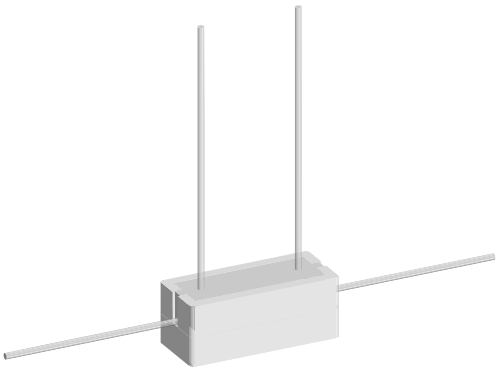
# Wirewound Resistors, Commercial Power, Four Terminal, Low Value



## FEATURES

- Low inductance
- Extremely low resistance values
- Current sensing
- Low temperature coefficients
- 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
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

e3 RoHS* Available

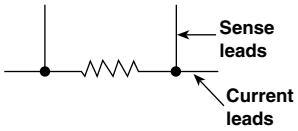
HALOGEN FREE Available

GREEN (5-2008) Available

**Note**

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

## SCHEMATIC




## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | HISTORICAL MODEL | POWER RATING $P_{40\,°C}$ W | RESISTANCE RANGE Ω | TOLERANCE ± % | WEIGHT (typical) g |
|---|---|---|---|---|---|
| CPSL03...5 | CPSL-3-5 | 3 | 0.01 to 0.10 | 1, 3, 5, 10 | 4.0 |
| CPSL03...3 | CPSL-3-3 | 3 | 0.01 to 0.10 | 1, 3, 5, 10 | 4.2 |
| CPSL05...5 | CPSL-5-5 | 5 | 0.01 to 0.10 | 1, 3, 5, 10 | 5.2 |
| CPSL05...3 | CPSL-5-3 | 5 | 0.01 to 0.10 | 1, 3, 5, 10 | 5.4 |
| CPSL07...5 | CPSL-7-5 | 7 | 0.01 to 0.10 | 1, 3, 5, 10 | 7.6 |
| CPSL10...5 | CPSL-10-5 | 10 | 0.01 to 0.10 | 1, 3, 5, 10 | 10.2 |
| CPSL15...5 | CPSL-15-5 | 15 | 0.01 to 0.10 | 1, 3, 5, 10 | 18.9 |

## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | CPSL RESISTOR CHARACTERISTICS |
|---|---|---|
| Temperature Coefficient | ppm/°C | ± 100 maximum |
| Short Time Overload | - | 5 x rated power for 5 s |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ |
| Operating Temperature Range | °C | -65 to +275 |
| Terminal Strength | lb | 10 minimum |
| Dielectric Withstanding Voltage | $V_{AC}$ | 1000 |

## GLOBAL PART NUMBER INFORMATION

**Global Part Numbering Example: CPSL05R0500JB143**

| C | P | S | L | 0 | 5 | R | 0 | 5 | 0 | 0 | J | B | 1 | 4 | 3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | VALUE | TOLERANCE | PACKAGING | SPECIAL |
|---|---|---|---|---|
| **CPSL03**<br>**CPSL05**<br>**CPSL07**<br>**CPSL10**<br>**CPSL15** | **R** = decimal<br>**R1000** = 0.10 Ω | **F** = ± 1.0 %<br>**G** = ± 2.0 %<br>**H** = ± 3.0 %<br>**J** = ± 5.0 %<br>**K** = ± 10.0 % | **E14** = lead (Pb)-free bulk<br>**E31** = lead (Pb)-free four layer bulk<br>**B14** = tin / lead bulk<br>**B31** = tin / lead four layer bulk | (Dash number)<br>(up to 3 digits)<br>From **1 to 999**<br>as applicable |

**Historical Part Numbering Example: CPSL-5-3 0.05 Ω 5 % B14**

| CPSL-5-3 | 0.05 Ω | 5 % | B14 |
|---|---|---|---|
| HISTORICAL MODEL | RESISTANCE VALUE | TOLERANCE CODE | PACKAGING |



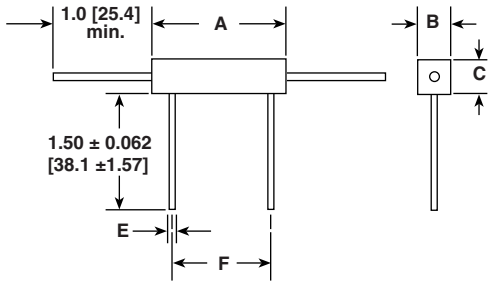
For technical questions, contact: ww2aresistors@vishay.com

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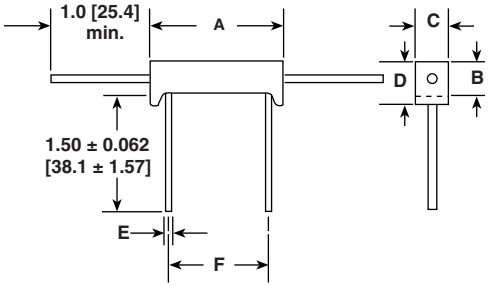
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## DIMENSIONS in inches [millimeters]

CPSLxx...5




CPSLxx...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] | F ± 0.063 [1.59] |
| CPSL03...5 | 0.875 [22.22] | 0.313 [7.94] | 0.313 [7.94] | - | 0.036 [0.914] | 0.563 [14.30] |
| CPSL03...3 | 0.875 [22.22] | 0.313 [7.94] | 0.313 [7.94] | 0.375 [9.52] | 0.036 [0.914] | 0.563 [14.30] |
| CPSL05...5 | 0.875 [22.22] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] | 0.563 [14.30] |
| CPSL05...3 | 0.875 [22.22] | 0.375 [9.52] | 0.344 [8.73] | 0.438 [11.11] | 0.036 [0.914] | 0.563 [14.30] |
| CPSL07...5 | 1.391 [35.32] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] | 1.000 [25.40] |
| CPSL10...5 | 1.875 [47.62] | 0.375 [9.52] | 0.344 [8.73] | - | 0.036 [0.914] | 1.375 [34.93] |
| CPSL15...5 | 1.875 [47.62] | 0.500 [12.70] | 0.500 [12.70] | - | 0.036 [0.914] | 1.375 [34.93] |

**Note**

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

## MATERIAL SPECIFICATIONS

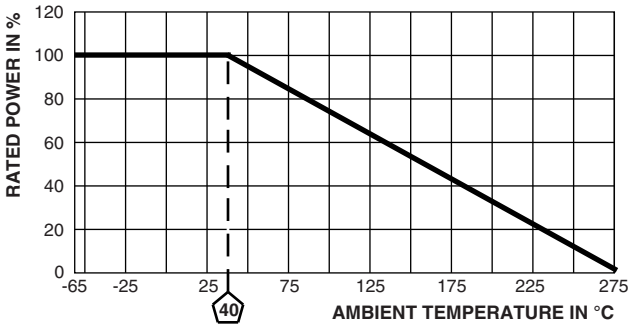
**Element:** self-supporting copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Body:** steatite ceramic case with inorganic potting compound

**Terminals:** tinned copper

**Part Marking:** Dale, model, wattage, value, tolerance, date code

## DERATING




| PERFORMANCE | | |
|---|---|---|
| TEST | CONDITIONS OF TEST | TEST LIMITS |
| Thermal Shock | -55 °C to +275 °C, 5 cycles, 30 min dwell time | ± (5.0 % + 0.05 Ω) $\Delta R$ |
| Short Time Overload | 5 x rated power for 5 s | ± (4.0 % + 0.05 Ω) $\Delta R$ |
| Dielectric Withstanding Voltage | 1000 $V_{RMS}$ for 1 min | ± (2.0 % + 0.05 Ω) $\Delta R$ |
| Low Temperature Operation | -65 °C, full rated working voltage for 45 min | ± (3.0 % + 0.05 Ω) $\Delta R$ |
| Bias Humidity | 75 °C, 90 % to 100 % RH, 240 h | ± (5.0 % + 0.05 Ω) $\Delta R$ |
| Load Life | 1000 h at rated power, +40 °C, 1.5 h “ON”, 0.5 h “OFF” | ± (5.0 % + 0.05 Ω) $\Delta R$ |
| Terminal Strength | 5 s to 10 s 10 pound pull test, torsion test - 3 alternating directions, 360° each | ± (1.0 % + 0.05 Ω) $\Delta R$ |
| 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) $\Delta R$ |



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