

Wirewound Resistors, Industrial, Precision Power, Silicone Coated, Axial Lead

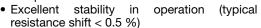


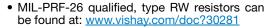
Note

This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

FEATURES

- High temperature coating (> 350 °C)
- Complete welded construction
- Meets applicable requirements of MIL-PRF-26
- Available in non-inductive styles (type NS) with Ayrton-Perry winding for lowest reactive components





• Material categorization: for definitions of compliance please see www.vishay.com/doc?99912







HALOGEN FREE

GREEN

<u>(5-2008)</u>

STANDARD ELECTRICAL SPECIFICATIONS									
GLOBAL MODEL	HIST. MODEL	POWER RATING ⁽¹⁾ P _{25°C} W U ± 0.05 % to ± 5 %	POWER RATING ⁽¹⁾ P _{25°C} W V±3% to±10%	RESISTANCE RANGE Ω ± 0.05 %	RESISTANCE RANGE Ω ± 0.1 %	RESISTANCE RANGE Ω ± 0.25 %	RESISTANCE RANGE Ω ± 0.5 %, ± 1 %	RESISTANCE RANGE Ω ± 3 %, ± 5 %, ± 10 %	WEIGHT (typical) g
RS1/4	RS-1/4	0.4	-	1 to 1K	0.499 to 1K	0.499 to 3.4K	0.1 to 3.4K	0.1 to 3.4K	0.21
RS1/2	RS-1/2	0.75	-	1 to 1.3K	0.499 to 1.3K	0.499 to 4.9K	0.1 to 4.9K	0.1 to 4.9K	0.23
RS01A	RS-1A	1.0	=	1 to 2.74K	0.499 to 2.74K	0.499 to 10.4K	0.1 to 10.4K	0.1 to 10.4K	0.34
RS01A300	RS-1A-300	1.0	-	-	0.499 to 2.74K	0.499 to 10.4K	0.1 to 10.4K	=	0.34
RS01M	RS-1M	1.0	-	1 to 1.32K	0.499 to 1.67K	0.499 to 6.85K	0.1 to 6.85K	0.1 to 6.85K	0.30
RS002	RS-2	4.0	5.5	0.499 to 12.7K	0.499 to 12.7K	0.1 to 47.1K	0.1 to 47.1K	0.1 to 47.1K	2.10
RS02M	RS-2M	3.0	-	0.499 to 4.49K	0.499 to 4.49K	0.1 to 18.74K	0.1 to 18.74K	0.1 to 18.74K	0.65
RS02B	RS-2B	3.0	3.75	0.499 to 6.5K	0.499 to 6.5K	0.1 to 24.5K	0.1 to 24.5K	0.1 to 24.5K	0.70
RS02B300	RS-2B-300	3.0	-	-	0.499 to 6.5K	0.1 to 24.5K	0.1 to 24.5K	-	0.70
RS02C	RS-2C	2.5	3.25	0.499 to 8.6K	0.499 to 8.6K	0.1 to 32.3K	0.1 to 32.3K	0.1 to 32.3K	1.6
RS02C17	RS-2C-17	2.5	3.25	0.499 to 8.6K	0.499 to 8.6K	0.1 to 32.3K	0.1 to 32.3K	0.1 to 32.3K	1.6
RS02C23	RS-2C-23	1	3.25	-	-	-	-	0.1 to 32.3K	1.6
RS005	RS-5	5.0	6.5	0.499 to 25.7K	0.499 to 25.7K	0.1 to 95.2K	0.1 to 95.2K	0.1 to 95.2K	4.2
RS00569	RS-5-69	5.0	ı	-	0.499 to 25.7K	0.1 to 95.2K	0.1 to 95.2K	0.1 to 95.2K	4.2
RS00570	RS-5-70	-	6.5	-	-	-	-	0.1 to 95.2K	4.2
RS007	RS-7	7.0	9.0	0.499 to 41.4K	0.499 to 41.4K	0.1 to 154K	0.1 to 154K	0.1 to 154K	4.7
RS010	RS-10	10.0	13.0	0.499 to 73.4K	0.499 to 73.4K	0.1 to 273K	0.1 to 273K	0.1 to 273K	9.0
RS01038	RS-10-38	10.0	-	-	0.499 to 73.4K	0.1 to 273K	0.1 to 273K	0.1 to 273K	9.0
RS01039	RS-10-39	-	13.0	-	-	-	-	0.1 to 273K	9.0

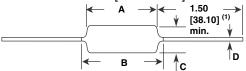
Models not available as lead (Pb)-free: RS01A...300, RS02B...300, RS02C...23, RS005...69, RS005...70, RS010...38, RS010...39. Shaded area indicates most popular models.

Vishay Dale RS models have two power ratings depending on operation temperature and stability requirements. Models not available for characteristic V are: RS1/4, RS1/2, RS01A, RS01A...300, RS01M, RS02M, RS02B...300, RS005...69, and RS010...38.

GLOBAL PART NUMBER INFORMATION								
Global Part Numbering example: RS02C10K00FS7017								
R S 0 2 C 1 0 K 0 0 F S 7 0 1							7	
GLOBAL MODEL (5 digits)				PACKAGING (3 digits)			SPECIAL (up to 3 digits)	
(See Standard Electrical Specifications Global Model 15R00 = 15 Ω		A = 0.05 % B = 0.1 % C = 0.25 % D = 0.5 %	E70 = Lead (Pb)-free, tape/reel (smaller than RS005) E73 = Lead (Pb)-free, tape/reel (RS005 and larger) E12 = Lead (Pb)-free, bulk			(Dash Number) From 1 to 999 as applicable		
Global Model column for options)		F = 1.0 % H = 3.0 % J = 5.0 % K = 10.0 %		S70 = Tin/lead, tape/reel (sma S73 = Tin/lead, tape/reel (RS B12 = Tin/lead, b	8005 an			
Historical Part Numbering example: RS-2C-17 10 kΩ 1 % S70								
RS-2C-17 10 kΩ		10 k Ω		1 %		S7	70	
HISTORICAL	MODEL	RE	ESISTANCE VALUE		TOLERANCE CODE		PACKAGING	



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: 100 % Sn, or 60/40 Sn/Pb coated

Copperweld®

End Caps: Stainless steel

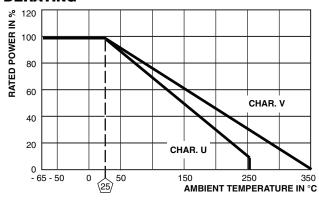
Part Marking: DALE, model, wattage (2), value, tolerance,

date code

NOTE

(2) Wattage marked on part will be "U" characteristic.

DERATING



GLOBAL	DIMENSIONS in inches [millimeters]						
MODEL	Α	B ⁽³⁾ (max.)	С	D			
RS1/4	0.250 ± 0.031 [6.35 \pm 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	0.328	0.078 + 0.016 - 0.031	0.020 ± 0.002			
	[7.92 ± 0.406]	[8.33]	[1.98 + 0.406 - 0.787]	[0.508 ± 0.051]			
RS01A	0.406 ± 0.031	0.437	0.094 ± 0.031	0.020 ± 0.002			
RS01A300	[10.31 ± 0.787]	[11.10]	[2.39 ± 0.787]	[0.508 ± 0.051]			
RS01M	0.270 ± 0.031 [6.86 \pm 0.787]	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	0.765	0.250 ± 0.031	0.040 ± 0.002			
	[15.88 ± 1.57]	[19.43]	[6.35 ± 0.787]	[1.02 ± 0.051]			
RS02M	0.500 ± 0.062	0.562	0.185 ± 0.015	0.032 ± 0.002			
	[12.70 ± 1.57]	[14.27]	[4.70 ± 0.381]	[0.813 ± 0.051]			
RS02B	0.560 ± 0.062	0.622	0.187 ± 0.031	0.032 ± 0.002			
RS02B300	[14.22 ± 1.57]	[15.80]	[4.75 ± 0.787]	[0.813 ± 0.051]			
RS02C	0.500 ± 0.062	0.593	0.218 ± 0.031	0.040 ± 0.002			
	[12.70 ± 1.57]	[15.06]	[5.54 ± 0.787]	[1.02 ± 0.051]			
RS02C17	0.500 ± 0.062	0.593	0.218 ± 0.031	0.032 ± 0.002			
RS02C23	[12.70 ± 1.57]	[15.06]	[5.54 ± 0.787]	[0.813 ± 0.051]			
RS005 RS00569 RS00570	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	1.28	0.312 ± 0.031	0.040 ± 0.002			
	[30.99 ± 1.57]	[32.51]	[7.92 ± 0.787]	[1.02 ± 0.051]			
RS010	1.78 ± 0.062	1.87	0.375 ± 0.031	0.040 ± 0.002			
RS01039	[45.21 ± 1.57]	[47.50]	[9.53 ± 0.787]	[1.02 ± 0.051]			
RS01038	1.78 ± 0.062	1.84	0.375 ± 0.031	0.040 ± 0.002			
	[45.21 ± 1.57]	[46.74]	[9.53 ± 0.787]	[1.02 ± 0.051]			

Note

NS NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by substituting the letter N for R in the model number (NS005, for example).

Two conditions apply:

- 1. For NS models, divide maximum resistance values by two
- 2. Body O.D. on NS02C may exceed that of the RS02C by 0.010"

TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	RS RESISTOR CHARACTERISTICS			
Temperature Coefficient	ppm/°C	\pm 20 for 10 Ω and above, \pm 50 for 1 Ω to 9.9 $\Omega,$ \pm 90 for 0.5 Ω to 0.99 Ω			
Maximum Working Voltage	V	$(P \times R)^{1/2}$			
Insulation Resistance	Ω	1000 M Ω minimum dry, 100 M Ω minimum after moisture test			
Operating Temperature Range °C		Characterisitic U = -65 to +250, characteristic V = -65 to +350			

PERFORMANCE						
TEST	CONDITIONS OF TEST	TEST LIMITS				
1231	CONDITIONS OF TEST	CHARACTERISTIC U	CHARACTERISTIC V			
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min 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 W and smaller), 10 x rated power (4 W and larger) for 5 s	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$			
Dielectric Withstanding Voltage	500 $V_{\mbox{\scriptsize RMS}}$ min. for RS1/4 thru RS01A, 1000 $V_{\mbox{\scriptsize RMS}}$ for all others, duration of 1 min	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	± (0.1 % + 0.05 Ω) ΔR			
Low Temperature Storage	-65 °C for 24 h	$\pm (0.2 \% + 0.05 \Omega) \Delta R$	$\pm (2.0 \% + 0.05 \Omega) \Delta R$			
High Temperature Exposure	250 h 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 ms, 10 shocks	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	$\pm (0.2 \% + 0.05 \Omega) \Delta R$			
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	$\pm (0.1 \% + 0.05 \Omega) \Delta R$	$\pm (0.2 \% + 0.05 \Omega) \Delta R$			
Load Life	2000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm (0.5 \% + 0.05 \Omega) \Delta R$	$\pm (3.0 \% + 0.05 \Omega) \Delta R$			
Terminal Strength	Pull test 5 s to 10 s, 5 lb (RS1/4 thru RS01A), 10 lb for all others; torsion test - 3 alternating directions, 360° each	± (0.1 % + 0.05 Ω) ΔR	± (1.0 % + 0.05 Ω) ΔR			

⁽³⁾ B (max.) dimension is clean lead to clean lead.



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Vishay

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