



Bulk Metal[®] Technology

Precision, Low Value, Current Sense/Current Shunt Resistors



INTRODUCTION

Model VCS101, VCS103 and VCS401 resistors are available in 2 configurations. This Bulk Metal[®] resistor can serve as a low ohm, high power resistive shunt or as a medium power current sensing resistor. Resistors are non insulated.

Our Applications Engineering Department is prepared to advise and to make recommendations for non standard technical requirements and special applications, please contact us.

FEATURES

- Low Ohmic Values: 0.005Ω to 0.25Ω
- Resistive Tolerance: to ± 0.1%
- Temperature Coefficient of Resistance (TCR): ± 20ppm/°C at 0.1Ω, available to ± 15ppm/°C Contact Applications Engineering for tighter limits
- 4 leads for Kelvin connection
- Power Rating: To 1.5 Watts at + 25°C (free air)
- Maximum Operating Temperature: + 175°C
- Lead (Pb)-free available

APPLICATIONS

- High Precision Instrumentation
- Automatic Test Equipment
- Current Sensing Application
- Industrial
- Medical
- Military
- Measurement Instrumentation

FIGURE 1 - DIMENSIONS AND SCHEMATIC

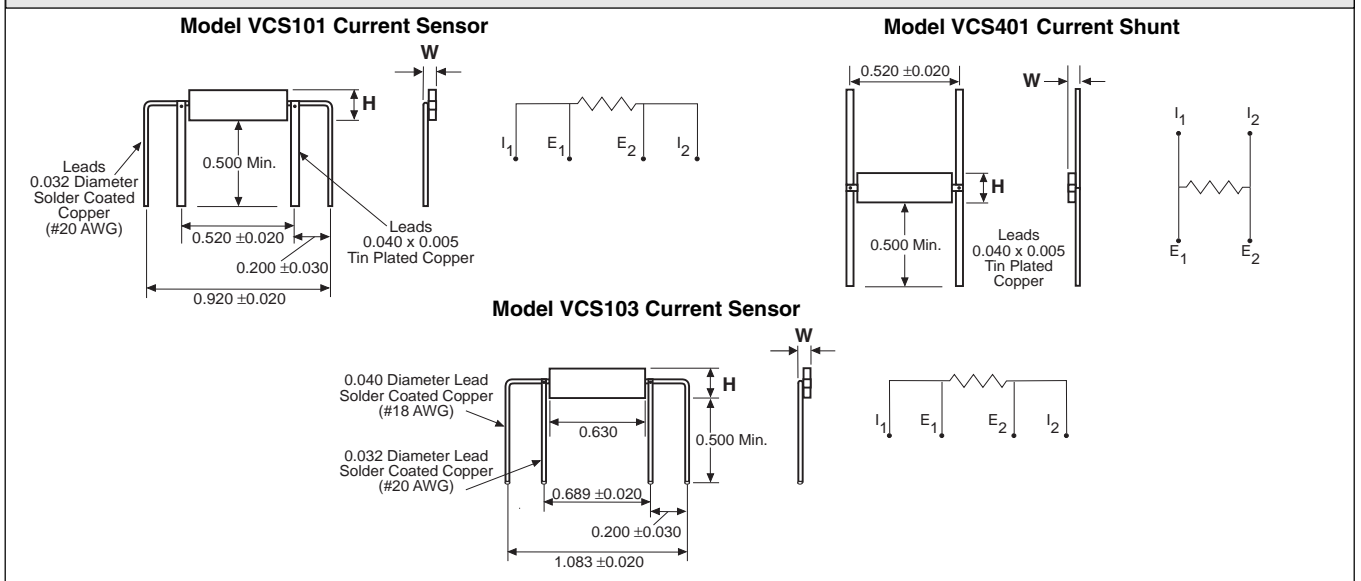


TABLE 1 - CHARACTERISTICS AND DIMENSIONS

MODEL NUMBER	RESISTANCE RANGE (Ω)	TIGHTEST RESISTANCE TOLERANCE (%)	POWER RATING AT + 25°C	MAXIMUM CURRENT	DIMENSIONS		
					INCHES	(MM)	
VCS101*	0.005 to 0.01Ω	± 1	1 Watt	15 Amps	H	0.130	(3.30)
	0.01 to 0.05Ω	± 0.5			W	0.080	(2.03)
VCS401*	0.05 to 0.2Ω	± 0.1	1 Watt	3 Amps	H	0.130	(3.30)
					W	0.080	(2.03)
VCS103*	0.005 to 0.01Ω	± 1	1.5 Watt	15 Amps	H	0.190	(4.83)
	0.01 to 0.05Ω	± 0.5			W	0.080	(2.03)
	0.05 to 0.25Ω	± 0.1					

* Tighter Performances are available, please contact application engineering department

SALES

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VCS101, VCS103, VCS401



Vishay Foil Resistors Bulk Metal[®] Technology
Precision, Low, Value Current Sense/Current Shunt Resistors

THROUGH HOLE

TABLE 2 - VCS101, VCS103 AND VCS401 PERFORMANCE*

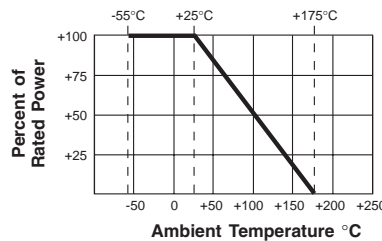
TEST OR CONDITION	VCS101, VCS103 AND VCS401
Maximum Ambient Temp. at Rated Power	+ 25°C
Maximum Ambient Temp. at Zero Power	+ 175°C
Temperature Coefficient	See Table 3
Thermal Shock	± 0.05%
Short Time Overload	± 0.5%
Terminal Strength	± 0.1%
High Temperature Exposure	± 1.0%
Moisture Resistance	± 0.1%
Low Temperature Storage	± 0.05%
Shock (Specified Pulse)	± 0.1%
Vibration (High Frequency)	± 0.1%
Life (Rated Power, + 25°C, 2,000 hrs.)	± 3.0%
Resistance Tolerance	± 0.1%, ± 1%, ± 3%, ± 5%, ± 10%

*ΔR's plus additional 0.0005 ohm for measurement error.

TABLE 3 - TC SPECIFICATIONS

VALUE	TC (PPM/°C)
0.005Ω to 0.01Ω	± 90
> 0.01Ω to 0.05Ω	± 30
> 0.05Ω to 0.25Ω	± 20

FIGURE 2 - POWER DERATING CURVE



Further derating not necessary.

TABLE 4 - ORDERING INFORMATION

Specify Vishay VCS101, VCS103 and VCS401 resistors as follows:

Example:

VCS101
MODEL NO.

T = Lead (Pb)-free
none = Tin/Lead alloy
TERMINATION

0R0100
RESISTANCE VALUE

A = ± 0.05%
B = ± 0.1%
C = ± 0.25%
D = ± 0.5%
F = ± 1.0%
J = ± 5%
K = ± 10%
TOLERANCE

For example: VCS1010R0100F, Model: VCS101, Termination: Tin/Lead, Value: 0.01Ω, Tolerance: 1.0%

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