Vishay Dale



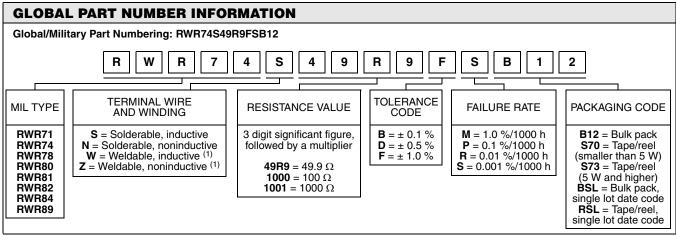
Wirewound Resistors, Military/Established Reliability MIL-PRF-39007 Qualified, Type RWR, R Level



FEATURES

- High temperature silicone coated
- Complete welded construction
- Qualified to MIL-PRF-39007
- Available in non-inductive styles (types ESN and EGN) with Aryton-Perry winding for lowest reactive components
- "S" level failure rate available
- Note: "Terminal Wire and Winding" type "W" and "Z" are not listed below but are available upon request. Please reference MIL-PRF-39007 QPL for approved "failure rate" and "resistance tolerance/ranges"

STANDARD ELECTRICAL SPECIFICATIONS							
MODEL	MIL-PRF-39007 TYPE	POWER RATING P _{25 °C} W	MILITARY RESISTANCE RANGE Ω		WEIGHT		
			± 0.1 %	± 0.5 % and ± 1 %	(typical) g		
EGS-1-80	RWR81S	1	0.499 - 1K	0.1 - 1K	0.21		
EGN-1-80	RWR81N	1	0.499 - 499	0.1 - 499	0.21		
EGS-2	RWR82S	2	0.499 - 1.3K	0.1 - 1.3K	0.23		
EGN-2	RWR82N	2	0.499 - 649	0.1 - 649	0.23		
EGS-3-80	RWR80S	2	0.499 - 3.16K	0.1 - 3.16K	0.34		
EGN-3-80	RWR80N	2	0.499 - 1.58K	0.1 - 1.58K	0.34		
ESS-2A	RWR71S	2	0.499 - 12.1K	0.1 - 12.1K	0.90		
ESN-2A	RWR71N	2	0.499 - 6.04K	0.1 - 6.04K	0.90		
ESS-2B	RWR89S	3	0.499 - 4.12K	0.1 - 4.12K	0.70		
ESN-2B	RWR89N	3	0.499 - 2.05K	0.1 - 2.05K	0.70		
ESS-5	RWR74S	5	0.499 - 12.1K	0.1 - 12.1K	4.2		
ESN-5	RWR74N	5	0.499 - 6.04K	0.1 - 6.04K	4.2		
EGS-10-80	RWR84S	7	0.499 - 12.4K	0.1 - 12.4K	3.6		
EGN-10-80	RWR84N	7	0.499 - 6.19K	0.1 - 6.19K	3.6		
ESS-10	RWR78S	10	0.499 - 39.2K	0.1 - 39.2K	9.0		
ESN-10	RWR78N	10	0.499 - 19.6K	0.1 - 19.6K	9.0		



Note

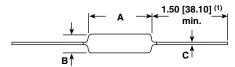
(1) Note that "W" and "Z" are not listed above but are available, see MIL-PRF-39007 QPL for available resistance values



Wirewound Resistors, Military/Established Reliability MIL-PRF-39007 Qualified, Type RWR, R Level

Vishay Dale

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, beryllium oxide, steatite or alumina, depending on power requirement

Coating: Special high temperature silicone

Terminal and Winding: The terminal and the winding are identified by a letter symbol in the military type designation.

Military symbol:

S = Solderable, inductively wound
W = Weldable, inductively wound
N = Solderable, non-inductively wound
Z = Weldable, non-inductively wound

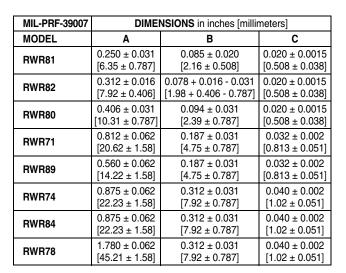
Terminals: Solderable - Tinned Copperweld[®] Weldable - bare nickel per MIL-STD-1276, Type N-1

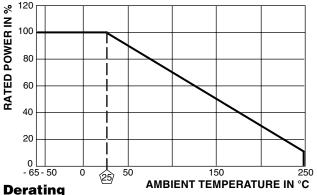
End Caps: Stainless steel

Part Marking: Source code, JAN, military PIN, date/lot code

APPLICABLE MIL-SPECIFICATION

MIL-PRF-39007: This is the military specification covering axial lead established reliability power wirewound resistors. Vishay Dale ESS, ESW, EGS, EGW, ESN and EGN resistors meet or exceed the electrical, environmental and dimensional requirements of this specification.





TECHNICAL SPECIFICATIONS						
PARAMETER	UNIT	RWR RESISTOR CHARACTERISTICS				
Temperature Coefficient	ppm/°C	\pm 650 for 0.1 Ω to 0.499 Ω , \pm 400 for 0.505 Ω to 1 Ω , \pm 50 for 1.1 Ω to 10 Ω , \pm 20 for 10 Ω and above				
Dielectric Withstanding Voltage	V_{AC}	500 minimum for 2 W and smaller, 1000 minimum for 3 W and larger				
Short Time Overload	-	5 x rated power for 5 s for 3 W size and smaller, 10 x rated power for 5 s for 5 W size and greater				
Maximum Working Voltage	V	$(P \times R)^{1/2}$				
Insulation Resistance		1000 M Ω minimum dry, 100 M Ω minimum after moisture test				
Terminal Strength	lb	5 minimum for 2 W and smaller, 10 minimum for 3 W and larger				
Solderability	-	Meets requirements of ANSI J-STD-002				
Operating Temperature Range	°C	- 65 to + 250				

PERFORMANCE					
TEST	CONDITIONS OF TEST	TEST LIMITS			
Thermal Shock	MIL-STD-2.2, Method 303	$\pm (0.2 \% + 0.005 \Omega) \Delta R$			
Short Time Overload	5 x rated power (RWR71, 80, 81, 89, 82), 10 x rated power (RWR74, 78, 84) for 5 s	$\pm (0.2 \% + 0.005 \Omega) \Delta R$			
Dielectric Withstanding Voltage	500 V_{rms} (RWR80, 81, 82), 1000 V_{rms} (RWR71, 74, 78, 84, 89), 1 min duration	\pm (0.1 % + 0.005 Ω) ΔR			
Low Temperature Storage	- 65 °C for 24 h	$\pm (0.1 \% + 0.005 \Omega) \Delta R$			
High Temperature Exposure	250 °C for 2000 h	\pm (1.0 % + 0.005 Ω) ΔR			
Moisture Resistance	MIL-STD-202, Method 106	$\pm (0.2 \% + 0.005 \Omega) \Delta R$			
Shock, Specified Pulse	MIL-STD-202, Method 205, condition C	\pm (0.1 % + 0.005 Ω) ΔR			
Vibration, High Frequency	MIL-STD-202, Method 204, condition D	$\pm (0.1 \% + 0.005 \Omega) \Delta R$			
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm (0.5 \% + 0.005 \Omega) \Delta R$			
Extended Life	10 000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm (1.0 \% + 0.005 \Omega) \Delta R$			
Terminal Strength	MIL-STD-202, Method 211, condition A and C 5 pound (RWR80, 81, 82), 10 pound (RWR71, 74, 78, 84, 89)	\pm (0.1 % + 0.005 Ω) ΔR			

Note

[•] For resistance values above 100 Ω , test limit is \pm 1.0 %



Vishay

Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Revision: 18-Jul-08

Document Number: 91000 www.vishay.com