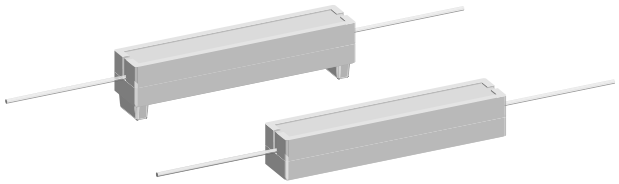
CPW, CPWN

Vishay Dale

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)
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package

Pb-free Available

RoHS* COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{40\ °C}$ W	RESISTANCE RANGE Ω ± 1 %, ± 2 %, ± 3 %, ± 5 %	WEIGHT (TYPICAL) g
CPW02	CPW-2	2	0.1 - 7 k	2.0
CPW02...3	CPW-2-3	2	0.1 - 7 k	2.2
CPW03	CPW-3	3	0.1 - 7.5 k	3.4
CPW03...3	CPW-3-3	3	0.1 - 7.5 k	3.6
CPW05	CPW-5	5	0.1 - 8.5 k	4.8
CPW05...3	CPW-5-3	5	0.1 - 8.5 k	5.0
CPW07	CPW-7	7	0.1 - 18 k	6.8
CPW07...3	CPW-7-3	7	0.1 - 18 k	7.0
CPW10	CPW-10	10	0.12 - 30 k	9.5
CPW10...3	CPW-10-3	10	0.12 - 30 k	9.9
CPW15	CPW-15	15	0.12 - 30 k	16.8
CPW15...3	CPW-15-3	15	0.12 - 30 k	17.4
CPW20	CPW-20	20	0.18 - 45 k	22.8
CPW20...3	CPW-20-3	20	0.18 - 45 k	23.6

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CPW RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	± 90 below 1.0 Ω, ± 50 for 1.0 Ω to 9.9 Ω, ± 30 for 10 Ω and above
Short Time Overload	-	5 x rated power for 5 seconds
Maximum Working Voltage	V	$(P \times R)^{1/2}$
Operating Temperature Range	°C	- 65/+ 275
Terminal Strength	lb	10 minimum
Dielectric Withstanding Voltage	V_{AC}	1000

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CPW0515R00JB313 (preferred part numbering format)

C	P	W	0	5	1	5	R	0	0	J	B	3	1	3		

GLOBAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING	SPECIAL
(See Standard Electrical Specificatiions Global Model column for options)	**R** = Decimal **K** = Thousand **R1500** = 0.15 Ω **1K500** = 1500 Ω	**D** = ± 0.5 % **F** = ± 1.0 % **G** = ± 2.0 % **H** = ± 3.0 % **J** = ± 5.0 % **K** = ± 10 %	**E14** = Lead (Pb)-free, bulk **E31** = Lead (Pb)-free four layer bulk **E01** = Lead (Pb)-free skin pack **B14** = Tin/lead bulk **B31** = Tin/lead four layer bulk **J01** = Tin/Lead, skin pack	(Dash Number) (up to 3 digits) From **1-999** as applicable

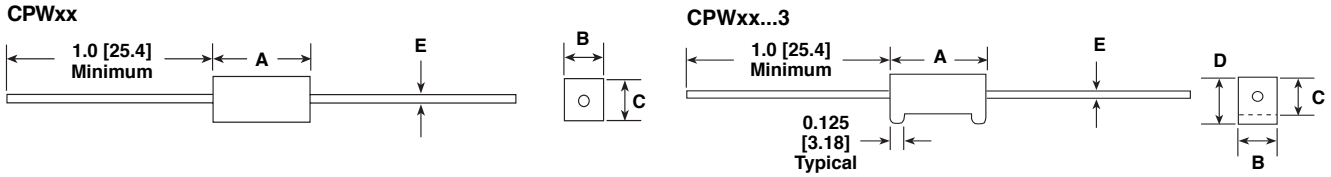
Historical Part Number example: CPW-5-3 15 Ω 5 % B31 (will continue to be accepted)

CPW-5-3	15 Ω	5 %	B31
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

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

For technical questions, contact ww2aresistors@vishay.com

DIMENSIONS



GLOBAL MODEL	DIMENSIONS in inches [millimeters]				
	A* ± 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]
CPW02...3	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]
CPW03...3	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]
CPW05...3	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]
CPW07...3	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]
CPW10...3	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]
CPW15...3	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]
CPW20...3	2.500 [63.50]	0.500 [12.70]	0.500 [12.70]	0.625 [15.87]	0.032 [0.813]

* Potting compound may extend outside of ceramic case up to 0.060 [1.52] maximum per side.

MATERIAL SPECIFICATIONS

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

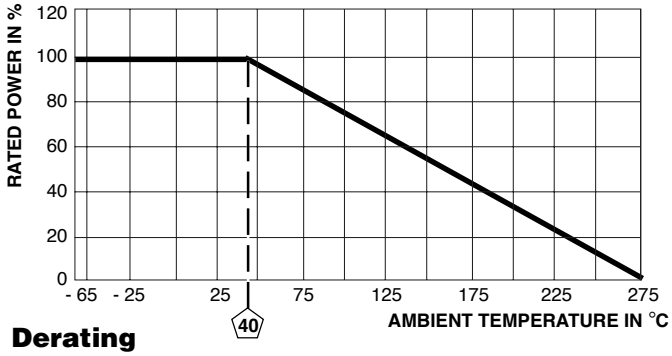
Core: Ceramic

End Caps: Stainless steel

Body: Steatite ceramic case with inorganic potting compound

Terminals: Tinned Copperweld®

Part Marking: DALE, Model, Wattage, Value, Tolerance, Date Code



Derating

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS (EIA RS-344)
Thermal Shock	- 55 °C to + 275 °C, 5 cycles, 30 minute dwell time	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	5 x rated power for 5 seconds	± (2.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V_{rms} for one minute	± (0.1 % + 0.05 Ω) ΔR
Low Temperature Operation	- 65° C, full rated working voltage for 45 minutes	± (2.0 % + 0.05 Ω) ΔR
Bias Humidity	75 °C, 90 % - 100 % RH, 240 hours	± (2.0 % + 0.05 Ω) ΔR
Load Life	1000 hours at rated power, + 40 °C, 1.5 hours “ON”, 0.5 hours “OFF”	± (3.0 % + 0.05 Ω) ΔR
Terminal Strength	5 to 10 second 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 seconds in molten solder at 1/8" to 3/16" from body	± (1.0 % + 0.05 Ω) ΔR

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