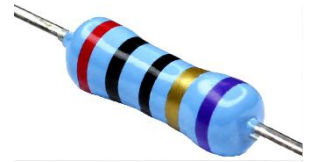


Features:

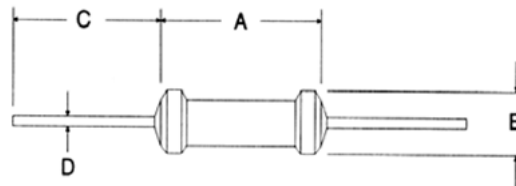
- Conformal coating
- Flameproof construction
- Cut and formed product is available in select sizes - contact Stackpole for details
- RoHS compliant, REACH compliant, lead free without exemption and halogen free
- Bulk packaging available – contact Stackpole for package quantities



Electrical Specifications

Type/Code	Size	Power Rating (W) @ 85°C	Maximum Working (V)	Dielectric Withstanding (RMS) (V)	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance 5%
WRC1S	0309	1	$\sqrt{P \cdot R}$	700	-80 ppm/°C ~ +900 ppm/°C	0.1 - 100
WRC1	0410	1				0.1 - 470
WRC2A	0416	2				0.1 - 470
WRC3A	0416	3				0.1 - 470
WRC4A	0416	4				0.1 - 470
WRC5A	0416	5				0.1 - 470
WRC3B	0617	3				0.1 - 680
WRC4B	0617	4				0.1 - 680
WRC5B	0617	5.5				0.01 - 680

Mechanical Specifications



Type/Code	A Body Length	B Body Width	C Lead Length (Bulk) (1)	D Lead Diameter	Unit
WRC1S	0.354 max 9.00 max	0.138 max 3.50 max	1.102 ± 0.079 28.00 ± 2.00	0.028 ± 0.002 0.70 ± 0.05	inches mm
WRC1	0.394 max 10.00 max	0.161 max 4.10 max	1.102 ± 0.079 28.00 ± 2.00	0.028 ± 0.002 0.70 ± 0.05	inches mm
WRC2A, WRC3A WRC4A, WRC5A	0.492 max 12.50 max	0.217 max 5.50 max	1.102 ± 0.118 28.00 ± 3.00	0.031 ± 0.002 0.80 ± 0.05	inches mm
WRC3B, WRC4B WRC5B	0.630 max 16.00 max	0.236 max 6.00 max	1.102 ± 0.118 28.00 ± 3.00	0.031 ± 0.002 0.80 ± 0.05	inches mm

(1) See "Resistor Packaging Specification Document" for lead length dimension for tape and reel packaged product.

Performance Characteristics

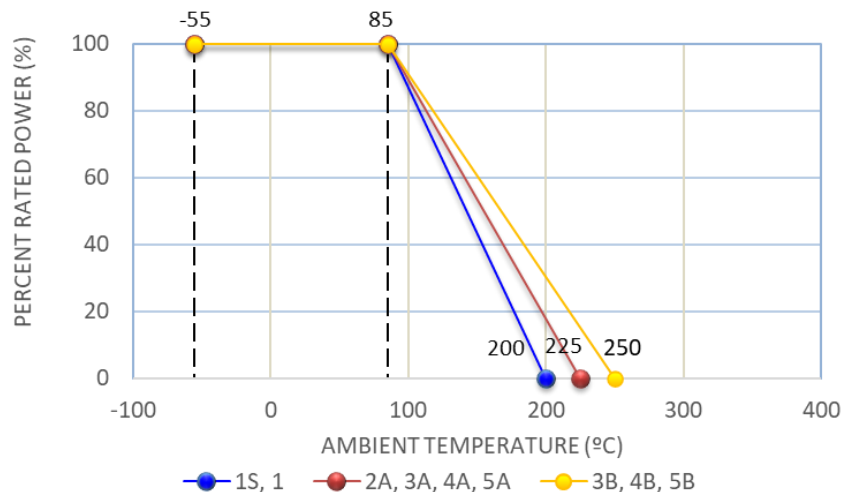
Test	Test Results
Moisture Resistance	$\Delta R \pm (5\% + 0.05\Omega)$
Thermal Shock	$\Delta R \pm (2\% + 0.05\Omega)$
Load Life @ 70°C - 1000 hours	$\Delta R \pm (5\% + 0.05\Omega)$
Shock and Vibration	$\Delta R \pm (1\% + 0.05\Omega)$
Resistance to Soldering Heat	$\Delta R \pm (2\% + 0.05\Omega)$
Short Time Overload	$\Delta R \pm (3\% + 0.05\Omega)$

Operating temperature range for 1S and 1 is -55°C to + 200°C

Operating temperature range for 2A, 3A, 4A and 5A is -55°C to +225°C

Operating temperature range for 3B, 4B and 5B is -55°C to +250°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

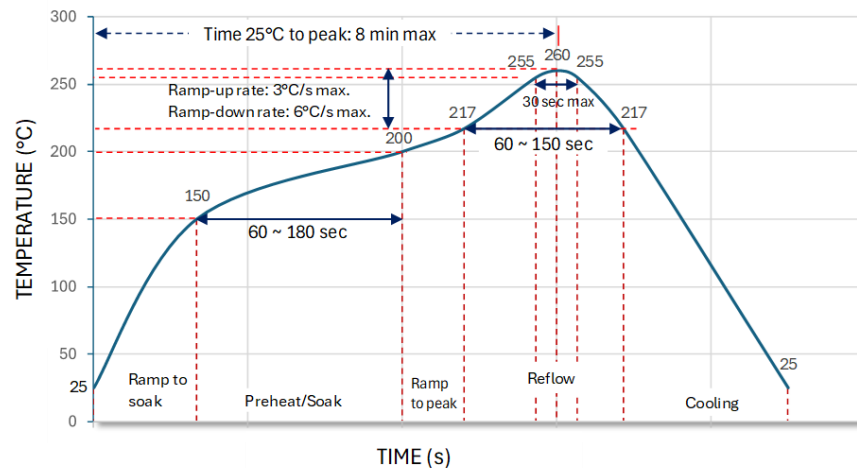
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

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

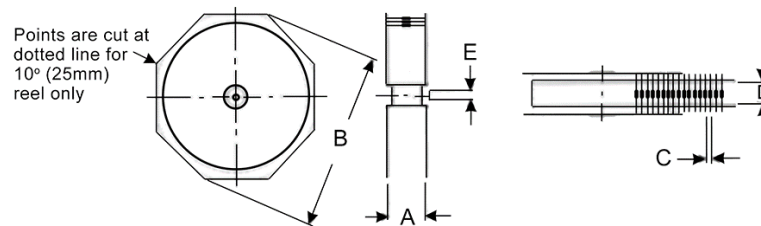
Convection IR Reflow

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 Resistor Reflow Profile



Packaging Specifications

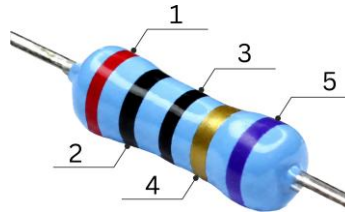


Type/Code	A max ⁽¹⁾	B max	C	D ⁽²⁾	Tape	Unit
WRC1S	2.756 70.00	11.933 303.10	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.079 52.00 ± 2.00	0.236 ± 0.039 6.00 ± 1.00	inches mm
WRC1	2.756 70.00	11.933 303.10	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.079 52.00 ± 2.00	0.236 ± 0.039 6.00 ± 1.00	inches mm
WRC2, WRC2A, WRC3A WRC4A, WRC5A	2.756 70.00	11.933 303.10	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.079 52.00 ± 2.00	0.236 ± 0.039 6.00 ± 1.00	inches mm
WRC3B, WRC4B WRC5B	2.756 70.00	11.933 303.10	0.197 ± 0.020 5.00 ± 0.50	2.047 ± 0.079 52.00 ± 2.00	0.236 ± 0.039 6.00 ± 1.00	inches 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 inches (8.00 mm) greater than the overall component.

(2) The given dimension "D" expresses the standard width spacing.

Standard Color Codes Specifications



COLOR BAND DESCRIPTION		
BAND	PRECISION	GENERAL PURPOSE
1st band	Nominal	Nominal
2nd band	Nominal	Nominal
3rd band	Nominal	Multiplier
4th band	Multiplier	Tolerance
5th band (Violet)	Wirewound Construction	Wirewound Construction

Color	Nominal	Multiplier	Tolerance (%)
Black	0	1	-
Brown	1	10	1
Red	2	100	2
Orange	3	1K	-
Yellow	4	10K	-
Green	5	100K	0.5
Blue	6	1000K	0.25
Violet	7	-	0.1
Gray	8	-	-
White	9	0.001	-
Silver	-	0.01	10
Gold	-	0.1	5

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
WRC	Conformal Coated Welded Wirewound Resistor	Axial	YES	100% Matte Sn

"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

W		R		C		2		A		J		A		3		0		0		R	
Product Series		Size		Tolerance		Packaging				Resistance Value											
WRC	Conformal	Code	W	Code	Tol	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder. "L" used as multiplier of 10 ⁻³ for any value under 0.1 ohm. 0.01 ohm = 10L0 0.1 ohm = R100 1 ohm = 1R00 10 ohm = 10R0											
	Coated	1S	1	J	5%	T	Tape & Reel	1S	2500												
	Welded	1	1					1, 2A, 3A, 4A, 5A	2000												
	Wirewound	2A	2					3B, 4B, 5B	1000												
		3A	3			A	Ammo	1S, 1	2000												
		4A	4					2A, 3A, 4A, 5A, 3B, 4B, 5B	1000												
		5A	5																		
		3B	3																		
	4B	4																			
	5B	5.5																			