

Wirewound Resistors, Commercial Power, Surface Mount



FEATURES

- Direct mounting on printed circuit board
- High wattage capabilities, low board temperatures
- Meets or exceeds EIA-RS-344 requirements
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Superior surge capability
- 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?99902

| STANDARD ELECTRICAL SPECIFICATIONS | | | | | |
|------------------------------------|------------------|---|------------------------------|-----------------------|-----------------------|
| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{40^{\circ}\text{C}}$ W | RESISTANCE RANGE Ω | TOLERANCE $\pm \%$ | WEIGHT (typical) g |
| CPSM03 | CPSM-3 | 3 | 0.1 to 1K | 5, 10 | 5.5 |
| CPSM05 | CPSM-5 | 5 | 0.1 to 1K | 5, 10 | 6.5 |

| TECHNICAL SPECIFICATIONS | | |
|---------------------------------|-------------------------|--|
| PARAMETER | UNIT | CPSM RESISTOR CHARACTERISTICS |
| Temperature Coefficient | ppm/ $^{\circ}\text{C}$ | ± 300 for 1.0 Ω and above; ± 600 below 1.0 Ω |
| Short Time Overload | - | 5 x rated power for 5 s |
| Operating Temperature | $^{\circ}\text{C}$ | - 65 to + 275 |
| Dielectric Withstanding Voltage | V_{AC} | 1000 |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ |

| GLOBAL PART NUMBER INFORMATION | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|----------------|--|---|-----------|--|---|--|---|---|---|--|--|--|
| Global Part Numbering example: CPSM0315R00JB31 | | | | | | | | | | | | | | | | | |
| C | P | S | M | 0 | 3 | 1 | 5 | R | 0 | 0 | J | B | 3 | 1 | | | |
| GLOBAL MODEL CPSM03 CPSM05 | | VALUE R = Decimal K = Thousand R1500 = 0.15 Ω 100R0 = 100 Ω 1K000 = 1 k Ω | | | | TOLERANCE H = $\pm 3.0 \%$ J = $\pm 5.0 \%$ K = $\pm 10 \%$ | | | PACKAGING E31 = Lead(Pb)-free, 4 layer bulk B31 = Tin/lead, 4 layer bulk | | SPECIAL (Dash number) (Up to 3 digits) From 1 to 999 as applicable | | | | | | |
| Historical Part Numbering example: CPSM-3 15 Ω 5 % B31 | | | | | | | | | | | | | | | | | |
| CPSM-3 | | 15 Ω | | | 5 % | | | B31 | | | | | | | | | |
| HISTORICAL MODEL | | RESISTANCE VALUE | | | TOLERANCE CODE | | | PACKAGING | | | | | | | | | |

DIMENSIONS


| MODEL | DIMENSIONS in inches [millimeters] | | | | |
|--------|------------------------------------|-------------------------|-------------------------------------|--|-------------------------|
| | L ± 0.032 [0.813] | W ± 0.031 [0.787] | L ₁ ± 0.062 [1.57] | W ₁ + 0.032 [0.813] - 0.012 [0.305] | H ± 0.031 [0.787] |
| CPSM03 | 0.906 [23.01] | 0.374 [9.50] | 0.480 [12.19] | 0.287 [7.29] | 0.374 [9.50] |
| CPSM05 | 1.060 [26.92] | 0.374 [9.50] | 0.590 [14.99] | 0.287 [7.29] | 0.374 [9.50] |

| MODEL | SOLDER PAD DIMENSIONS in inches [millimeters] | | |
|--------|---|-----------------|------------------|
| | a | b | l |
| CPSM03 | 0.420 [10.67] | 0.340 [8.64] | 0.380 [9.65] |
| CPSM05 | 0.440 [11.18] | 0.340 [8.64] | 0.490 [12.45] |

TEMPERATURE RISE

DERATING


| MATERIAL SPECIFICATIONS | |
|-------------------------|---|
| Element | Copper-nickel alloy or nickel-chrome alloy, depending on resistance value |
| Core | Woven fiberglass |
| Body | Steatite ceramic case with inorganic potting compound |
| Terminals | Tin/lead plated steel (lead (Pb)-free version will be 100 % tin) |
| Part Marking | DALE, model, wattage, value, tolerance, date code |

| PERFORMANCE | | |
|---------------------------------|---|--------------------------|
| TEST | CONDITIONS OF TEST | TEST LIMITS (EIA RS-344) |
| Thermal shock | - 55 °C to + 165 °C, 5 cycles, 30 min dwell time | ± (5.0 % + 0.05 Ω) ΔR |
| Short time overload | 5 x rated power for 5 s | ± (4.0 % + 0.05 Ω) ΔR |
| Dielectric withstanding voltage | 1000 V _{RMS} for one min | ± (2.0 % + 0.05 Ω) ΔR |
| Low temperature operation | - 65 °C, full rated working voltage for 45 min | ± (3.0 % + 0.05 Ω) ΔR |
| Humidity | 75 °C, 90 % to 100 % RH, 240 h | ± (5.0 % + 0.05 Ω) ΔR |
| Load life | 1000 h at rated power, + 40 °C, 1.5 h "ON", 0.5 h "OFF" | ± (10.0 % + 0.05 Ω) ΔR |
| Resistance to solder heat | + 260 °C solder, 10 s to 12 s dwell, 25 mm/s emergence | ± (4.0 % + 0.05 Ω) ΔR |



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