

**Features:**

- Lower-cost alternative to carbon comps and wirewounds
- Coating meets UL 94V-0
- Meets solvent test of Mil Standard 202, Method 215
- Cut and formed product is available on select sizes; contact factory for details
- Higher or lower resistance values may be possible; contact factory
- Flameproof
- RoHS compliant, lead free and halogen free

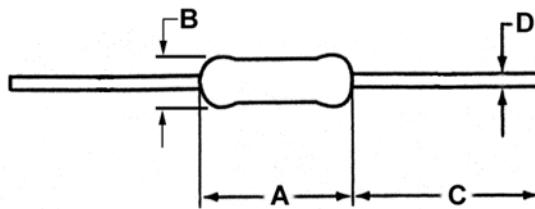


**Electrical Specifications**

Type / Code	Power Rating @ 70°C (Watts)	Maximum Working Voltage (1)	Maximum Overload Voltage	Dielectric Withstanding Voltage	Resistance Temperature Coefficient	Ohmic Range (Ω) and Tolerance		
						1%	2%	5%
RSF12	0.5 W	250 V	400 V	350 V	±200 ppm/°C	0.1 - 150 K	0.1 - 75 K	0.1 - 1 M
RSF1	1 W	350 V	600 V	600 V	±200 ppm/°C	0.1 - 100 K		0.1 - 1 M
RSF2	2 W	350 V	600 V	600 V	±200 ppm/°C	0.1 - 120 K		0.1 - 1 M
RSF3	3 W	800 V	1000 V	750 V	±200 ppm/°C	0.1 - 470 K	0.1 - 560 K	0.1 - 1 M
RSF5	5 W	1000 V	1000 V	750 V	±200 ppm/°C	0.1 - 470 K	0.1 - 560 K	0.1 - 1 M
RSMF12	0.5 W	250 V	400 V	350 V	±200 ppm/°C	0.1 - 46.4 K	0.1 - 47 K	0.1 - 470 K
RSMF1	1 W	350 V	600 V	500 V	±200 ppm/°C	0.1 - 75 K		0.1 - 470 K
RSMF2	2 W	350 V	600 V	500 V	±200 ppm/°C	0.1 - 100 K		0.1 - 470 K
RSMF3	3 W	500 V	800 V	600 V	±200 ppm/°C	0.1 - 118 K	0.1 - 120 K	0.1 - 470 K
RSMF5	5 W	1000 V	1000 V	750 V	±200 ppm/°C	0.1 - 470 K	0.1 - 560 K	0.1 - 1 M

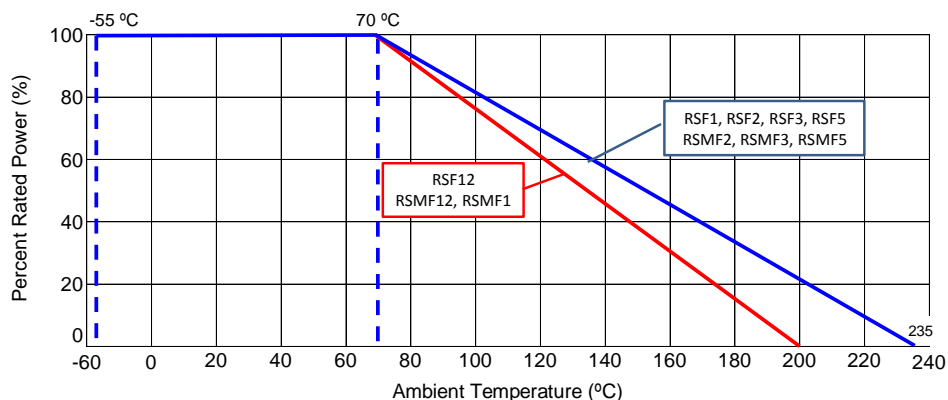
(1) Lesser of  $\sqrt{P \cdot R}$  or maximum working voltage

**Mechanical Specifications**



Type / Code	A Body Length	B Body Diameter	C Lead Length (Bulk)	D Lead Diameter	Lead-Tape Specification	Unit
RSF12	0.35 ± 0.04	0.13 ± 0.03	1.10 ± 0.12	0.03 ± 0.003	0.250	inches
	9.00 ± 1.00	3.20 ± 0.80	28.00 ± 3.00	0.70 ± 0.08	6.35	mm
RSF1	0.43 ± 0.06	0.18 ± 0.04	1.10 ± 0.20	0.03 ± 0.002	0.250	inches
	11.00 ± 1.50	4.50 ± 1.00	28.00 ± 5.00	0.80 ± 0.05	6.35	mm
RSF2	0.59 ± 0.06	0.22 ± 0.04	1.18 ± 0.20	0.03 ± 0.004	0.250	inches
	15.00 ± 1.50	5.50 ± 1.00	30.00 ± 5.00	0.75 ± 0.10	6.35	mm
RSF3	0.69 ± 0.04	0.24 ± 0.02	1.38 ± 0.12	0.03 ± 0.002	0.250	inches
	17.50 ± 1.00	6.00 ± 0.50	35.00 ± 3.00	0.80 ± 0.05	6.35	mm
RSF5	0.96 ± 0.04	0.31 ± 0.02	1.38 ± 0.12	0.03 ± 0.002	0.250	inches
	24.50 ± 1.00	8.00 ± 0.50	35.00 ± 3.00	0.80 ± 0.05	6.35	mm
RSMF12	0.24 ± 0.03	0.09 ± 0.01	1.10 ± 0.12	0.02 ± 0.003	0.250	inches
	6.00 ± 0.80	2.30 ± 0.30	28.00 ± 3.00	0.55 ± 0.07	6.35	mm
RSMF1	0.35 ± 0.04	0.13 ± 0.03	1.10 ± 0.12	0.03 ± 0.003	0.250	inches
	9.00 ± 1.00	3.20 ± 0.80	28.00 ± 3.00	0.70 ± 0.08	6.35	mm
RSMF2	0.43 ± 0.06	0.18 ± 0.04	1.18 ± 0.20	0.03 ± 0.002	0.250	inches
	11.00 ± 1.50	4.50 ± 1.00	30.00 ± 5.00	0.80 ± 0.05	6.35	mm
RSMF3	0.59 ± 0.06	0.22 ± 0.04	1.18 ± 0.20	0.03 ± 0.004	0.250	inches
	15.00 ± 1.50	5.50 ± 1.00	30.00 ± 5.00	0.75 ± 0.10	6.35	mm
RSMF5	0.69 ± 0.04	0.24 ± 0.02	1.38 ± 0.08	0.03 ± 0.002	0.250	inches
	17.50 ± 1.00	6.00 ± 0.50	35.00 ± 2.00	0.80 ± 0.05	6.35	mm

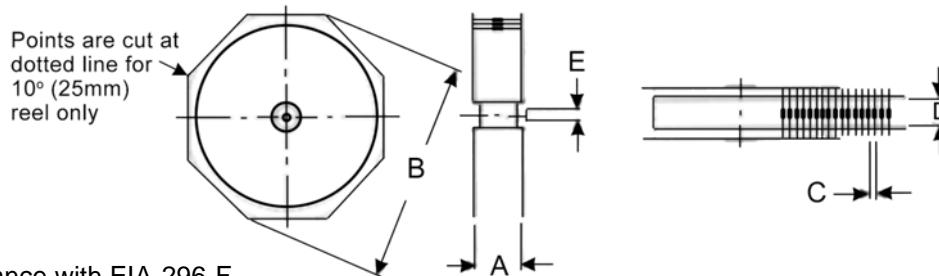
**Power Derating Curve:**



Performance Characteristics			
Test	Test Method	Test Specification	Typical Results
Insulation Resistance	JIS C5201-1, IEC60115-1, 4.6	$\geq 1 \text{ G } \Omega$	$\geq 1 \text{ G } \Omega$
Voltage Proof	JIS C5201-1, IEC60115-1, 4.7	$\leq \pm (0.5\% + 0.05 \Omega)$   No mechanical damage.	$< \pm 0.25\%$
Short Time Overload	JIS C5201-1, IEC60115-1, 4.13	$\leq \pm (0.75\% + 0.05 \Omega)$	$< \pm 0.1\%$
Resistance to Solder Heat	JIS C5201-1, IEC60115-1, 4.18	$\leq \pm (2.0\% + 0.05 \Omega)$	$< \pm 1.0\%$
Endurance at 70°C	JIS C5201-1, IEC60115-1, 4.25.1	$\leq \pm (5.0\% + 0.05 \Omega)$	$< \pm 2.0\%$
Robustness of Terminations	JIS C5201-1, IEC60115-1, 4.16	$\leq \pm (1.0\% + 0.05 \Omega)$	$< \pm 0.10\%$
Damp Heat (Steady state)	JIS C5201-1, IEC60115-1, 4.24	$\leq \pm (5\% + 0.05 \Omega)$	$< \pm 1.5\%$
Rapid Change of Temperature	JIS C5201-1, IEC60115-1, 4.19	$\leq \pm (1\% + 0.05 \Omega)$	$< \pm 0.2\%$
Resistance to Solvents	JIS C5201-1, IEC60115-1, 4.29	No damage to component or removal of marking.	Pass
Intermittent Overload	JIS C5201-1, IEC60115-1, 4.39	$\leq \pm (2\% + 0.05 \Omega)$	$< \pm 0.3\%$
Accidental Overload (Flame resistance)	JIS C5201-1, IEC60115-1, 4.26	No flaming of gauze.	Pass

Operating Temperature Range: -55 °C to +200 °C (RSF12, RSMF12, RSMF1)  
-55 °C to +235 °C (All others)

**Packaging Specifications**



Reeled in accordance with EIA-296-F

Series	Code	A max <sup>(1)</sup>	B max	C	D <sup>(2)</sup>	Tape	Unit
RSF	12	2.736	13.504	0.197 ± 0.020	2.063 ± 0.079	0.250	inches
		69.50	343.00	5.00 ± 0.50	52.40 ± 2.00	6.35	mm
	1	2.815	13.504	0.197 ± 0.020	2.063 ± 0.079	0.250	inches
		71.50	343.00	5.00 ± 0.50	52.40 ± 2.00	6.35	mm
	2	3.524	13.504	0.394 ± 0.020	2.500 ± 0.079	0.250	inches
	89.50	343.00	10.00 ± 0.50	63.50 ± 2.00	6.35	mm	
3	3.740	12.008	0.394 ± 0.020	2.874 ± 0.079	0.250	inches	
	95.00	305.00	10.00 ± 0.50	73.00 ± 2.00	6.35	mm	
5	4.331	12.008	0.394 ± 0.020	3.465 ± 0.079	0.250	inches	
	110.00	305.00	10.00 ± 0.50	88.00 ± 2.00	6.35	mm	

Packaging Specifications (cont.)							
Series	Code	A max <sup>(1)</sup>	B max	C	D <sup>(2)</sup>	Tape	Unit
RSMF	12	2.618	13.504	0.197 ± 0.020	2.063 ± 0.079	0.250	inches
		66.50	343.00	5.00 ± 0.50	52.40 ± 2.00	6.35	mm
	1	2.736	13.504	0.197 ± 0.020	2.063 ± 0.079	0.250	inches
		69.50	343.00	5.00 ± 0.50	52.40 ± 2.00	6.35	mm
	2	2.815	13.504	0.197 ± 0.020	2.063 ± 0.079	0.250	inches
		71.50	343.00	5.00 ± 0.50	52.40 ± 2.00	6.35	mm
	3	3.524	13.504	0.394 ± 0.020	2.500 ± 0.079	0.250	inches
		89.50	343.00	10.00 ± 0.50	63.50 ± 2.00	6.35	mm
	5	3.740	12.008	0.394 ± 0.020	2.874 ± 0.079	0.250	inches
		95.00	305.00	10.00 ± 0.50	73.00 ± 2.00	6.35	mm

Dimension "E": This is a non-critical dimension that does not have a tolerance in the standard.

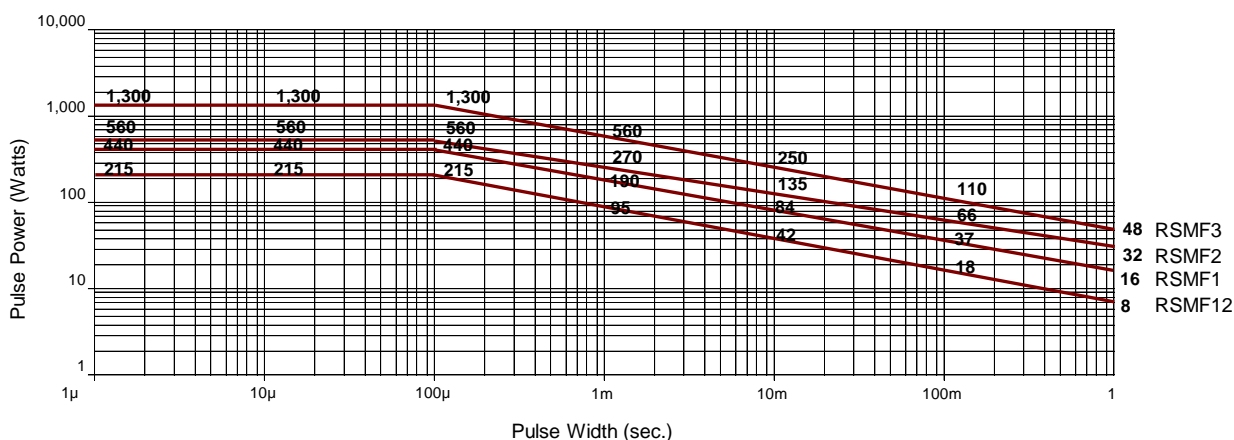
Range of diameters is from 0.547 inches (13.90 mm) to 1.500 inches (38.10 mm).

(1) Reference value only. The "A" dimension shall be governed by the overall length of the taped component.

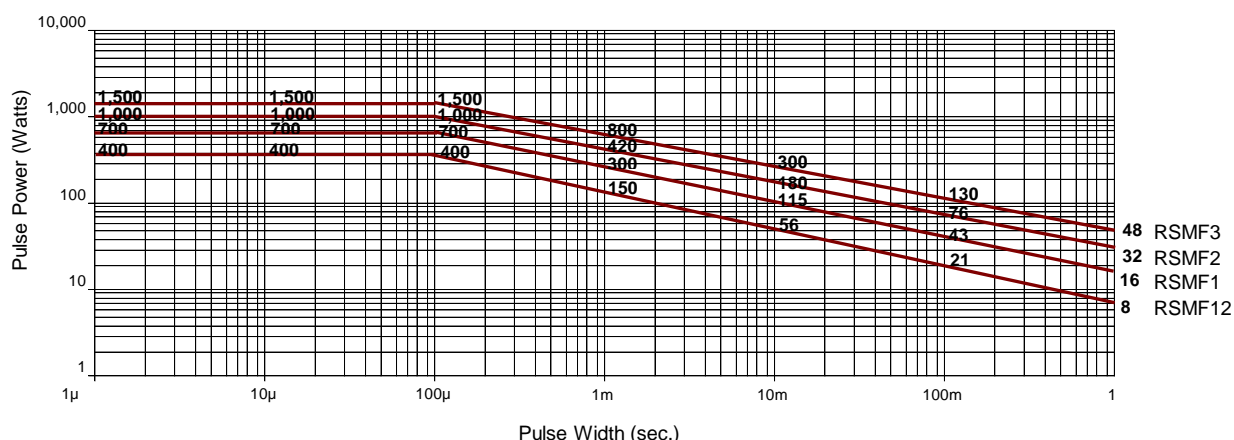
The distance between flanges shall be 0.059 inches (1.50 mm) to 0.315 (8.00 mm) greater than the overall component.

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

**Pulse Limiting Power (one pulse) / RSMF Series ≤ 5Ω**



**Pulse Limiting Power (one pulse) / RSMF Series ≥ 5Ω**



## 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 3). 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 as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

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)
RSF	General Purpose Metal Oxide Leaded Resistor	Axial	YES	99.3/0.7 Sn/Cu 100% Matte Sn	Apr-05 (Japan) Jan-04 (Taiwan, China)	05/14 04/01
RSMF	Mini-Metal Oxide 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

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Product Series		Size	Power	Tolerance			Packaging				Resistance Value
Code	Description			Code	Tol	Value	Code	Description	Size	Quantity	
RSF	Metal Oxide	12	0.5 W	F	1%	E96	T	Tape and Reel	RSMF12, PRSM12	5000	Four characters with the multiplier used as the decimal holder.  0.22 ohm = R220 33.2 ohm = 33R2 10.2 Kohm = 10K2 1 Mohm = 1M00
RSMF	Mini	1	1 W	G	2%	E24			RSF12, RSF1	2500	
PRSF <sup>(1)</sup>	Panasert	2	2 W	J	5%				RSMF1, RSMF2	2500	
PRSM <sup>(1)</sup>	Panasert Mini	3	3 W						PRSF1, PRSM2	2000	
		5	5 W						RSF2, RSMF3	1000	
									RSF3, RSMF5	1000	
							T	Tape and Reel	RSF5	500	
							A	Ammo	RSMF12	5000	
									RSF12; RSMF1, PRSM12	2000	
									RSF1, RSF2, RSMF2, PRSF1, PRSM2, RSMF3	1000	
							B	Bulk	RSF3, RSF5, RSMF5	500	
									All Sizes	1000	

(1) For packaging information, see Radial Leaded Packaging Spec page