

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









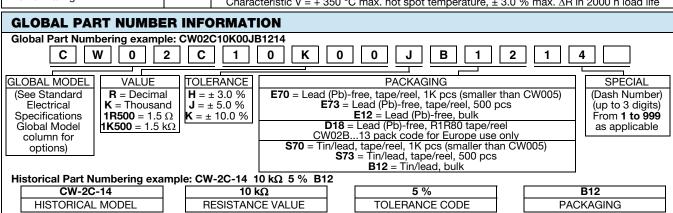
Pb containing terminations are not RoHS compliant, exemptions may apply Please see document "Vishay Material Category Policy": www.vishay.com/c

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		
CW02B13	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		
CW02C14	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		
CW0052	CW-5-2	4.0	5.0	0.1 to 40.3K	5, 10	4.2		
CW0053	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		
CW0103	CW-10-3	10.0	13.0	0.1 to 167K	5, 10	9.0		

Notes

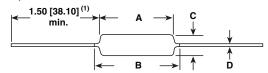
1) Vishay Dale CW models have two power ratings, depending on operating temperature and stability requirements (2) 3 % tolerance available (3) Higher values available on request

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TECHNICAL SPECIFICATIONS						
PARAMETER	UNIT	CW RESISTOR CHARACTERISTICS				
Temperature Coefficient	ppm/°C	\pm 30 for 10 Ω and above, \pm 50 for 1.0 Ω to 9.9 Ω , \pm 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	ç	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				





DIMENSIONS in inches (millimeters)



MODEL	DIMENSIONS in inches [millimeters]						
MODEL	A	B [MAXIMUM] (2)	С	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	$0.406 \pm 0.031 [10.31 \pm 0.787]$	0.437 [11.10]	$0.094 \pm 0.031 [2.39 \pm 0.787]$	$0.020 \pm 0.002 [0.508 \pm 0.051]$			
CW01M	0.285 ± 0.025 [7.24 ± 0.635]	0.311 [7.90]	0.110 ± 0.015 [2.79 ± 0.381]	$0.020 \pm 0.002 [0.508 \pm 0.051]$			
CW002	0.625 ± 0.062 [15.87 ± 1.57]	0.765 [19.43]	$0.250 \pm 0.032 [6.35 \pm 0.813]$	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]	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW02B	0.562 ± 0.062 [14.27 ± 1.57]	0.622 [15.80]	0.188 ± 0.032 [4.78 ± 0.813]	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW02B13	0.500 ± 0.062 [12.70 ± 1.57]	0.563 [14.30]	0.188 ± 0.032 [4.78 ± 0.813]	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW02C	$0.500 \pm 0.062 [12.70 \pm 1.57]$	0.593 [15.06]	$0.218 \pm 0.032 [5.54 \pm 0.813]$	$0.040 \pm 0.002 [1.02 \pm 0.051]$			
CW02C14	$0.500 \pm 0.062 [12.70 \pm 1.57]$	0.593 [15.06]	$0.218 \pm 0.032 [5.54 \pm 0.813]$	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW005	$0.875 \pm 0.062 [22.22 \pm 1.57]$	1.0 [25.40]	$0.312 \pm 0.032 [7.92 \pm 0.813]$	$0.040 \pm 0.002 [1.02 \pm 0.051]$			
CW0052	$0.875 \pm 0.062 [22.22 \pm 1.57]$	1.0 [25.40]	$0.250 \pm 0.032 [6.35 \pm 0.813]$	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW0053	0.875 ± 0.062 [22.22 ± 1.57]	1.0 [25.40]	$0.312 \pm 0.032 [7.92 \pm 0.813]$	$0.032 \pm 0.002 [0.813 \pm 0.051]$			
CW007	1.218 ± 0.062 [30.94 ± 1.57]	1.281 [32.54]	$0.312 \pm 0.032 [7.92 \pm 0.813]$	$0.040 \pm 0.002 [1.02 \pm 0.051]$			
CW010	1.781 ± 0.062 [45.24 ± 1.57]	1.875 [47.62]	$0.375 \pm 0.032 [9.52 \pm 0.813]$	$0.040 \pm 0.002 [1.02 \pm 0.051]$			
CW0103	1.781 ± 0.062 [45.24 ± 1.57]	1.875 [47.62]	$0.375 \pm 0.032 [9.52 \pm 0.813]$	$0.032 \pm 0.002 [0.813 \pm 0.051]$			

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

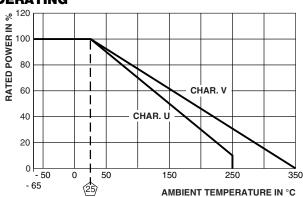
Part Marking: DALE, model, wattage (3), value, tolerance,

date code

Note

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





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	\pm (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	\pm (2.0 % + 0.05 Ω) ΔR			
Dielectric Withstanding Voltage	1000 V _{rms} , 1 min	\pm (0.1 % + 0.05 $\Omega)$ ΔR			
Low Temperature Storage	- 65 °C for 24 h	\pm (2.0 % + 0.05 Ω) ΔR			
High Temperature Exposure	250 h at + 350 °C	\pm (4.0 % + 0.05 Ω) ΔR			
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	\pm (2.0 % + 0.05 Ω) ΔR			
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks	\pm (0.2 % + 0.05 Ω) ΔR			
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	$\pm (0.2 \% + 0.05 \Omega) \Delta R$			
Load Life	2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	\pm (3.0 % + 0.05 Ω) ΔR			
Terminal Strength	5 s to 10 s 10 pound pull test; torsion test - 3 alternating directions, 360° each	\pm (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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