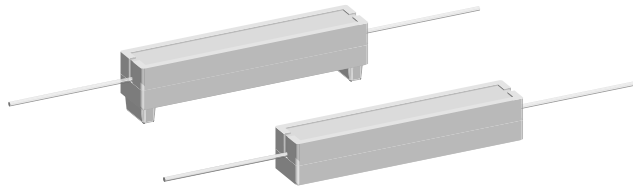


Wirewound Resistors, Commercial Power, Axial Lead


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
- Compliant to RoHS Directive 2002/95/EC


Notes

- * Pb containing terminations are not RoHS compliant, exemptions may apply
- ** Please see document "Vishay Material Category Policy": www.vishay.com/doc?999902

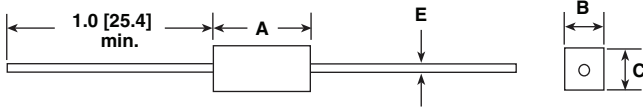
| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|------------------------------------|------------------|--|------------------------------|-----------------------|-----------------------|
| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{40^\circ\text{C}}$ W | RESISTANCE RANGE Ω | TOLERANCE $\pm \%$ | WEIGHT (typical) g |
| CPW02 | CPW-2 | 2 | 0.1 to 7K | 1, 2, 3, 5 | 2.0 |
| CPW02...3 | 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 |
| CPW03...3 | 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 |
| CPW05...3 | 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 |
| CPW07...3 | 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 |
| CPW10...3 | 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 |
| CPW15...3 | 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 |
| CPW20...3 | CPW-20-3 | 20 | 0.18 to 45K | 1, 2, 3, 5 | 23.6 |

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

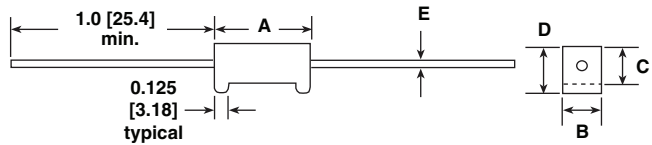
| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | |
|--|--|--|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| Global Part Numbering example: CPW0515R00JB313 | | | | | | | | | | | | | | | | |
| C | P | W | 0 | 5 | 1 | 5 | R | 0 | 0 | J | B | 3 | 1 | 3 | | |
| GLOBAL MODEL (See Standard Electrical Specifications Global Model column for options) | VALUE R = Decimal K = Thousand R1500 = 0.15 Ω 1K500 = 1500 Ω | TOLERANCE D = $\pm 0.5 \%$ F = $\pm 1.0 \%$ G = $\pm 2.0 \%$ H = $\pm 3.0 \%$ J = $\pm 5.0 \%$ K = $\pm 10.0 \%$ | PACKAGING 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 | | SPECIAL (Dash Number) (up to 3 digits) From 1 to 999 as applicable | | | | | | | | | | | |
| Historical Part Numbering example: CPW-5-3 15 Ω 5 % B31 | | | | | | | | | | | | | | | | |
| CPW-5-3 | 15 Ω | 5 % | B31 | | | | | | | | | | | | | |
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING | | | | | | | | | | | | | |

DIMENSIONS in inches [millimeters]

CPWxx



CPWxx...3



| GLOBAL MODEL | DIMENSIONS in inches [millimeters] | | | | |
|--------------|-------------------------------------|----------------------|----------------------|----------------------|----------------------|
| | A ⁽¹⁾ ± 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] |

Note

(1) 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

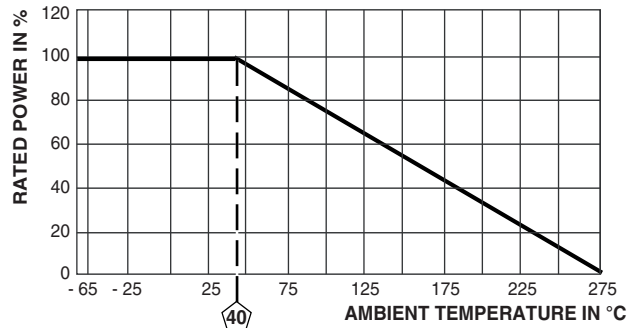
Core: Ceramic

End Caps: Tin plated 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 min dwell time | ± (2.0 % + 0.05 Ω) ΔR |
| Short Time Overload | 5 x rated power for 5 s | ± (2.0 % + 0.05 Ω) ΔR |
| Dielectric Withstanding | 1000 V _{RMS} for 1 min | ± (0.1 % + 0.05 Ω) ΔR |
| Low Temperature Storage | - 65 °C, full rated working voltage for 45 min | ± (2.0 % + 0.05 Ω) ΔR |
| Bias Humidity | 75 °C, 90 % to 100 % RH, 240 h | ± (2.0 % + 0.05 Ω) ΔR |
| Load Life | 1000 h at rated power, + 40 °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 |
| 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 |



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