

## Wirewound Resistors, Military, MIL-PRF-26 Qualified, Type RW, Precision Power, Silicone Coated, Axial Lead


**FEATURES**

- High temperature coating (> 350 °C)
- Complete welded construction
- Qualified to MIL-PRF-26
- Excellent stability in operation (typical resistance shift < 0.5 %)

STANDARD ELECTRICAL SPECIFICATIONS						
MILITARY MODEL	VISHAY REFERENCE MODEL	POWER RATING $P_{25\text{ }^\circ\text{C}}$ W CHARACTERISTIC U	POWER RATING $P_{25\text{ }^\circ\text{C}}$ W CHARACTERISTIC V	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm$ %	WEIGHT (typical) g
RW81	G001...380	1.0	-	0.1 to 1K	0.1, 0.5, 1	0.20
RW70	RS01A...300	1.0	-	0.1 to 2.74K	0.1, 0.5, 1	0.34
RW80	G003...380	2.0	-	0.1 to 2.74K	0.1, 0.5, 1	0.34
RW79	RS02B...300	3.0	-	0.1 to 6.49K	0.1, 0.5, 1	0.70
RW69	RS02C...23	-	3.0	0.1 to 2.0K	5, 10	1.6
RW74	RS005...69	5.0	-	0.1 to 24.3K	0.1, 0.5, 1	4.2
RW67	RS005...70	-	6.5	0.1 to 8.2K	5, 10	4.2
RW78	RS010...38	10.0	-	0.1 to 71.5K	0.1, 0.5, 1	9.0
RW68	RS010...39	-	11.0	0.1 to 20K	5, 10	9.0

**Note**

- RW67, RW68, RW69 available tolerance for these MIL parts is  $\pm$  5 % for 1  $\Omega$  and above,  $\pm$  10 % below 1  $\Omega$

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	RW RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	$\pm$ 20 for 10 $\Omega$ and above, $\pm$ 50 for 1 $\Omega$ to 9.9 $\Omega$ , $\pm$ 90 for below 1 $\Omega$
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	$\Omega$	1000 M $\Omega$ minimum dry, 100 M $\Omega$ minimum after moisture test
Solderability	-	MIL-PRF-26 type - meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	Characteristic U = - 65 to + 250, characteristic V = - 65 to + 350

MILITARY PART NUMBER INFORMATION													
Military Part Numbering example: RW80U49R9FB12													
	R	W	8	0	U	4	9	R	9	F	B	1	2
MIL TYPE	CHARACTERISTIC		RESISTANCE VALUE		TOLERANCE CODE		PACKAGING CODE						
<b>RW67</b> <b>RW68</b> <b>RW69</b> <b>RW70</b> <b>RW74</b> <b>RW78</b> <b>RW79</b> <b>RW80</b> <b>RW81</b>	<b>U</b> = Max. hotspot 275 °C <b>V</b> = Max. hotspot 350 °C		<b>U Characteristic</b> 3 digit significant figure, followed by a multiplier <b>49R9</b> = 49.9 $\Omega$ <b>1000</b> = 100 $\Omega$ <b>1001</b> = 1000 $\Omega$  <b>V Characteristic</b> 2 digit significant figure, followed by a multiplier <b>4R7</b> = 4.7 $\Omega$ <b>102</b> = 1000 $\Omega$		Tolerance for "U" Characteristic only <b>B</b> = $\pm$ 0.1 % <b>D</b> = $\pm$ 0.5 % <b>F</b> = $\pm$ 1.0 %  Tolerance for "V" Characteristic is not listed and is as specified by MIL-PRF-26		<b>B12</b> = Bulk pack <b>S70</b> = Tape/reel (smaller than 5 W) <b>S73</b> = Tape/reel (5 W and higher)						

**DIMENSIONS** in inches [millimeters]

**Note**

(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown

**MATERIAL SPECIFICATIONS**

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Ceramic, steatite or alumina, depending on physical size

**Coating:** Special high temperature silicone

**Standard Terminals:** 60/40 Sn/Pb coated Copperweld®

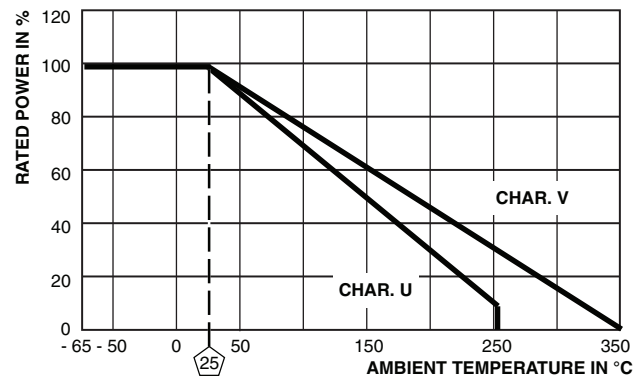
**End Caps:** Stainless steel

MILITARY MODEL	DIMENSIONS in inches [millimeters]			
	A	B (2) (max.)	C	D
RW81	0.250 ± 0.031 [6.35 ± 0.787]	0.281 [7.14]	0.085 ± 0.020 [2.16 ± 0.508]	0.020 ± 0.002 [0.508 ± 0.051]
RW70 RW80	0.406 ± 0.031 [10.31 ± 0.787]	0.437 [11.10]	0.094 ± 0.031 [2.39 ± 0.787]	0.020 ± 0.002 [0.508 ± 0.051]
RW79	0.560 ± 0.062 [14.22 ± 1.57]	0.622 [15.80]	0.187 ± 0.031 [4.75 ± 0.787]	0.032 ± 0.002 [0.813 ± 0.051]
RW69	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.031 [5.54 ± 0.787]	0.032 ± 0.002 [0.813 ± 0.051]
RW74 RW67	0.875 ± 0.062 [22.23 ± 1.57]	1.0 [25.4]	0.312 ± 0.031 [7.92 ± 0.787]	0.040 ± 0.002 [1.02 ± 0.051]
RW78	1.78 ± 0.062 [45.21 ± 1.57]	1.87 [47.50]	0.375 ± 0.031 [9.53 ± 0.787]	0.040 ± 0.002 [1.02 ± 0.051]
RW68	1.875 + 0.063 - 0.125 [47.63 + 1.60 - 3.18]	1.94 [49.28]	0.344 ± 0.094 [8.74 ± 2.39]	0.040 ± 0.002 [1.02 ± 0.051]

**Note**

(2) B (max.) dimension is clean lead to clean lead

MARKING	
<b>MODELS:</b> RW70, RW74, RW78, RW79, RW80, RW81	<b>MODELS:</b> RW67, RW68, RW69
Characteristic U Tolerance code: B = 01 %, D = 0.5 %, F = 1 %	Characteristic V Tolerance code: Not listed
<b>Example</b> Dale RW80U Model 1001F Characteristic, value 0703 Date code	<b>Example</b> Dale RW68 Model V100 Characteristic, value M0202 Date code

**DERATING**


PERFORMANCE			
TEST	CONDITIONS OF TEST	TEST LIMITS	
		CHARACTERISTIC U	CHARACTERISTIC V
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power (3.75 W and smaller), 10 x rated power (4 W and larger) for 5 s	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	500 V <sub>RMS</sub> min. (RW70, RW80, RW81), 1000 V <sub>RMS</sub> for all others, duration of 1 min	± (0.1 % + 0.05 Ω) ΔR	± (0.1 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
High Temperature Exposure	250 h at: U = + 250 °C, V = + 350 °C	± (0.5 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.5 % + 0.05 Ω) ΔR	± (3.0 % + 0.05 Ω) ΔR
Terminal Strength	Pull test 5 s to 10 s, 5 lb (RW70, RW80, RW81), 10 lb for all others; torsion test - 3 alternating directions, 360° each	± (0.1 % + 0.05 Ω) ΔR	± (1.0 % + 0.05 Ω) ΔR



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**