

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



- 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 %)



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· Lead (Pb)-Free version is RoHS Compliant

STANDARD ELECTRICAL SPECIFICATIONS										
GLOBAL MODEL	HISTORICAL MODEL	MIL-PRF-26		OWER RATING**** RESISTANCE RANGE P <sub>25 °C</sub> W MIL. RANGE SHOWN IN BOLD FACE Ω				WEIGHT (Typical)		
		TYPE	U ± 0.05 % thru ± 5 %	V ± 3 % thru ± 10 %	± 0.05 %	± 0.1 %	± 0.25 %	±0.5 % & ±1 %	± 3 %, ± 5 %, ± 10 %	g
RS1/8	RS-18	—	0.125	—	_	_	_	0.1 - 950	0.1 - 950	0.15
RS1/4	RS-1/4	_	0.4	—	1-1k	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
RS01A300	RS-1A-300	RW70***	1.0 <b>1.0</b>	_	_	0.499 - 2.74 k	0.499 - 10.4 k	0.1 - 10.4 k <b>0.1 - 2.74 k</b>	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
RS02B300	RS-2B-300	RW79***	3.0 <b>3.0</b>	_	_	0.499 - 6.5 k	0.1 - 24.5 k	0.1 - 24.5 k <b>0.1 - 6.49 k</b>	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
RS02C17	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
RS02C23	RS-2C-23	RW69**	—	3.25 <b>3.0</b>	_	_	_	_	0.1 - 32.3 k <b>0.1 - 2.0 k</b>	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
RS00569	RS-5-69	RW74***	5.0 <b>5.0</b>	_	—	0.499 - 25.7 k	0.1 - 95.2 k	0.1 - 95.2 k <b>0.1 - 24.3 k</b>	0.1 - 95.2 k	4.2
RS00570	RS-5-70	RW67**	=	6.5 <b>6.5</b>	_	_	_	_	0.1 - 95.2 k <b>0.1 - 8.2 k</b>	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	<u> </u>	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
RS01038	RS-10-38	RW78***	10.0 <b>10.0</b>	_	_	0.499 - 73.4 k	0.1 - 273 k	0.1 - 273 k <b>0.1 - 71.5 k</b>	0.1 - 273 k	9.0
RS01039	RS-10-39	RW68**	_	13.0 <b>11.0</b>	_	_	_	_	0.1 - 273 k <b>0.1 - 20 k</b>	9.0

\*\* Available tolerance for these Mil parts is  $\pm 5$  % for 1  $\Omega$  and above,  $\pm 10$  % below 1  $\Omega$ .

\*\*\*Available tolerance for these Mil parts is  $\pm$  0.5 % &  $\pm$  1 % for resistance values 0.1  $\Omega$  and above,  $\pm$  0.1 % for resistance values 0.499  $\Omega$  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	TOLERANCE CODE	PACKAGING	SPECIAL			
(See Standard Electrical Specifications Global Model column	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$		E73 = Lead (Pb)-free, Tape/Reel (RS005 & larger)	(Dash Number) (up to 3 digits) From 1-999 as applicable			
for options)			S70 = Tin/Lead, Tape/Reel (smaller than RS005) S73 = Tin/Lead, Tape/Reel (RS005 & larger) B12 = Tin/Lead, Bulk				
Historical Part Number example: RS-2C-17 10 k $\Omega$ 1 % S70 (will continue to be accepted)							
RS-2C-17		10 kΩ	1 %	S70			
HISTORICAL MODEL	- F	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING			
* Pb containing terminations are not RoHS compliant, exemptions may apply							

For technical questions, contact ww2bresistors@vishay.com



## RS. NS Vishay Dale

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



\*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.

#### **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<sup>®</sup>.

Standard terminals: 100% Sn, or 60/40 Sn/Pb coated Copperweid®. 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).

GLOBAL	DIMENSIONS in inches [millimeters]						
MODEL	Α	B (Max.)**	С	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]	$\begin{array}{c} 0.020 \pm 0.002 \\ [0.508 \pm 0.051] \end{array}$			
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]	$\begin{array}{c} 0.020 \pm 0.002 \\ [0.508 \pm 0.051] \end{array}$			
RS01A RS01A300	0.406 ± 0.031 [10.31 ± 0.787]	0.437 [11.10]	0.094 ± 0.031 [2.39 ± 0.787]	$\begin{array}{c} 0.020 \pm 0.002 \\ [0.508 \pm 0.051] \end{array}$			
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]	$\begin{array}{c} 0.040 \pm 0.002 \\ [1.02 \pm 0.051] \end{array}$			
RS02M	0.500 ± 0.062 [12.70 ± 1.57]	0.562 [14.27]	0.185 ± 0.015 [4.70 ± 0.381]	$\begin{array}{c} 0.032 \pm 0.002 \\ [0.813 \pm 0.051] \end{array}$			
RS02B RS02B300	0.560 ± 0.062 [14.22 ± 1.57]	0.622 [15.80]	0.187 ± 0.031 [4.75 ± 0.787]	$\begin{array}{c} 0.032 \pm 0.002 \\ [0.813 \pm 0.051] \end{array}$			
RS02C	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.031 [5.54 ± 0.787]	$\begin{array}{c} 0.040 \pm 0.002 \\ [1.02 \pm 0.051] \end{array}$			
RS02C17 RS02C23	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.031 [5.54 ± 0.787]	$\begin{array}{c} 0.032 \pm 0.002 \\ [0.813 \pm 0.051] \end{array}$			
RS005 RS00569 RS00570	0.875 ± 0.062 [22.23 ± 1.57]	1.0 [25.4]	0.312 ± 0.031 [7.92 ± 0.787]	$\begin{array}{c} 0.040 \pm 0.002 \\ [1.02 \pm 0.051] \end{array}$			
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 RS01039	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]			
RS01038	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.

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	$\pm$ 90 for below 1 $\Omega$ , $\pm$ 50 for 1 $\Omega$ to 9.9 $\Omega$ , $\pm$ 20 for 10 $\Omega$ and above				
Dielectric Withstanding Voltage	V <sub>AC</sub>	500 minimum for RS-1/8 thru RS-1A, 1000 minimum for all others				
Maximum Working Voltage	V	(P x R) <sup>1/2</sup>				
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	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$				
Short Time Overload	5 x rated power (3.75 watt and smaller), 10 x rated power (4 watt and larger) for 5 seconds	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$				
Dielectric Withstanding Voltage	500 minimum for RS-1/8 thru RS-1A, 1000 for all others, duration of 1 minute	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	$\pm (0.1 \% + 0.05 \Omega) \Delta R$				
Low Temperature Storage	- 65 °C for 24 hours	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$				
High Temperature Exposure	250 hours at: U = + 250 °C, V = + 350 °C	$\pm (0.5 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$				
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$				
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 milliseconds, 10 shocks	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	$\pm (0.2 \% + 0.05 \Omega) \Delta R$				
Vibration, High Frequency	Frequency varied 10 to 2000 Hz, 20 g peak, 2 directions 6 hours each	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	$\pm (0.2 \% + 0.05 \Omega) \Delta R$				
Load Life	2000 hours at rated power, + 25 °C, 1.5 hours "ON", 0.5 hours "OFF"	$\pm (0.5 \% + 0.05 \Omega) \Delta R$	$\pm (3.0 \% + 0.05 \Omega) \Delta R$				
Terminal Strength	5 to 10 sec., 5 or 10 lb pull test (depending on size),	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	± (1.0 % + 0.05 Ω) Δ <i>R</i>				
Ű	torsion test - 3 alternating directions, 360° each	, , ,	, , ,				
*All $\Delta R$ figures shown are maximum, based upon testing requirements per MIL-PRF-26.							



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