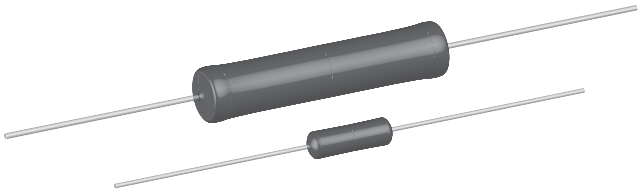
Wirewound Resistors, Miniature, Industrial, Precision Power, Silicone Coated, Axial Lead



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	

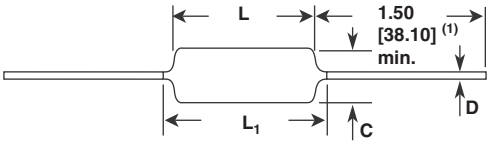
GLOBAL MODEL (4 or 5 digits)	RESISTANCE VALUE (5 digits)	TOLERANCE CODE (1 digit)	PACKAGING (3 digits)	SPECIAL (up to 3 digits)
(see Standard Electrical Specifications Global Model column for options)	**R** = decimal **K** = thousand **15R00** = 15 Ω **10K00** = 10 kΩ	**A** = 0.05 % **B** = 0.1 % **C** = 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

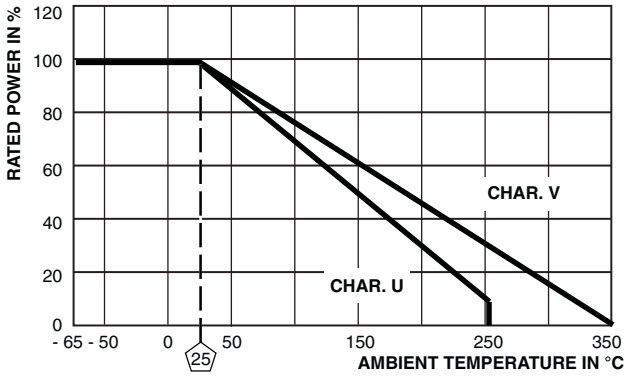
Note
(3) Wattage marked on part will be "U" characteristic

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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