Features:

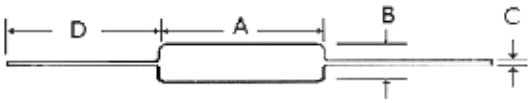
- Fuses quickly under continuous overload of 15X rated power or greater
- High performance for low cost
- High power to size ratio
- High temperature silicone coating
- RoHS compliant, lead free and halogen free
- Bulk packaging available – contact Stackpole for package quantities

Electrical Specifications

Type / Code	Dielectric Strength (V)	Power Rating @ 25ºC (W)	Power Rating @ 70ºC (W)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance
					5%
WWF12	500	0.6	0.5	± 20 ppm/ºC	10 - 2 K
WWF1	500	1.2	1.1		10 - 3 K
WWF1A	500	1.5	1.3		10 - 7 K
WWF2	1000	2.5	2.1		10 - 10 K
WWF2A	1000	3	2.6		10 - 15 K
WWF3	1000	3.7	3.2		10 - 22 K
WWF3A	1000	4	3.4		10 - 30 K
WWF4	1000	5	4.3		10 - 40 K
WWF5	1000	6	5.1		10 - 50 K
WWF7	1000	8.5	7.2		10 - 70 K
WWF7B	1000	9	7.7		10 - 100 K
WWF10	1000	13	11		10 - 150 K

Max Voltage Rating = $\sqrt{P*R}$

Mechanical Specifications



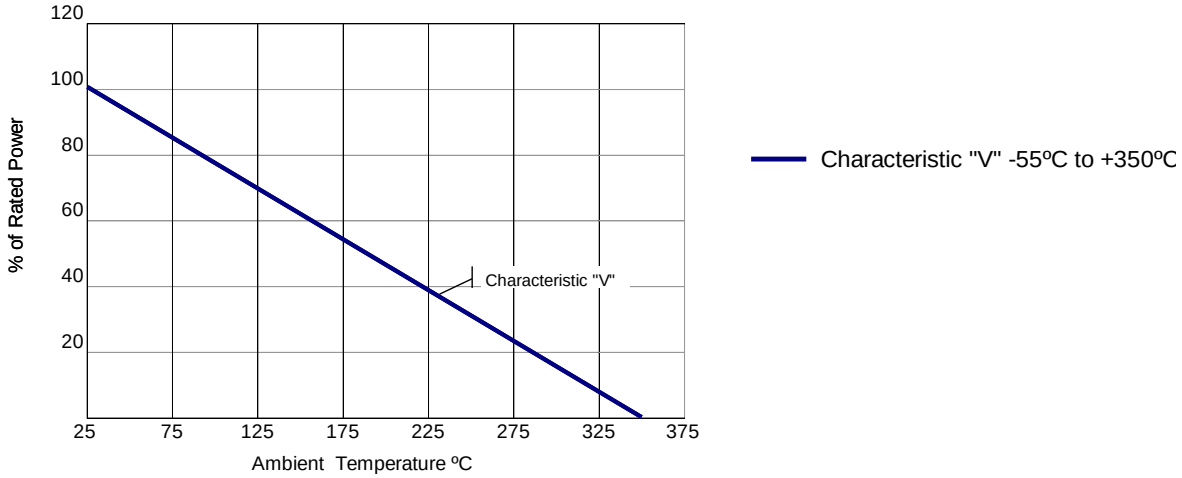
Type / Code	A	B	C	D	Unit
WWF12	0.312 ± 0.062 7.92 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.62 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF1	0.375 ± 0.062 9.53 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF1A	0.420 ± 0.062 10.67 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF2	0.370 ± 0.062 9.40 ± 1.57	0.156 ± 0.031 3.96 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF2A	0.550 ± 0.062 13.97 ± 1.57	0.156 ± 0.031 3.96 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF3	0.560 ± 0.062 14.22 ± 1.57	0.187 ± 0.031 4.75 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF3A	0.500 ± 0.062 12.70 ± 1.57	0.218 ± 0.031 5.54 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF4	0.700 ± 0.062 17.78 ± 1.57	0.270 ± 0.031 6.86 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF5	0.875 ± 0.062 22.23 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF7	1.000 ± 0.062 25.40 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF7B	1.200 ± 0.062 30.48 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WWF10	1.780 ± 0.062 45.21 ± 1.57	0.375 ± 0.031 9.53 ± 0.79	0.036 ± 0.002 (2) 0.91 ± 0.05 (2)	1.500 typ. 38.10 typ.	inches mm

(1) See "Resistor Packaging Specification Document" for lead length dimension for tape and reel packaged product
(2) Available in 0.04" (1.02 mm)

Performance Characteristics	
Test	Test Specification
Fuse Test @ 220 Vac (1)	Typically fuses in less than 1 second
Moisture Resistance	1% max
Load Life	1%
Temperature Cycling	0.5%
Short Time Overload	1%

Note (1): Valid only if resistance value is low enough that the test voltage causes overload of 15X rated power or more.
Operating temperature range is -55°C to +350°C

Power Derating Curve:



Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with "*".

100% Matte Tin / RoHS Compliant Terminations

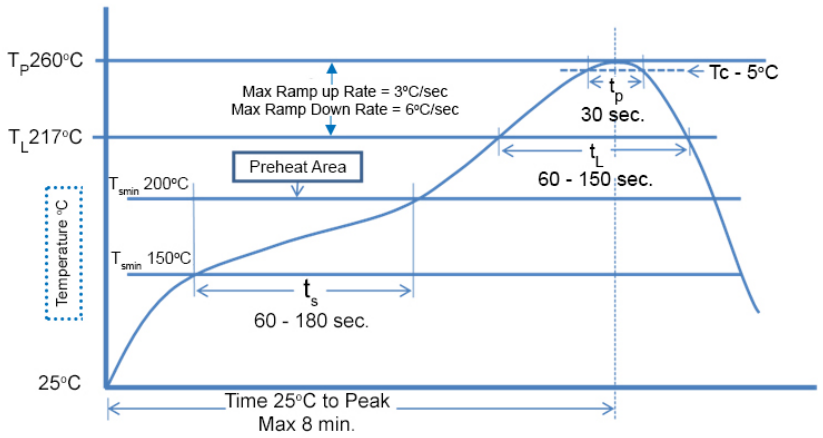
Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

Wave Soldering			
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Defference between final preheat stage and soldering stage.

Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*

Recommended Lead Free Resistor Reflow Profile



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)
WWF	General Purpose and Precision Fusing Wirewound Resistor	Axial	YES	100% Matte Sn	Always	Always

"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
W	**W**	**F**	**1**	**J**	**T**	**1**	**0**	**K**	**0**

Product Series	
WWF	General Purpose Fusing Wirewound

Size	Power Rating	
Code	@ 25ºC	@ 70ºC
12	0.6	0.5
1	1.2	1.1
1A	1.5	1.3
2	2.5	2.1
2A	3	2.6
3	3.7	3.2
3A	4	3.4
4	5	4.3
5	6	5.1
7	8.5	7.2
7B	9	7.7
10	13	11

Tolerance	
Code	Tol
J	5%

Packaging			
Code	Description	Size	Quantity
T	11" reel tape	WWF12, WWF1, WWF1A	2500
		WWF2, WWF2A, WWF3, WWF4	2000
		WWF3A	750
		WWF5, WWF7, WWF7B	50
		WWF10	250

Resistance Value
Four characters with the multiplier used as the decimal holder.
10 ohm - 10R0 2 Kohm = 2K00 100 Kohm = 100K