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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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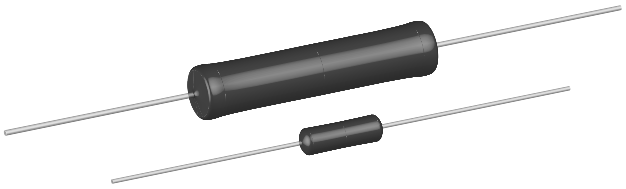
Wirewound Resistors, Commercial Power, Silicone Coated, Axial Lead



FEATURES

- High performance for low cost
- High temperature silicone coating
- Complete welded construction
- Excellent stability in operation
- High power to size ratio
- Compliant to RoHS Directive 2002/95/EC

Pb-free Available

e3

RoHS* COMPLIANT

GREEN (5-2008)** Available

Notes
* Pb containing terminations are not RoHS compliant, exemptions may apply
** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING (1) $P_{25\ °C}$ W CHARACTERISTIC U + 250 °C	POWER RATING (1) $P_{25\ °C}$ W CHARACTERISTIC V + 350 °C	RESISTANCE RANGE Ω	TOLERANCE ± % (2)	WEIGHT (max.) g
CW1/2	CW-1/2	0.5	-	0.1 to 1.77K	5, 10	0.21
CW001	CW-1	1.0	-	0.1 to 6.37K	5, 10	0.34
CW01M	CW-1M	1.0	-	0.1 to 3.3K	5, 10	0.3
CW002	CW-2	4.0	5.5	0.1 to 28.7K	5, 10	2.1
CW02M	CW-2M	3.0	3.75	0.1 to 12K	5, 10	0.65
CW02B	CW-2B	3.0	3.75	0.1 to 15K	5, 10	0.7
CW02B...13	CW-2B-13	4.0	6.0	0.1 to 10.89K (3)	5, 10	0.9
CW02C	CW-2C	2.5	3.25	0.1 to 19.9K	5, 10	1.8
CW02C...14	CW-2C-14	2.5	3.25	0.1 to 19.9K	5, 10	1.2
CW005	CW-5	5.0	6.5	0.1 to 58.5K	5, 10	4.2
CW005...2	CW-5-2	4.0	5.0	0.1 to 40.3K	5, 10	4.2
CW005...3	CW-5-3	5.0	6.5	0.1 to 58.5K	5, 10	4.2
CW007	CW-7	7.0	9.0	0.1 to 95.2K	5, 10	4.7
CW010	CW-10	10.0	13.0	0.1 to 167K	5, 10	9.0
CW010...3	CW-10-3	10.0	13.0	0.1 to 167K	5, 10	9.0

Notes
(1) Vishay Dale CW models have two power ratings, depending on operating temperature and stability requirements
(2) 3 % tolerance available
(3) Higher values available on request

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CW RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 30 for 10 Ω and above, ± 50 for 1.0 Ω to 9.9 Ω, ± 90 for 0.5 Ω to 0.99 Ω
Dielectric Withstanding Voltage	V_{AC}	1000
Short Time Overload	-	5 x rated power for 5 s for 3.75 W size and smaller, 10 x rated power for 5 s for 4 W size and greater
Terminal Strength	lb	10 minimum
Maximum Working Voltage	V	$(P \times R)^{1/2}$
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: CW02C10K00JB1214

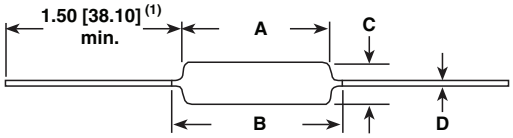
C	W	0	2	C	1	0	K	0	0	J	B	1	2	1	4	

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
(See Standard Electrical Specifications Global Model column for options)	**R** = Decimal **K** = Thousand **1R500** = 1.5 Ω **1K500** = 1.5 kΩ	**H** = ± 3.0 % **J** = ± 5.0 % **K** = ± 10.0 %	**E70** = Lead (Pb)-free, tape/reel, 1K pcs (smaller than CW005) **E73** = Lead (Pb)-free, tape/reel, 500 pcs **E12** = Lead (Pb)-free, bulk **D18** = Lead (Pb)-free, R1R80 tape/reel CW02B...13 pack code for Europe use only **S70** = Tin/lead, tape/reel, 1K pcs (smaller than CW005) **S73** = Tin/lead, tape/reel, 500 pcs **B12** = Tin/lead, bulk	(Dash Number) (up to 3 digits) From **1 to 999** as applicable

Historical Part Numbering example: CW-2C-14 10 kΩ 5 % B12

CW-2C-14	10 kΩ	5 %	B12
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

DIMENSIONS in inches (millimeters)



MODEL	DIMENSIONS in inches [millimeters]			
	A	B [MAXIMUM] (2)	C	D
CW1/2	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]
CW001	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]
CW01M	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]
CW002	0.625 ± 0.062 [15.87 ± 1.57]	0.765 [19.43]	0.250 ± 0.032 [6.35 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
CW02M	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]
CW02B	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]
CW02B...13	0.500 ± 0.062 [12.70 ± 1.57]	0.563 [14.30]	0.188 ± 0.032 [4.78 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
CW02C	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]
CW02C...14	0.500 ± 0.062 [12.70 ± 1.57]	0.593 [15.06]	0.218 ± 0.032 [5.54 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
CW005	0.875 ± 0.062 [22.22 ± 1.57]	1.0 [25.40]	0.312 ± 0.032 [7.92 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
CW005...2	0.875 ± 0.062 [22.22 ± 1.57]	1.0 [25.40]	0.250 ± 0.032 [6.35 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
CW005...3	0.875 ± 0.062 [22.22 ± 1.57]	1.0 [25.40]	0.312 ± 0.032 [7.92 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]
CW007	1.218 ± 0.062 [30.94 ± 1.57]	1.281 [32.54]	0.312 ± 0.032 [7.92 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
CW010	1.781 ± 0.062 [45.24 ± 1.57]	1.875 [47.62]	0.375 ± 0.032 [9.52 ± 0.813]	0.040 ± 0.002 [1.02 ± 0.051]
CW010...3	1.781 ± 0.062 [45.24 ± 1.57]	1.875 [47.62]	0.375 ± 0.032 [9.52 ± 0.813]	0.032 ± 0.002 [0.813 ± 0.051]

Notes

(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown

(2) B (maximum) 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: Tinned Copperweld®
(CW02B…13 is tinned copper)

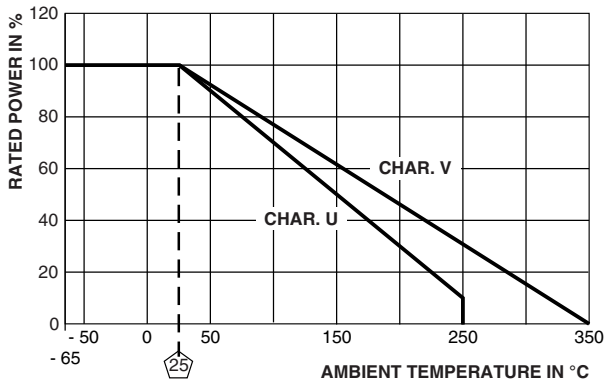
End Caps: Stainless steel

Part Marking: DALE, model, wattage (3), value, tolerance, date code

Note

(3) Wattage marked on resistor will be "V" characteristic, CW1/2 will not be marked with wattage

DERATING



PERFORMANCE

TEST	CONDITIONS OF TEST	TEST LIMITS (4) (CHARACTERISTIC V)
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power (3.75 W and smaller), 10 x rated power (4 W and larger) for 5 s	± (2.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{rms}, 1 min	± (0.1 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (2.0 % + 0.05 Ω) ΔR
High Temperature Exposure	250 h at + 350 °C	± (4.0 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (2.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) ΔR
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (3.0 % + 0.05 Ω) ΔR
Terminal Strength	5 s to 10 s 10 pound pull test; torsion test - 3 alternating directions, 360° each	± (1.0 % + 0.05 Ω) ΔR

Note

(4) All ΔR figures shown are maximum, based upon testing requirements per MIL-PRF-26 at a maximum operating temperature of + 350 °C. ΔR maximum figures are considerably lower when tested at a maximum operating temperature of + 250 °C.

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