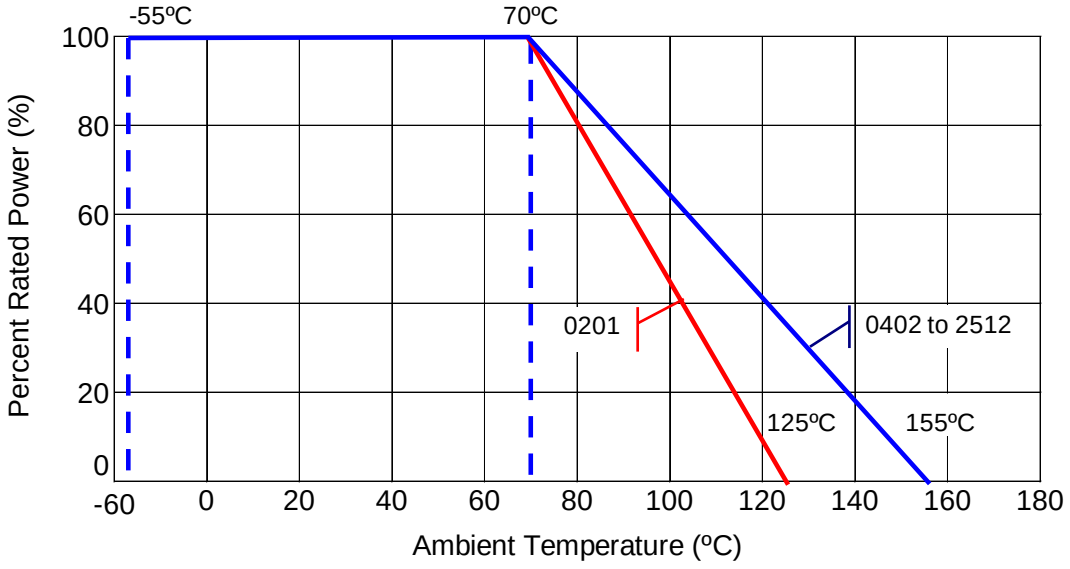


Type / Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
RNCF0201	0.024 ± 0.002 0.60 ± 0.05	0.012 ± 0.002 0.30 ± 0.05	0.009 ± 0.001 0.23 ± 0.03	0.005 ± 0.002 0.12 ± 0.05	0.005 ± 0.002 0.12 ± 0.05	inches mm
RNCF0402	0.039 ± 0.002 1.00 ± 0.05	0.020 ± 0.002 0.50 ± 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

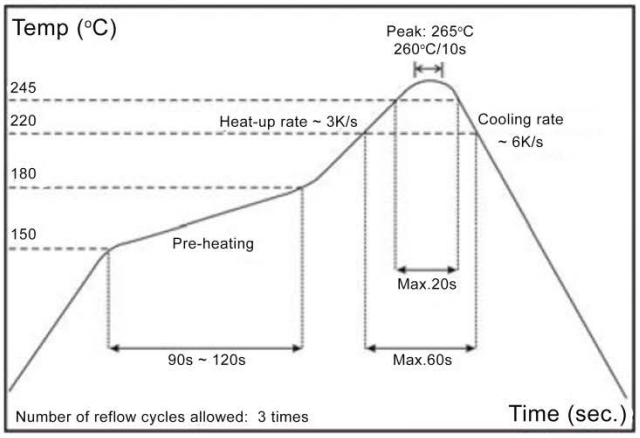
Performance Characteristics					
Test	Specification	Specification for Tolerances = 0.01%	Specification for Tolerances = 0.05%	Typical for Tolerances ≥ 0.1%	Test Method
Moisture Resistance, Thermal Shock	ΔR±0.25%	ΔR±0.01%	ΔR±0.05%	≤0.1%	-55ºC - 150ºC, 100 cycles
Load Life	ΔR±0.2%	ΔR±0.01%	ΔR±0.05%	≤0.2%	70±2ºC, 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±2ºC, 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±5ºC for 10 seconds
Solderability	Min 95% coverage			≥95%	245±5ºC 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, -65ºC, followed by 45 minutes of RCWV
	ΔR±0.5% for high power rating				

Operating Temperature Range: -55ºC to +125ºC (0201); -55ºC to +155ºC (0402 to 2512)
Reference Standards: MIL-STD-202, JIS-C 5201-1

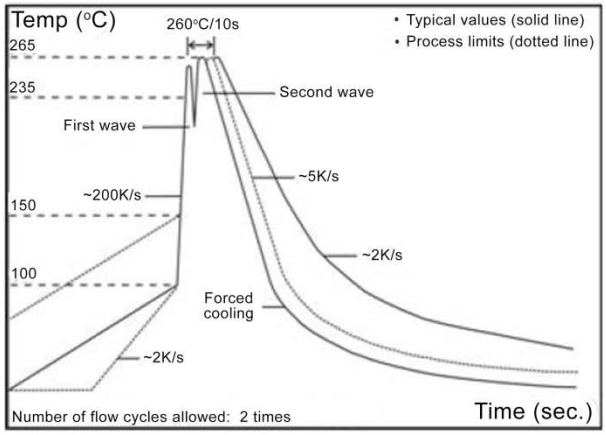
Power Derating Curve:



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	F	0	8	0	5	D	T	E	4	K	7	5

Product Series	
RNCF	Precision Thin Film Chip Resistors

Size
0201
0402
0603
0805
1206
1210
2010
2512

Tolerance		
Code	Tol	Value [1]
T	0.01%	E192, E96, E24
A	0.05%	
B	0.1%	
C	0.25%	
D	0.5%	
F	1%	E96, E24

Packaging			
Code	Description	Size	Quantity
T	7" Reel Paper Tape	0201, 0402	10,000
		0603, 0805 1206, 1210	5,000
		2010, 2512	4,000
K	7" Reel Paper Tape	All Sizes	1,000

TCR	
Code	ppm
Y	5
T	10
S	15
E	25
C	50
D	100

Resistance Value [2]
Four characters with the multiplier used as the decimal holder.
24.9 ohm = 24R9 10 Kohm = 10K0 1 Mohm = 1M00

(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