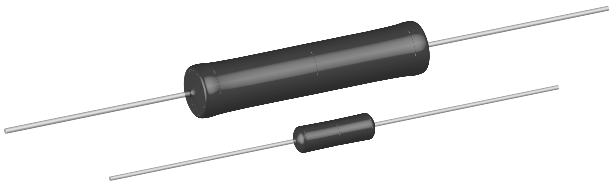
Vishay Dale

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



FEATURES

- High temperature coating (> 350 °C)
- Complete welded construction
- Meets applicable requirements of MIL-PRF-26
- Available in non-inductive styles (type NS) with Aryton-Perry winding for lowest reactive components
- Excellent stability in operation (typical resistance shift < 0.5 %)
- Lead (Pb)-Free version is RoHS Compliant

Pb-free Available

RoHS* COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	MIL-PRF-26 TYPE	POWER RATING**** $P_{25\,°C}$ W U ± 0.05 % thru ± 5 %	POWER RATING**** $P_{25\,°C}$ W V ± 3 % thru ± 10 %	RESISTANCE RANGE MIL. RANGE SHOWN IN BOLD FACE Ω ± 0.05 %	± 0.1 %	± 0.25 %	± 0.5 % & ± 1 %	± 3 %, ± 5 %, ± 10 %	WEIGHT (Typical) g
RS1/8	RS-18	—	0.125	—	—	—	—	0.1 - 950	0.1 - 950	0.15
RS1/4	RS-1/4	—	0.4	—	1 - 1 k	0.499 - 1k	0.499 - 3.4 k	0.1 - 3.4 k	0.1 - 3.4 k	0.21
RS1/2	RS-1/2	—	0.75	—	1 - 1.3 k	0.499 - 1.3k	0.499 - 4.9 k	0.1 - 4.9 k	0.1 - 4.9 k	0.23
RS01A	RS-1A	—	1.0	—	1 - 2.74 k	0.499 - 2.74 k	0.499 - 10.4 k	0.1 - 10.4 k	0.1 - 10.4 k	0.34
RS01A...300	RS-1A-300	**RW70*** **	1.0 **1.0**	— —	—	0.499 - 2.74 k	0.499 - 10.4 k	0.1 - 10.4 k **0.1 - 2.74 k**	0.1 - 10.4 k	0.34
RS01M	RS-1M	—	1.0	—	1 - 1.32 k	0.499 - 1.67 k	0.499 - 6.85 k	0.1 - 6.85 k	0.1 - 6.85 k	0.30
RS002	RS-2	—	4.0	5.5	0.499 - 12.7 k	0.499 - 12.7 k	0.1 - 47.1 k	0.1 - 47.1 k	0.1 - 47.1 k	2.10
RS02M	RS-2M	—	3.0	—	0.499 - 4.49 k	0.499 - 4.49 k	0.1 - 18.74 k	0.1 - 18.74 k	0.1 - 18.74 k	0.65
RS02B	RS-2B	—	3.0	3.75	0.499 - 6.5 k	0.499 - 6.5 k	0.1 - 24.5 k	0.1 - 24.5 k	0.1 - 24.5 k	0.70
RS02B...300	RS-2B-300	**RW79*** **	3.0 **3.0**	— —	— —	0.499 - 6.5 k	0.1 - 24.5 k	0.1 - 24.5 k **0.1 - 6.49 k**	0.1 - 24.5 k	0.70
RS02C	RS-2C	—	2.5	3.25	0.499 - 8.6 k	0.499 - 8.6 k	0.1 - 32.3 k	0.1 - 32.3 k	0.1 - 32.3 k	1.6
RS02C...17	RS-2C-17	—	2.5	3.25	0.499 - 6.8 k	0.499 - 8.6 k	0.1 - 32.3 k	0.1 - 32.3 k	0.1 - 32.3 k	1.6
RS02C...23	RS-2C-23	**RW69****	—	3.25 **3.0**	—	—	—	—	0.1 - 32.3 k **0.1 - 2.0 k**	16
RS005	RS-5	—	5.0	6.5	0.499 - 25.7 k	0.499 - 25.7 k	0.1 - 95.2 k	0.1 - 95.2 k	0.1 - 95.2 k	4.2
RS005...69	RS-5-69	**RW74*** **	5.0 **5.0**	— —	—	0.499 - 25.7 k	0.1 - 95.2 k	0.1 - 95.2 k **0.1 - 24.3 k**	0.1 - 95.2 k	4.2
RS005...70	RS-5-70	**RW67****	— —	6.5 **6.5**	—	—	—	—	0.1 - 95.2 k **0.1 - 8.2 k**	4.2
RS007	RS-7	—	7.0	9.0	0.499 - 41.4 k	0.499 - 41.4 k	0.1 - 154 k	0.1 - 154 k	0.1 - 154 k	4.7
RS010	RS-10	—	10.0	13.0	0.499 - 73.4 k	0.499 - 73.4 k	0.1 - 273 k	0.1 - 273 k	0.1 - 273 k	9.0
RS010...38	RS-10-38	**RW78*** **	10.0 **10.0**	— –	—	0.499 - 73.4 k	0.1 - 273 k	0.1 - 273 k **0.1 - 71.5 k**	0.1 - 273 k	9.0
RS010...39	RS-10-39	**RW68****	— —	13.0 **11.0**	—	—	—	—	0.1 - 273 k **0.1 - 20 k**	9.0

** Available tolerance for these Mil parts is ± 5 % for 1 Ω and above, ± 10 % below 1 Ω.
***Available tolerance for these Mil parts is ± 0.5 % & ± 1 % for resistance values 0.1 Ω and above, ± 0.1 % for resistance values 0.499 Ω and above.
****Vishay Dale RS models have two power ratings depending on operation temperature and stability requirements.
NOTE: Shaded area indicates most popular models.

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: RS02C10K00FS7017 (preferred part numbering format)

R	S	0	2	C	1	0	K	0	0	F	S	7	0	1	7	

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
(See Standard Electrical Specifications Global Model column for options)	**R** = Decimal **K** = Thousand **15R00** = 15 Ω **10K00** = 10 kΩ	**A** = ± 0.05 % **B** = ± 0.1 % **C** = ± 0.25 % **D** = ± 0.5 % **F** = ± 1.0 % **J** = ± 5.0 % **K** = 10.0 %	**E70** = Lead (Pb)-free, Tape/Reel (smaller than RS005) **E73** = Lead (Pb)-free, Tape/Reel (RS005 & larger) **E12** = Lead (Pb)-free, Bulk **Lead (Pb)-free is not available on RW military type** **S70** = Tin/Lead, Tape/Reel (smaller than RS005) **S73** = Tin/Lead, Tape/Reel (RS005 & larger) **B12** = Tin/Lead, Bulk	(Dash Number) (up to 3 digits) From 1-999 as applicable

Historical Part Number example: RS-2C-17 10 kΩ 1 % S70 (will continue to be accepted)

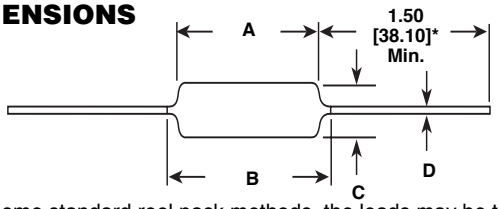
RS-2C-17	10 kΩ	1 %	S70
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

* Pb containing terminations are not RoHS compliant, exemptions may apply

For technical questions, contact ww2bresistors@vishay.com

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

DIMENSIONS



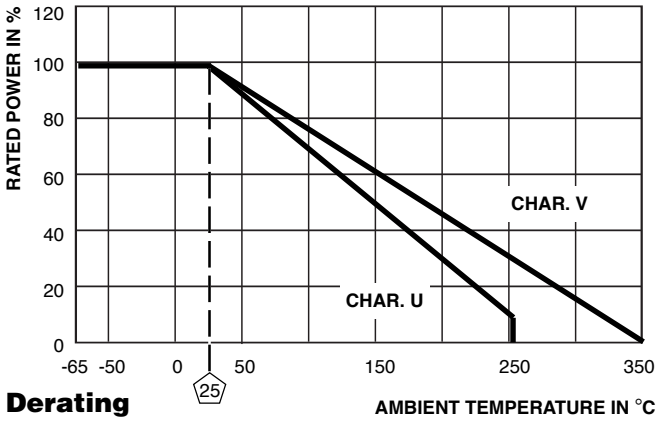
*On some standard reel pack methods, the leads may be trimmed to a shorter length than shown.
NOTE: RS-1/8 terminal length will be 1.0" [25.4 mm] minimum.

GLOBAL MODEL	DIMENSIONS in inches [millimeters]			
	A	B (Max.)**	C	D
RS1/8	0.155 ± 0.015 [3.94 ± 0.381]	—	0.065 ± 0.015 [1.65 ± 0.381]	0.020 ± 0.002 [0.508 ± 0.051]
RS1/4	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]
RS1/2	0.312 ± 0.016 [7.92 ± 0.406]	0.328 [8.33]	0.078 + 0.016 - 0.031 [1.98 + 0.406 - 0.787]	0.020 ± 0.002 [0.508 ± 0.051]
RS01A RS01A...300	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]
RS01M	0.285 ± 0.025 [7.24 ± 0.635]	0.311 [7.90]	0.110 ± 0.015 [2.79 ± 0.381]	0.020 ± 0.002 [0.508 ± 0.051]
RS002	0.625 ± 0.062 [15.88 ± 1.57]	0.765 [19.43]	0.250 ± 0.031 [6.35 ± 0.787]	0.040 ± 0.002 [1.02 ± 0.051]
RS02M	0.500 ± 0.062 [12.70 ± 1.57]	0.562 [14.27]	0.185 ± 0.015 [4.70 ± 0.381]	0.032 ± 0.002 [0.813 ± 0.051]
RS02B RS02B...300	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]
RS02C	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.031 [5.54 ± 0.787]	0.040 ± 0.002 [1.02 ± 0.051]
RS02C...17 RS02C...23	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]
RS005 RS005...69 RS005...70	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]
RS007	1.22 ± 0.062 [30.99 ± 1.57]	1.28 [32.51]	0.312 ± 0.031 [7.92 ± 7.87]	0.040 ± 0.002 [1.02 ± 0.051]
RS010 RS010...39	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]
RS010...38	1.78 ± 0.062 [45.21 ± 1.57]	1.84 [46.74]	0.375 ± 0.031 [9.53 ± 0.787]	0.040 ± 0.002 [1.02 ± 0.051]

**B (Max.) dimension is clean lead to clean lead.

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: 100 % Sn, or 60/40 Sn/Pb coated Copperweld®. NOTE: Military "RW" parts are only available with 60/40 Sn/Pb finish.
End Caps: Stainless steel
Deviations for RS-1/8: Thermoset silicone molded construction, endcaps will be nickel-silver alloy and terminals will be tinned copper
Part Marking: DALE, Model, Wattage*, Value, Tolerance, Date Code
*Wattage marked on part will be "U" characteristic



Derating

NS NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Aryton-Perry) winding. They are identified by substituting the letter N for R in the model number (NS-5, for example).

Two conditions apply:
1. For NS models, divide maximum resistance values by two
2. Body O.D. on NS-2C may exceed that of the RS-2C by 010"

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RS RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 90 for below 1 Ω, ± 50 for 1 Ω to 9.9 Ω, ± 20 for 10 Ω and above
Dielectric Withstanding Voltage	V_{AC}	500 minimum for RS-1/8 thru RS-1A, 1000 minimum for all others
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	1000 Megohm minimum dry, 100 Megohm minimum after moisture test
Terminal Strength	lb	5 minimum for RS-1/8 thru RS-1A, 10 minimum for all others
Solderability	–	MIL-PRF-26 type - Meets requirements of ANSI J-STD-002
Operating Temperature Range	°C	Characterisitic U = - 65/+ 250, Characteristic V = - 65/+ 350

PERFORMANCE*

TEST	CONDITIONS OF TEST	TEST LIMITS	
		Characteristic U	Characteristic V
Thermal Shock	Rated power applied until thermally stable, then a min. of 15 minutes at - 55 °C	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power (3.75 watt and smaller), 10 x rated power (4 watt and larger) for 5 seconds	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	500 minimum for RS-1/8 thru RS-1A, 1000 for all others, duration of 1 minute	± (0.1 % + 0.05 Ω) ΔR	± (0.1 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 hours	± (0.2 % + 0.05 Ω) ΔR	± (2.0 % + 0.05 Ω) ΔR
High Temperature Exposure	250 hours 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 milliseconds, 10 shocks	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 to 2000 Hz, 20 g peak, 2 directions 6 hours each	± (0.1 % + 0.05 Ω) ΔR	± (0.2 % + 0.05 Ω) ΔR
Load Life	2000 hours at rated power, + 25 °C, 1.5 hours "ON", 0.5 hours "OFF"	± (0.5 % + 0.05 Ω) ΔR	± (3.0 % + 0.05 Ω) ΔR
Terminal Strength	5 to 10 sec., 5 or 10 lb pull test (depending on size), torsion test - 3 alternating directions, 360° each	± (0.1 % + 0.05 Ω) ΔR	± (1.0 % + 0.05 Ω) ΔR

*All ΔR figures shown are maximum, based upon testing requirements per MIL-PRF-26.

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

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