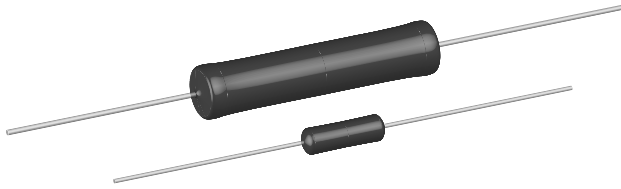


Wirewound Resistors, Commercial Coated, Axial Lead



FEATURES

- High performance for low cost
- High temperature silicone coating
- Complete welded construction
- Excellent stability in operation
- High power to size ratio



RoHS*
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING ⁽¹⁾ $P_{25\text{ }^{\circ}\text{C W}}$		RESISTANCE RANGE Ω $\pm 5\%, \pm 10\%$ ⁽²⁾	WEIGHT (max.) g
		Characteristic U + 250 $^{\circ}\text{C}$	Characteristic V + 350 $^{\circ}\text{C}$		
CW1/2	CW-1/2	0.5	-	0.1 - 1.77K	0.21
CW001	CW-1	1.0	-	0.1 - 6.37K	0.34
CW01M	CW-1M	1.0	-	0.1 - 3.3K	0.3
CW002	CW-2	4.0	5.5	0.1 - 28.7K	2.1
CW02M	CW-2M	3.0	3.75	0.1 - 12K	0.65
CW02B	CW-2B	3.0	3.75	0.1 - 15K	0.7
CW02B...13	CW-2B-13	4.0	6.0	0.1 - 10.89K ⁽³⁾	0.9
CW02C	CW-2C	2.5	3.25	0.1 - 19.9K	1.8
CW02C...14	CW-2C-14	2.5	3.25	0.1 - 19.9K	1.2
CW005	CW-5	5.0	6.5	0.1 - 58.5K	4.2
CW005...2	CW-5-2	4.0	5.0	0.1 - 40.3K	4.2
CW005...3	CW-5-3	5.0	6.5	0.1 - 58.5K	4.2
CW007	CW-7	7.0	9.0	0.1 - 95.2K	4.7
CW010	CW-10	10.0	13.0	0.1 - 167K	9.0
CW010...3	CW-10-3	10.0	13.0	0.1 - 167K	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/ $^{\circ}\text{C}$	± 90 for below 1.0 Ω , ± 50 for 1.0 Ω to 9.9 Ω , ± 30 for 10 Ω and above
Dielectric Withstanding Voltage	V_{AC}	1000
Short Time Overload	-	5 $\times$ rated power for 5 s for 3.75 W size and smaller, 10 $\times$ 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	$^{\circ}\text{C}$	Characteristic U = - 65 to + 250, characteristic V = - 65 to + 350
Power Rating	-	Characteristic U = + 250 $^{\circ}\text{C}$ max. hot spot temperature, $\pm 0.5\%$ max. ΔR in 2000 h load life Characteristic V = + 350 $^{\circ}\text{C}$ max. hot spot temperature, $\pm 3.0\%$ max. ΔR in 2000 h load life

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CW02C10K00JB1214 (preferred part number format)

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

GLOBAL MODEL
(See Standard Electrical Specifications Global Model column for options)

RES. VALUE
R = Decimal
K = Thousand
1R500 = 1.5 Ω
1K500 = 1.5 k Ω

TOL. CODE
H = $\pm 3.0\%$
J = $\pm 5.0\%$
K = $\pm 10.0\%$

PACKAGING
E70 = Lead (Pb)-free, tape/reel 1K pieces
E73 = Lead (Pb)-free, tape/reel 500 pieces
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 pieces
S73 = Tin/lead, tape/reel 500 pieces
B12 = Tin/lead, bulk

SPECIAL
(Dash Number)
(up to 3 digits)
From 1 - 999
as applicable

Historical Part Number Example: CW-2C-14 10 k Ω 5 % B12 (will continue to be accepted for tin/lead product only)

CW-2C-14

10 k Ω

5 %

B12

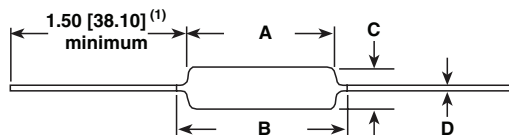
HISTORICAL MODEL

RESISTANCE VALUE

TOLERANCE CODE

PACKAGING

* Pb containing terminations are not RoHS compliant, exemptions may apply

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

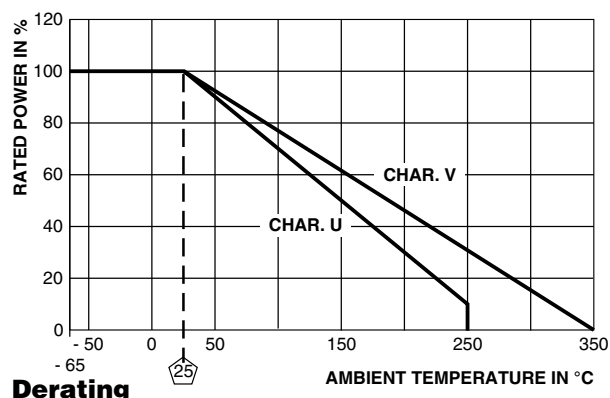
Core: Ceramic: Steatite or alumina, depending on physical size

Coating: Special high temperature silicone

Standard Terminals: Tinned Copperweld®

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


PERFORMANCE ⁽⁴⁾		
TEST	CONDITIONS OF TEST	TEST LIMITS (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 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 to 10 s 10 pound pull test; torsion test - 3 alternating directions, 360 °C 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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