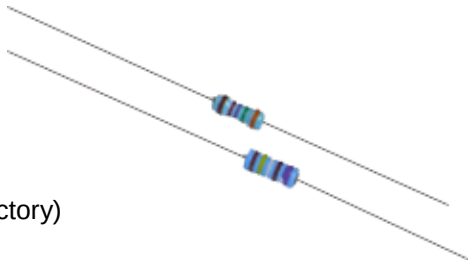
THE DATASHEET OF

RNF18FTD220R

Features:

- Precision metal film
- Superior electrical, TCR performances
- Flame-retardant coatings are standard
- Panasert available (selected sizes: contact factory)
- RNMF (mini) an ideal choice where size constraints apply
- RNF 5% replaces MP series
- Lower or higher resistance values may be possible (contact factory)
- RoHS compliant / lead-free



Electrical Specifications

Type / Code	Mil Ref	Power Rating (Watts) @ 70ºC	Maximum Working Voltage (Vrms) (1)	Maximum Overload Voltage (Vrms)	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance						
						0.05%	0.1%	0.25%	0.5%	1%	2%	5%
RNF18	RN 50	0.125W	200V	400V	±10 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	100 - 100K	100 - 100K	100 - 100K	100 - 100K 30.1 - 499K 10 - 1M	100 - 100K 49.9 - 499K 1 - 1M 1 - 10M	-	
							51.1 - 100K				1 - 22M	
RNF14	RN 55	0.25W	250V	500V	±10 ppm/ºC ±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	100 - 100K	100 - 100K	-		10 - 1M 1 - 5.11M 1 - 10M	-	- 1.1M - 10M 1 - 10M
							1 - 2.2M				5.6 - 10M	
RNF12	RN 60	0.5W	350V	700V	±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	100 - 100K			49.9 - 499K 10 - 1M	1 - 4.99M 1 - 10M	-	
											1 - 10M	
RNF1	RN 65	1W	350V	700V	±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	-			-		-	-
									10 - 1M	10 - 470K 1 - 1M		10 - 470K 1 - 1M
RNF2	-	2W	350V	800V	±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	-				-	-	-
										10 - 1M		10 - 1M
RNMF14	-	0.25W	200V	400V	±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	-	100 - 100K		30.1 - 499K 10 - 1M	30.1 - 499K 1 - 1M 1 - 2.15M	-	
											1 - 2.2M	
RNMF12	RL 07	0.5W	350V	600V	±25 ppm/ºC ±50 ppm/ºC ±100 ppm/ºC	-	30.1 - 294K		49.9 - 1M		-	
							30.1 - 1M		10 - 1M	1 - 1M 1 - 10M		
											1 - 10M	

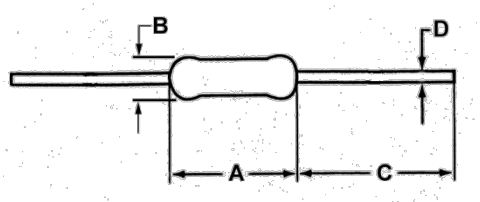
(1) Lesser of √PR or maximum working voltage

Performance Characteristics

Test	Test Method	Typical Results	Test Limits	
Insulation Resistance	JIS C5201-1, IEC60115-1, 4.6	≥ 1000 MΩ	≥ 1000 MΩ	
Voltage Proof	JIS C5201-1, IEC60115-1, 4.7	<± 0.25%	≤ ± (0.5% + 0.05Ω)	No mechanical damage.
Short Time Overload	JIS C5201-1, IEC60115-1, 4.13	<± 0.1%	≤ ± (0.25% + 0.05Ω)	
Resistance to Solder Heat	JIS C5201-1, IEC60115-1, 4.18	<± 0.01%	≤ ± (0.3% + 0.05Ω)	
Rapid Change of Temperature	JIS C5201-1, IEC60115-1, 4.19	<± 0.05%	≤ ± (0.35% + 0.05Ω)	
Endurance at 70°C	JIS C5201-1, IEC60115-1, 4.25.1	<± 0.15%	≤± (1.0% + 0.05Ω)	
Robustness of Terminations	JIS C5201-1, IEC60115-1, 4.16	<± 0.10%	≤ ± (0.2% + 0.05Ω)	
Damp Heat (Steady state)	JIS C5201-1, IEC60115-1, 4.24	<± 0.10%	≤± (1.5% + 0.05Ω)	

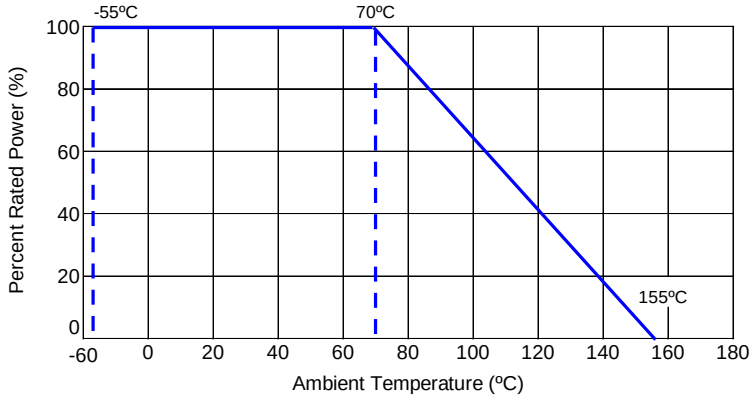
Operating Temperature Range: -55ºC to +155ºC

Mechanical Specifications

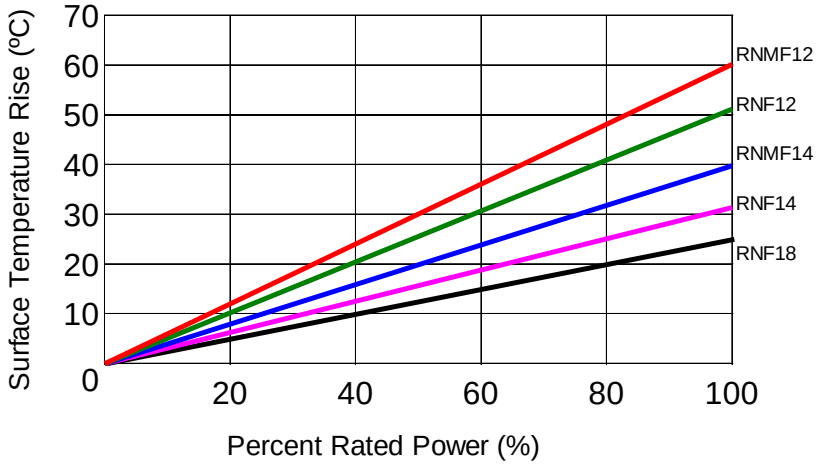


Type / Code	A Body Length	B Body Diameter	C Lead Length (Bulk)	D Lead Diameter	Unit
RNF18	0.130 ± 0.012 3.30 ± 0.30	0.071 ± 0.012 1.80 ± 0.30	1.102 ± 0.118 28.00 ± 3.00	0.018 ± 0.003 0.45 ± 0.07	inches mm
RNF14	0.250 ± 0.026 6.35 ± 0.65	0.093 ± 0.010 2.35 ± 0.25	1.102 ± 0.118 28.00 ± 3.00	0.022 ± 0.003 0.56 ± 0.08	inches mm
RNF12	0.344 ± 0.030 8.75 ± 0.75	0.108 ± 0.039 2.75 ± 1.00	1.102 ± 0.197 28.00 ± 5.00	0.026 ± 0.004 0.65 ± 0.10	inches mm
RNF1	0.433 ± 0.039 11.00 ± 1.00	0.177 ± 0.020 4.50 ± 0.50	1.181 ± 0.118 30.00 ± 3.00	0.030 ± 0.002 0.75 ± 0.05	inches mm
RNF2	0.591 ± 0.039 15.00 ± 1.00	0.197 ± 0.020 5.00 ± 0.50	1.339 ± 0.157 34.00 ± 4.00	0.028 ± 0.004 0.70 ± 0.10	inches mm
RNMF14	0.130 ± 0.012 3.30 ± 0.30	0.070 ± 0.003 1.78 ± 0.08	1.102 ± 0.118 28.00 ± 3.00	0.017 ± 0.002 0.44 ± 0.05	inches mm
RNMF12	0.250 ± 0.026 6.35 ± 0.65	0.093 ± 0.010 2.35 ± 0.25	1.102 ± 0.118 28.00 ± 3.00	0.022 ± 0.003 0.56 ± 0.08	inches mm

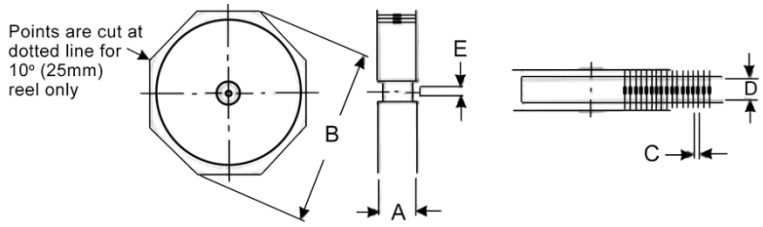
Power Derating Curve:



Surface Temperature Rise:



Packaging Specifications



Series	Code	A max.(1)	B max	C	D(2)	Tape	Unit
RNF	18	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
	14	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
	12	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
	1	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
	2	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
RNMF	14	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm
	12	2.756 ± 0.118 70.00 ± 3.00	11.811 ± 0.197 300.00 ± 5.00	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.020 52.00 ± 0.50	0.250 6.35	inches mm

Dimension "E": This is a non-critical dimension that does not have a tolerance in the standard.
Range of diameters is from 0.547 inches (13.90 mm) to 1.500 inches (38.10 mm).

(1) Reference value only. The "A" dimension shall be governed by the overall length of the taped component.
The distance between flanges shall be 0.059 inches (1.50 mm) to 0.315 (8.00 mm) greater than the overall component.

(2) The given dimension "D" expresses the standard width spacing. A 26mm narrow spacing is available as option "N" packaging code.

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 2). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
RNF	General Purpose Metal Film Leaded Resistor	Axial	YES	99.3/0.7 Sn/Cu 100% Matte Sn	Apr-05 (Japan) Jan-04 (Taiwan, China)	05/14 04/01
RNMF	General Purpose Mini Metal Film Leaded Resistor	Axial	YES	99.3/0.7 Sn/Cu 100% Matte Sn	Apr-05 (Japan) Jan-04 (Taiwan, China)	05/14 04/01

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the Eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

1	2	3	4	5	6	7	8	9	10	11	12
R	**N**	**F**	**1**	**4**	**F**	**T**	**D**	**4**	**K**	**7**	**5**

Product Series	
RNF	Standard
RNMF	Mini
PRNF	Panasert RoHS

Size	Power
18	0.125W
14	0.25W
12	0.5W
1	1W
2	2W

Tolerance		
Code	Tol	Value
A	0.05%	E96, E24
B	0.1%	
C	0.25%	
D	0.5%	
F	1%	
G	2%	E24
J	5%	

Packaging			
Code	Description	Size	Quantity
T	Tape and Reel	RNF18, RNF14 RNMF14, RNMF12	5,000
		RNF12, RNF1	2,500
		RNF2	1,000
A	Ammo	RNF18, RNF14 RNMF14, RNMF12	5,000 (*)
		RNF12	2,000
		RNF1, RNF2	1,000
B	Bulk	RNF18, RNF14, RNF12, RNF1, RNF2, RNMF12, RNMF14	1,000

TCR	
Code	ppm
T	10
E	25
C	50
D	100

Resistance Value
Four characters with the multiplier used as the decimal holder.
10 ohm = 10R0
10.2 Kohm = 10K2
1 Mohm = 1M00

(*) Precision metal film resistors with tolerances <1% may be available in smaller quantities. Contact factory for more details.

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- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management