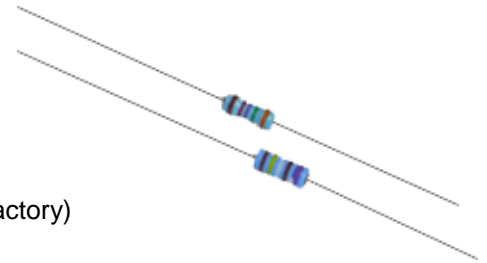


- Features:**
- Precision metal film
  - Superior electrical, TCR performances
  - Flame-retardant coatings are standard
  - Panasert available (selected sizes: contact factory)
  - RNMF (mini) an ideal choice where size constraints apply
  - RNF 5% replaces MP series
  - Lower or higher resistance values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



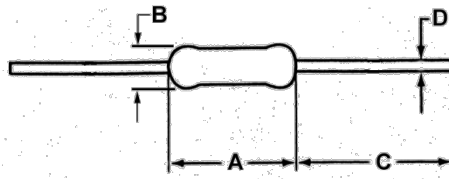
| Electrical Specifications |         |                             |   |                                 |   |                               |                           |  |                                      |  |                            |
|---------------------------|---------|-----------------------------|---|---------------------------------|---|-------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

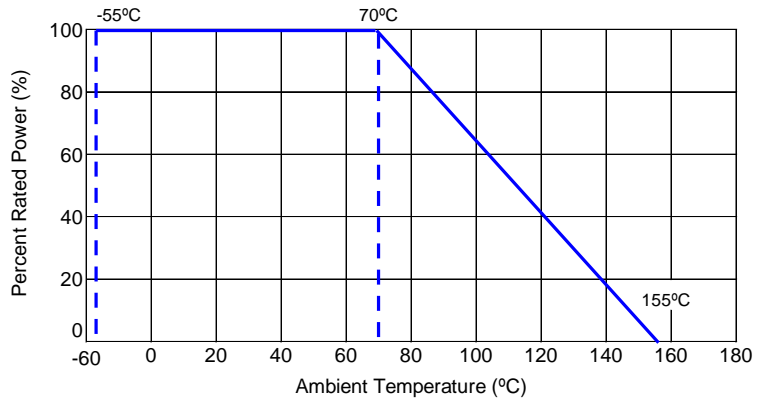
Operating Temperature Range: -55°C to +155°C

**Mechanical Specifications**

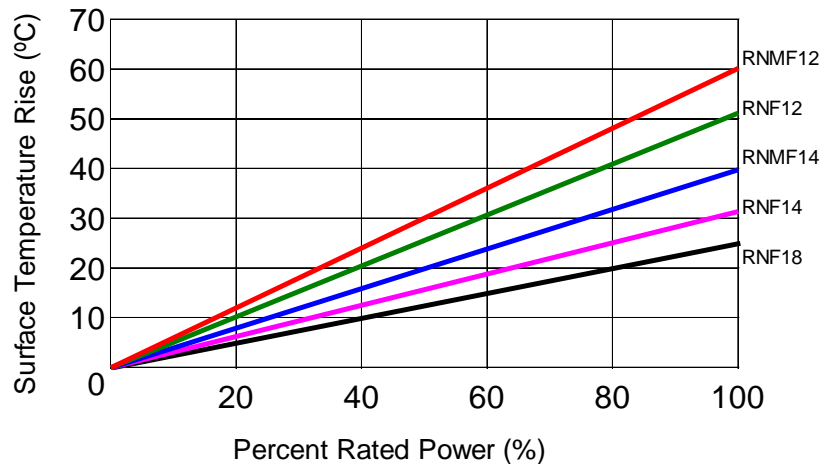


| Type / Code | A<br>Body Length | B<br>Body Diameter | C<br>Lead Length (Bulk) | D<br>Lead Diameter | Unit   |
|-------------|------------------|--------------------|-------------------------|--------------------|--------|
| RNF18       | 0.130 ± 0.012    | 0.071 ± 0.012      | 1.102 ± 0.118       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

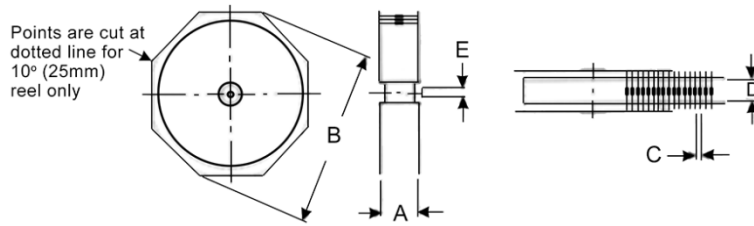
**Power Derating Curve:**



**Surface Temperature Rise:**



**Packaging Specifications**



| Series | Code | A max <sup>(1)</sup>          | B max                           | C                            | D <sup>(2)</sup>              | Tape          | Unit         |
|--------|------|-------------------------------|---------------------------------|------------------------------|-------------------------------|---------------|--------------|
| RNF    | 18   | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
|        | 14   | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
|        | 12   | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
|        | 1    | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
|        | 2    | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
| RNMF   | 14   | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>mm |
|        | 12   | 2.756 ± 0.118<br>70.00 ± 3.00 | 11.811 ± 0.197<br>300.00 ± 5.00 | 0.197 ± 0.020<br>5.00 ± 0.50 | 2.047 ± 0.020<br>52.00 ± 0.50 | 0.250<br>6.35 | inches<br>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<br>100% Matte Sn   | Apr-05 (Japan)<br>Jan-04 (Taiwan, China)           | 05/14<br>04/01                        |
| RNMF                    | General Purpose Mini Metal Film Leaded Resistor | Axial                      | YES                            | 99.3/0.7 Sn/Cu<br>100% Matte Sn   | Apr-05 (Japan)<br>Jan-04 (Taiwan, China)           | 05/14<br>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.

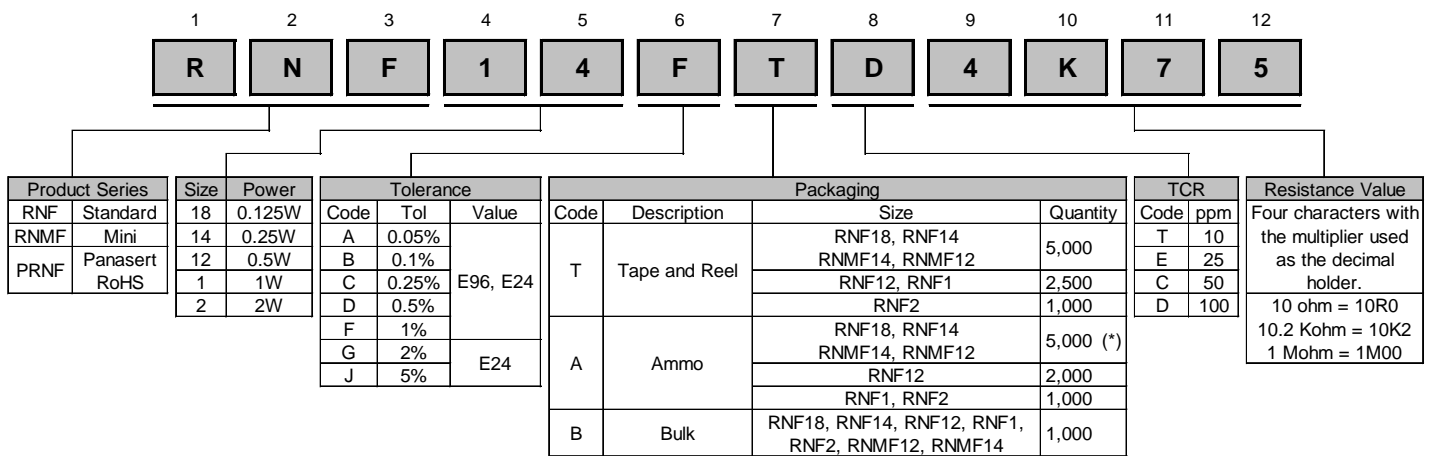
**Compliance to “REACH”**

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**



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

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