



# Wirewound Resistors, Commercial Power, Axial Lead



#### **FEATURES**

- High power to size ratio
- Ceramic cases are available with circuit board stand-offs (designated with a -3 model ending)
- Superior surge capability
- Complete welded construction
- Available in non-inductive styles with Aryton-Perry winding (CPWN in lieu of CPW, maximum resistance is one-half CPW range)











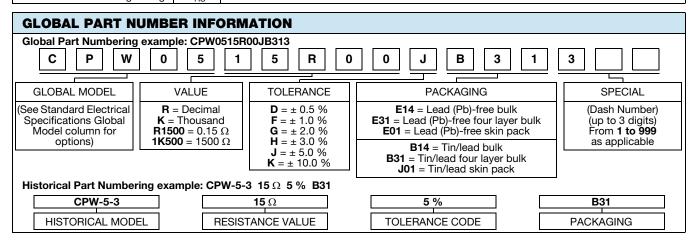


#### Notes

- \* 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 P <sub>40 °C</sub> W	$\begin{array}{c} \textbf{RESISTANCE RANGE} \\ \Omega \end{array}$	TOLERANCE ± %	WEIGHT (typical)	
CPW02	CPW-2	2	0.1 to 7K	1, 2, 3, 5	2.0	
CPW023	CPW-2-3	2	0.1 to 7K	1, 2, 3, 5	2.2	
CPW03	CPW-3	3	0.1 to 7.5K	1, 2, 3, 5	3.4	
CPW033	CPW-3-3	3	0.1 to 7.5K	1, 2, 3, 5	3.6	
CPW05	CPW-5	5	0.1 to 8.5K	1, 2, 3, 5	4.8	
CPW053	CPW-5-3	5	0.1 to 8.5K	1, 2, 3, 5	5.0	
CPW07	CPW-7	7	0.1 to 18K	1, 2, 3, 5	6.8	
CPW073	CPW-7-3	7	0.1 to 18K	1, 2, 3, 5	7.0	
CPW10	CPW-10	10	0.12 to 30K	1, 2, 3, 5	9.5	
CPW103	CPW-10-3	10	0.12 to 30K	1, 2, 3, 5	9.9	
CPW15	CPW-15	15	0.12 to 30K	1, 2, 3, 5	16.8	
CPW153	CPW-15-3	15	0.12 to 30K	1, 2, 3, 5	17.4	
CPW20	CPW-20	20	0.18 to 45K	1, 2, 3, 5	22.8	
CPW203	CPW-20-3	20	0.18 to 45K	1, 2, 3, 5	23.6	

TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	CPW RESISTOR CHARACTERISTICS			
Temperature Coefficient	ppm/°C	$\pm$ 30 for 10 $\Omega$ and above; $\pm$ 50 for 1.0 $\Omega$ to 9.9 $\Omega$ ; $\pm$ 90 for 0.5 $\Omega$ to 0.99 $\Omega$			
Short Time Overload	-	5 x rated power for 5 s			
Maximum Working Voltage	V	(P x R) <sup>1/2</sup>			
Operating Temperature Range	°C	- 65 to + 275			
Terminal Strength	lb	10 minimum			
Dielectric Withstanding Voltage	$V_{AC}$	1000			



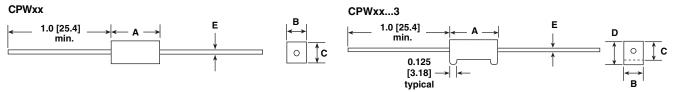
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### **DIMENSIONS** in inches [millimeters]



GLOBAL	DIMENSIONS in inches [millimeters]						
MODEL	A <sup>(1)</sup> ± 0.031 [0.794]	B ± 0.031 [0.794]	C ± 0.031 [0.794]	D ± 0.031 [0.794]	E ± 0.001 [0.025]		
CPW02	0.688 [17.46]	0.250 [6.35]	0.250 [6.35]	-	0.032 [0.813]		
CPW023	0.688 [17.46]	0.250 [6.35]	0.250 [6.35]	0.313 [7.94]	0.032 [0.813]		
CPW03	0.875 [22.22]	0.313 [7.94]	0.313 [7.94]	-	0.032 [0.813]		
CPW033	0.875 [22.22]	0.313 [7.94]	0.313 [7.94]	0.375 [9.52]	0.032 [0.813]		
CPW05	0.875 [22.22]	0.375 [9.52]	0.344 [8.73]	-	0.032 [0.813]		
CPW053	0.875 [22.22]	0.375 [9.52]	0.344 [8.73]	0.406 [10.32]	0.032 [0.813]		
CPW07	1.391 [35.32]	0.375 [9.52]	0.344 [8.73]	-	0.032 [0.813]		
CPW073	1.391 [35.32]	0.375 [9.52]	0.344 [8.73]	0.469 [11.91]	0.032 [0.813]		
CPW10	1.875 [47.62]	0.375 [9.52]	0.344 [8.73]	-	0.032 [0.813]		
CPW103	1.875 [47.62]	0.375 [9.52]	0.344 [8.73]	0.469 [11.91]	0.032 [0.813]		
CPW15	1.875 [47.62]	0.500 [12.70]	0.500 [12.70]	-	0.032 [0.813]		
CPW153	1.875 [47.62]	0.500 [12.70]	0.500 [12.70]	0.625 [15.87]	0.032 [0.813]		
CPW20	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	-	0.032 [0.813]		
CPW203	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	0.625 [15.87]	0.032 [0.813]		

#### Note

#### **MATERIAL SPECIFICATIONS**

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

Core: Ceramic

End Caps: Tin plated steel

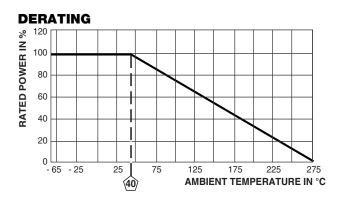
Body: Steatite ceramic case with inorganic potting

compound

Terminals: Tinned Copperweld®

Part Marking: DALE, model, wattage, value, tolerance, date

code



PERFORMANCE				
TEST	CONDITIONS OF TEST	TEST LIMITS (EIA RS-344)		
Thermal Shock	- 55 °C to + 275 °C, 5 cycles, 30 min dwell time	± (2.0 % + 0.05 Ω) ΔR		
Short Time Overload	5 x rated power for 5 s	$\pm$ (2.0 % + 0.05 Ω) ΔR		
Dielectric Withstanding	1000 V <sub>RMS</sub> for 1 min	$\pm$ (0.1 % + 0.05 Ω) ΔR		
Low Temperature Storage	- 65 °C, full rated working voltage for 45 min	$\pm$ (2.0 % + 0.05 Ω) ΔR		
Bias Humidity	75 °C, 90 % to 100 % RH, 240 h	$\pm$ (2.0 % + 0.05 Ω) ΔR		
Load Life	1000 h at rated power, + 40 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm$ (3.0 % + 0.05 $\Omega$ ) $\Delta R$		
Terminal Strength	5 s to 10 s 10 pound pull test, torsion test - 3 alternating directions, 360° each	± (1.0 % + 0.05 Ω) ΔR		
Resistance to Solder Heat	Terminal immersed 3.5 s in molten solder at 1/8" to 3/16" from body	± (1.0 % + 0.05 Ω) ΔR		

<sup>(1)</sup> Potting compound may extend outside of ceramic case up to 0.060 [1.52] maximum per side.



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