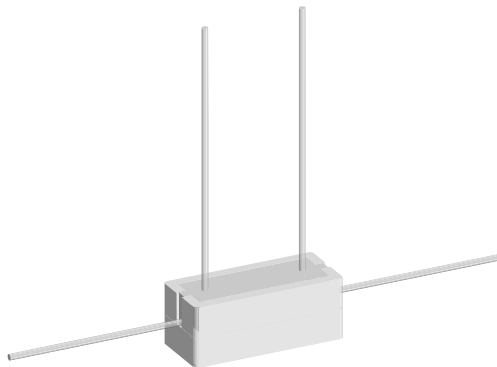




## Wirewound Resistors, Commercial Power, Four Terminal, Low Value



### FEATURES

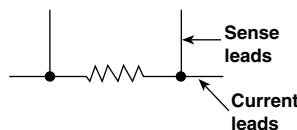
- Low inductance
- Extremely low resistance values
- Current sensing
- Low temperature coefficients
- High power to size ratio
- Ceramic cases are available with circuit board stand-offs (designated with a -3 model ending)
- Superior surge capability
- Complete welded construction
- Special inorganic 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](http://www.vishay.com/doc?99912)



### 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 $P_{40^\circ\text{C}}$ W	RESISTANCE RANGE $\Omega$	TOLERANCE $\pm \%$	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/ $^\circ\text{C}$	$\pm 100$ maximum
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 <sub>AC</sub>	1000

### GLOBAL PART NUMBER INFORMATION

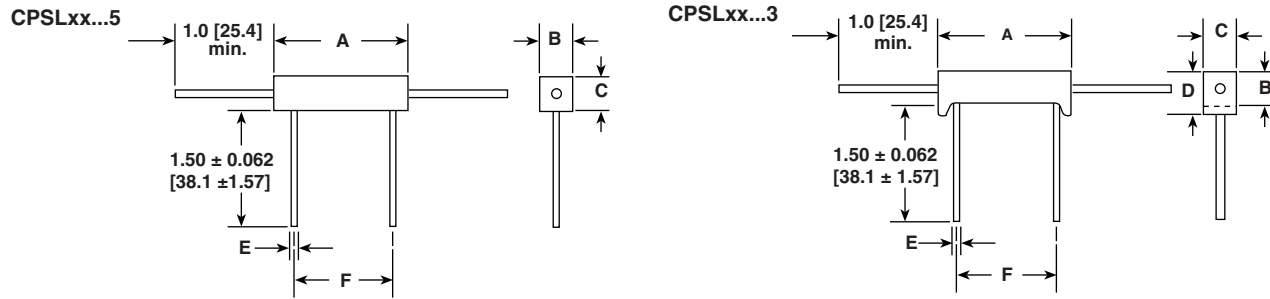
Global Part Numbering Example: CPSL05R0500J B143

C	P	S	L	0	5	R	0	5	0	0	J	B	1	4	3		
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GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
CPSL03 CPSL05 CPSL07 CPSL10 CPSL15	R = decimal R1000 = 0.10 $\Omega$	F = $\pm 1.0 \%$ G = $\pm 2.0 \%$ H = $\pm 3.0 \%$ J = $\pm 5.0 \%$ K = $\pm 10.0 \%$	E14 = lead (Pb)-free bulk E31 = lead (Pb)-free four layer bulk  B14 = tin / lead bulk B31 = tin / lead four layer bulk	(Dash number) (up to 3 digits) From 1 to 999 as applicable

Historical Part Numbering Example: CPSL-5-3 0.05  $\Omega$  5 % B14

CPSL-5-3	0.05 $\Omega$	5 %	B14
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

**DIMENSIONS** in inches [millimeters]

GLOBAL MODEL	DIMENSIONS in inches [millimeters]					
	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]	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**

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

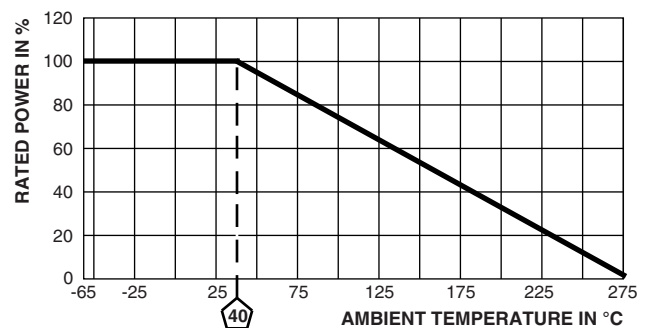
**MATERIAL SPECIFICATIONS**

**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) ΔR
Short Time Overload	5 x rated power for 5 s	± (4.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V <sub>RMS</sub> for 1 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
Bias 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"	± (5.0 % + 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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