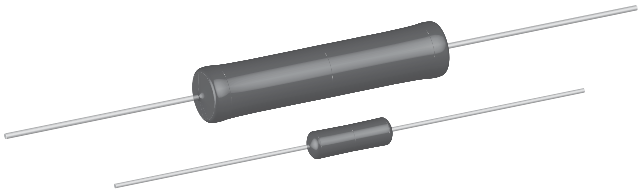
Wirewound Resistors, Miniature, Industrial, Precision Power, Silicone Coated, Axial Lead



FEATURES

- From 1.4 to 4 times higher power ratings than conventional resistors of equivalent size
- High temperature coating (> 350 °C)
- Complete welded construction
- Meets applicable requirements of MIL-PRF-26
- Available in non-inductive styles (type GN) with Ayrton-Perry winding for lowest reactive components
- Excellent stability in operation (typical resistance shift < 0.5 %)
- MIL-PRF-26 qualified, type RW resistors can be found at: www.vishay.com/doc?30281
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

e3

RoHS* Available

HALOGEN FREE Available

GREEN (5-2008) Available

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

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

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 ± 5 %	RESISTANCE RANGE Ω ± 0.05 %	RESISTANCE RANGE Ω ± 0.1 %	RESISTANCE RANGE Ω ± 0.25 %	RESISTANCE RANGE Ω ± 0.5 %, ± 1 %, ± 3 %, ± 5 %	WEIGHT (typical) g
G001...80	G-1-80	1.0	-	1.0 to 1K	0.499 to 1K	0.499 to 3.4K	0.1 to 3.4K	0.20
G001...380	G-1-380	1.0	-	-	0.499 to 1K	0.499 to 1K	0.1 to 1K	0.20
G002	G-2	1.5	-	1.0 to 1.3K	0.499 to 1.3K	0.499 to 4.9K	0.1 to 4.9K	0.21
G003...80	G-3-80	2.0	-	1.0 to 2.74K	0.499 to 2.74K	0.499 to 10.4K	0.1 to 10.4K	0.34
G003...380	G-3-380	2.0	-	-	0.499 to 2.74K	0.499 to 2.74K	0.1 to 2.74K	0.34
G005	G-5	4.0	5.0	0.499 to 6.5K	0.499 to 6.5K	0.1 to 24.5K	0.1 to 24.5K	0.80
G05C	G-5C	5.0	7.0	0.499 to 8.6K	0.499 to 8.6K	0.1 to 32.3K	0.1 to 32.3K	1.20
G010	G-10	7.0	10.0	0.499 to 25.7K	0.499 to 25.7K	0.1 to 95.2K	0.1 to 95.2K	3.60

Notes

- G002, G005, G05C, and G010: Core consists of beryllium oxide ceramic
- Models not available as lead (Pb)-free: G001...380 and G003…380
- Shaded area indicates most popular models

(1) Vishay Dale G models have two power ratings depending on operation temperature and stability requirements. Models not available for characteristic V are: G001…80, G001…380, G002, G003…80, and G003…380

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	G RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 20 for 10 Ω and above; ± 50 for 1 Ω to 9.9 Ω; ± 90 for 0.5 Ω to 0.99 Ω
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Insulation Resistance	Ω	1000 MΩ minimum dry, 100 MΩ minimum after moisture test
Terminal Strength	lb	5 minimum for G001...80 thru G003...380, 10 minimum for all others
Operating Temperature Range	°C	Characteristic U = -65 to +250, characteristic V = -65 to +350
Power Rating	-	Characteristic U = +250 °C max. hot spot temperature, ± 0.5 % max. ΔR in 2000 h load life Characteristic V = +350 °C max. hot spot temperature, ± 3.0 % max. ΔR in 2000 h load life

GLOBAL PART NUMBER INFORMATION

Global Part Numbering example: G00310R00FS7080

G	0	0	3	1	0	R	0	0	F	S	7	0	8	0	

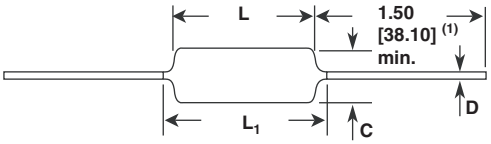
GLOBAL MODEL (4 or 5 digits)	RESISTANCE VALUE (5 digits)	TOLERANCE CODE (1 digit)	PACKAGING (3 digits)	SPECIAL (up to 3 digits)
(see Standard Electrical Specifications Global Model column for options)	**R** = decimal **K** = thousand **15R00** = 15 Ω **10K00** = 10 kΩ	**A** = 0.05 % **B** = 0.1 % **C** = 0.25 % **D** = 0.5 % **F** = 1.0 % **H** = 3.0 % **J** = 5.0 % **K** = 10.0 %	**E70** = lead (Pb)-free, tape / reel (smaller than G010) **E73** = lead (Pb)-free, tape / reel (500 pieces) **E12** = lead (Pb)-free, bulk **S70** = tin / lead, tape / reel (smaller than G010) **S73** = tin / lead, tape / reel (500 pieces) **B12** = tin / lead, bulk	(dash number) From **1 to 999** as applicable

Historical Part Numbering example: G-3-80 10 Ω 1 % S70

G-3-80	10 Ω	1 %	S70
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

For technical questions, contact: ww2aresistors@vishay.com

DIMENSIONS in inches [millimeters]



GLOBAL MODEL	DIMENSIONS in inches [millimeters]			
	L	$L_{1\ max.}$ (2)	C	D
G001...80 G001...380	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]
G002	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]
G003...80 G003...380	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]
G005	0.562 ± 0.062 [14.27 ± 1.57]	0.622 [15.80]	0.188 ± 0.032 [4.78 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
G05C	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.032 [5.54 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
G010	0.875 ± 0.062 [22.23 ± 1.57]	1.0 [25.4]	0.312 ± 0.032 [7.92 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]

Notes
(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown
(2) $L_{1\ max.}$ dimension is clean lead to clean lead

MATERIAL SPECIFICATIONS

Element: Copper-nickel alloy or nickel-chrome alloy, depending on resistance value
Core: Ceramic, beryllium oxide or alumina, depending on resistor model
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 (3), value, tolerance, date code

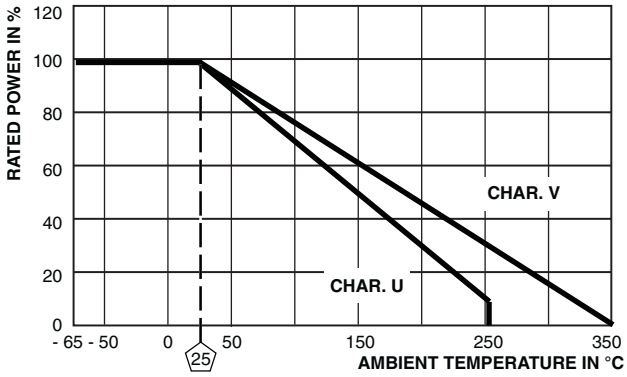
Note
(3) Wattage marked on part will be "U" characteristic

GN NON-INDUCTIVE

Models of equivalent physical and electrical specifications are available with non-inductive (Ayrton-Perry) winding. They are identified by inserting the letter N after G in the model number (GN005, for example). Two conditions apply:

1. For GN models, divide maximum resistance values by two
2. Body O.D. on GN05C may exceed that of the G05C by 0.010"

DERATING



TERMINATION

When G resistors will be operated at full rated power, resistance welding or high temperature solder are the recommended termination methods. Termination should be made within 1/2" from end of resistor body.

PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS	
		CHARACTERISTIC U	CHARACTERISTIC V
Thermal Shock	Rated power applied until thermally stable, then a min. of 15 min at -55 °C	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Short Time Overload	5x power (G001...80 thru G05C), 10 x power (G010) for 5 s	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Dielectric Withstanding Voltage	500 V_{RMS} minimum for G001...80 thru G003...380, 1000 V_{RMS} minimum for all others, duration of 1 min	± (0.1 % + 0.05 Ω) Δ*R*	± (0.1 % + 0.05 Ω) Δ*R*
Low Temperature Storage	-65 °C for 24 h	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
High Temperature Exposure	250 h at +250 °C (characteristic U)	± (0.5 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (0.2 % + 0.05 Ω) Δ*R*	± (2.0 % + 0.05 Ω) Δ*R*
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 *g*'s for 6 ms, 10 shocks	± (0.1 % + 0.05 Ω) Δ*R*	± (0.2 % + 0.05 Ω) Δ*R*
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each	± (0.1 % + 0.05 Ω) Δ*R*	± (0.2 % + 0.05 Ω) Δ*R*
Load Life	2000 h at rated power, +25 °C, 1.5 h "ON", 0.5 h "OFF"	± (0.5 % + 0.05 Ω) Δ*R*	± (3.0 % + 0.05 Ω) Δ*R*
Terminal Strength	Pull test -5 s to 10 s, 5 lb (G001...80 thru G05C), 10 lb for all others; torsion test - 3 alternating directions, 360° each	± (0.1 % + 0.05 Ω) Δ*R*	± (1.0 % + 0.05 Ω) Δ*R*

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G05C4R000JB12 G005150R0FB12 G05C1K000FB12 G0055R000FB12 G002560R0FB12 G05C5K000FB12 G002500R0FB12 G00247R00JB12 GN0101R000FB12 G00210R00FB12 G05C10K00FB12 GN005R1000FB12 GN05C20R00JB12 GN001536R0AB1280 G005300R0JB12 G05C10R00JB12 G05C25R00JB12 G005373R0FB12 G05C1K000JB12 G05C2K000JB12 G002680R0FB12 G010R3200FB12 GN05C10R00JB12 G00522R10FB12 G01015R00JB12 G0052K200JB12 G002390R0JB12 G01030R00JE73 G3-80 4K 1% G05C200R0HE12W08 GN00310R00BE7080 GN005R1500FE12 G005140R0FE12 G005150R0JE1229 GN05CR5000FB12 GN05C49R90JB12 GN0052R000FB12 G0101K100FB12 G005298R0FB12 G005286R0FB12 GN0053R000HB12 G05C2R000JB12 G0052K200FB12 G0052K000JB12 GN0015R100FB1280 G0021K500JB12 G01020R00JB12 G01024R00JB12 GN00142R20AB1280 G0022K000FB12 GN00120R00FB1280 GN001R2000FB1280 GN001R1000FB1280 GN05C10R00FB12 G00519R70FB12 G0105R000FB12 G01027K00JB12 G01016R40JB12 G01033R20FB12 G0055R000JB12 G005150R0JB1229 G003220R0FE7080 GN5C-V 5K 3% G003470R0JB1280 G0034K000FB1280 G0039K000FB1280 G0039K500FB1280 G00210R00FE12 G0021K500JE12 G0022K000FE12 G002390R0JE12 G002430R0FE12 G00247R00JE12 G0026R700JE5137 G0052K000JE12 G005300R0JE12 G005525R0FE12 G01068R00HE12 G05C100R0FE12 G05C10R00JE12 G05C4R000FE12 G05C5K000HE12 GN00120R00FE1280 GN0015R100FE1280 G0051K000JB12W05 G3-80 8K 1% G0011K000JE1280 G001R1000FE1280 G0012K210FE1280 G002330R0HE12 G0013R900JE1280 G00347R00HE1280 G00351R10FE1280 G003330R0JE1280 G001390R0JE7380 GN05C5R100JE12 G0012K000FE7080 G003500R0JE1280 G00120R00FE7080 G00343R20FE1280