

Power Metal Strip® Shunt Resistor, Low TCR (Down to $< \pm 10 \text{ ppm}/^\circ\text{C}$), Very Low Value (Down to $15 \mu\Omega$)



FEATURES

- Dual element for redundant current sensing
- High power to resistor size ratio
- Proprietary processing technique produces extremely low resistance values
- All welded construction
- Solid metal nickel-chrome alloy resistive element with unique design for low TCR (down to $\pm 10 \text{ ppm}/^\circ\text{C}$)
- Very low inductance ($< 5 \text{ nH}$)
- Low thermal EMF (as low as $< 1.25 \mu\text{V}/^\circ\text{C}$)
- AEC-Q200 qualified
- PATENT(S): www.vishay.com/patents
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	SIZE	POWER RATING $P_{70^\circ\text{C}}$ W	TOLERANCE $\pm \%$	RESISTANCE VALUE RANGE Ω	RESISTANCE VALUES CURRENTLY AVAILABLE ⁽¹⁾ PER ELEMENT Ω	WEIGHT (typical) g
WSBR8518	8518	36	5	30μ to 100μ	100μ	36
WSBR8536	8536	50	5	15μ to 50μ	50μ	72

Note

⁽¹⁾ Other values may be available, contact factory

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS	
		WSBR8518	WSBR8536
Temperature coefficient	$\text{ppm}/^\circ\text{C}$	± 10 for $100 \mu\Omega$	± 10 for $50 \mu\Omega$
Operating temperature range	$^\circ\text{C}$	-65 to $+170$	
Thermal EMF	$\mu\text{V}/^\circ\text{C}$	< 1.25	
Inductance	nH	< 5	
Maximum current rating	A	$(P/R)^{1/2}$	

GLOBAL PART NUMBER INFORMATION

GLOBAL PART NUMBERING: WSBR8518L1000JTA4 (WSBR8518...A4, 0.0001Ω)

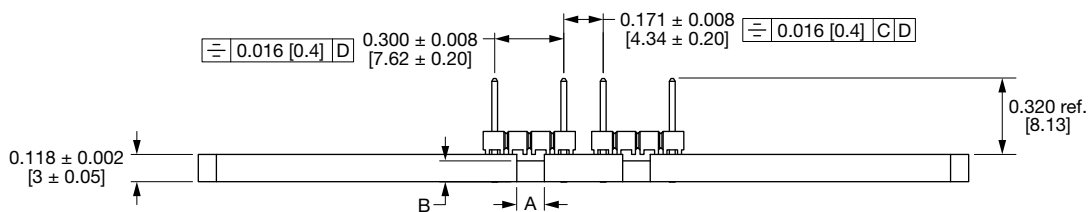
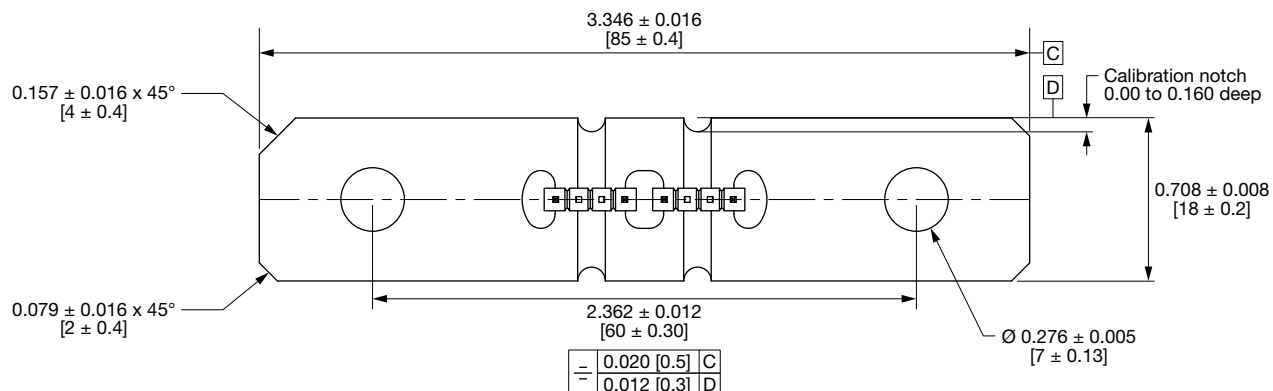
W	S	B	R	8	5	1	8	L	1	0	0	0	J	T	A	4	
GLOBAL MODEL		RESISTANCE VALUE			TOLERANCE CODE			PACKAGING CODE			SPECIAL			PLATING OPTIONS			
WSBR8518		L = mΩ L1000 = 0.0001 Ω			J = ± 5 %			K = bulk pack T = tray pack			Blank = no pins A4 = 4 pins B4 = 4 pins			Blank = unplated P = tin plated			

PATENT(S): www.vishay.com/patents

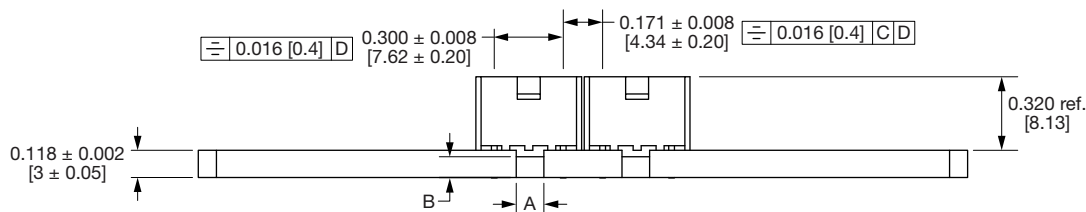
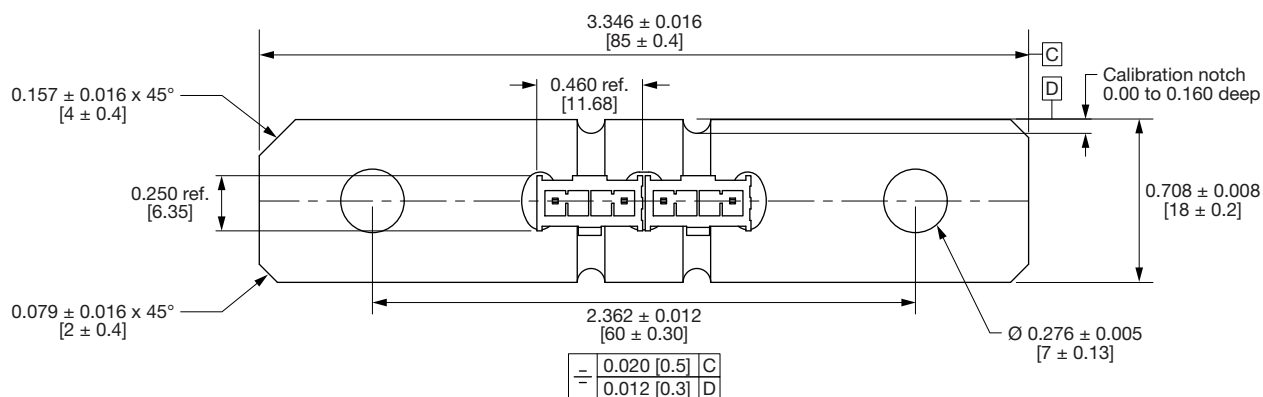
This Vishay product is protected by one or more United States and international patents.



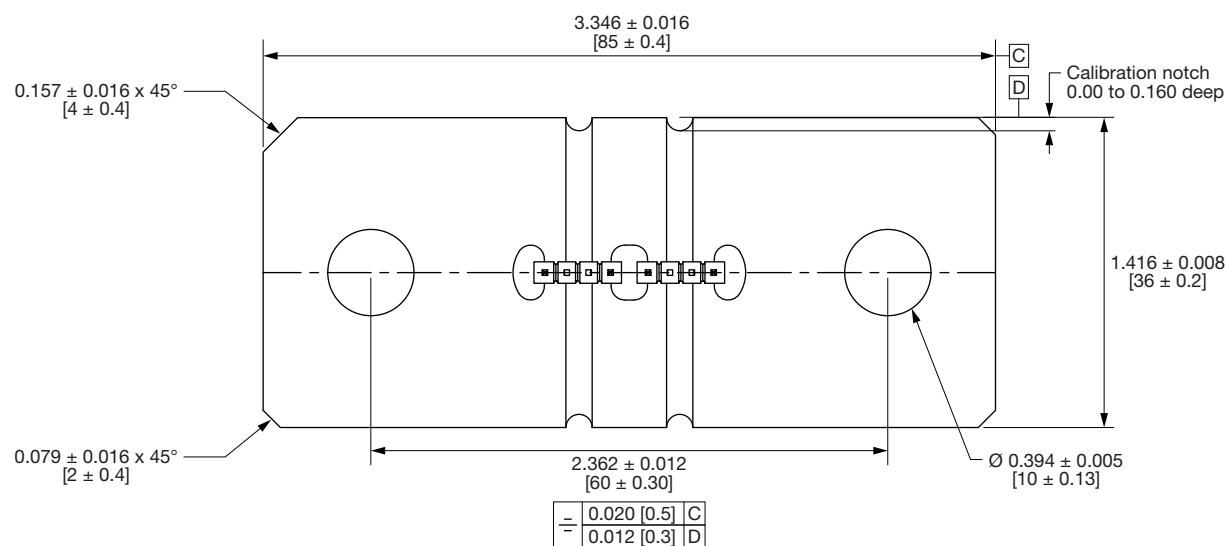
DIMENSIONS in inches (millimeters)



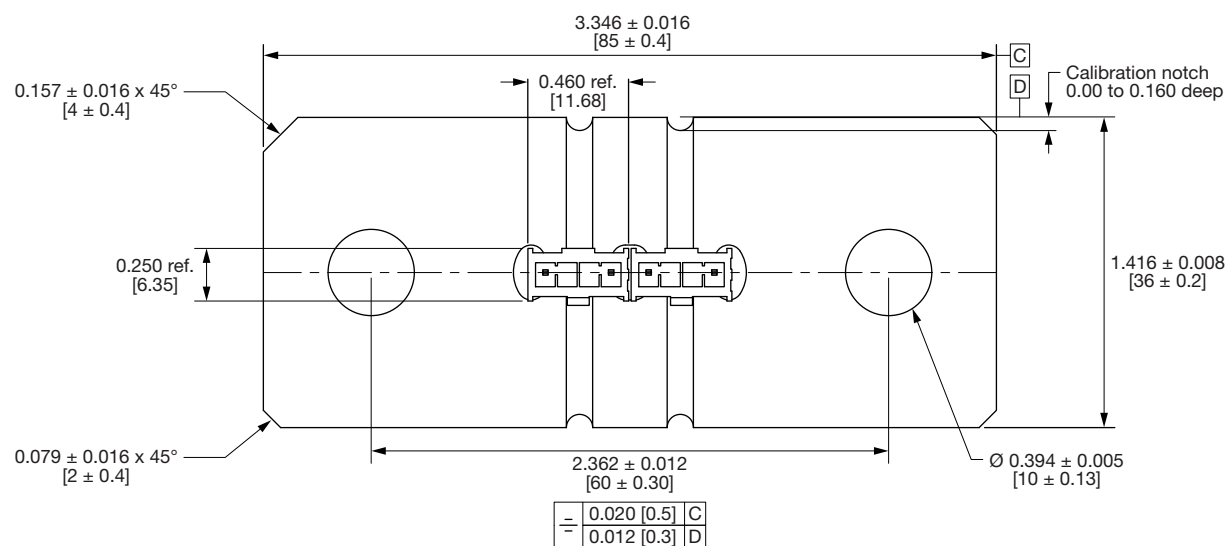
WSBR8518L1000JTA4



WSBR8518L1000JTB4

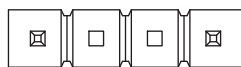


WSBR8536L0500JTA4



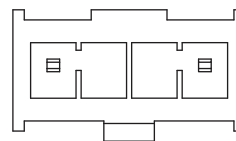
WSBR8536L0500JTB4

CONNECTION OPTIONS



Voltage sense pins in position 1 and 4,
position 2 and 3 are blank.

A Series



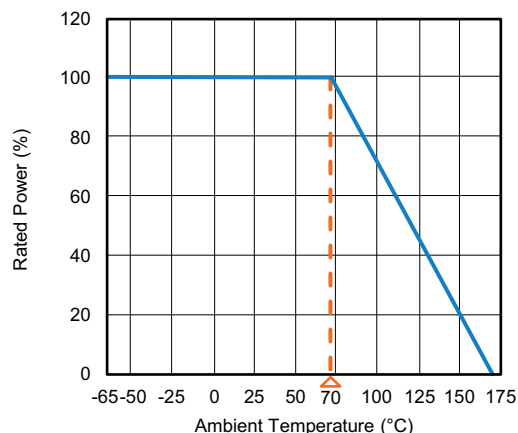
Voltage sense pins in position 1 and 4,
position 2 and 3 are blank.

B Series

Note

- Connection options are examples. Other configurations available upon request (links to external website)
 - [A series connector](#) - modified with the middle two pins removed
 - [B series connector](#) - modified with the middle two pins removed
 - [B series female connector](#)
 - [Connector specifications datasheet](#)
- [Reference Designs | Vishay](#) - click for the landing page of all Vishay provided reference designs
- [High Voltage Intelligent Battery Shunt Sensor - \(HV-IBSS-CANFD\) Reference Design](#) - click for a BMS reference design using CANBUS communication protocol

DERATING



SIZE	RESISTANCE VALUE PER ELEMENT ($\mu\Omega$)	ELEMENT MATERIAL	A REF.	B REF.
8518	100	NiCr	0.120 (3.05)	0.090 (2.29)
8536	50	NiCr	0.120 (3.05)	0.090 (2.29)

TOLERANCES ON DECIMALS
.xxx \pm 0.005 [.x \pm 0.1]

UNLESS OTHERWISE LISTED

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal shock	-55 °C to +150 °C, 1000 cycles, 15 min at each extreme	\pm 0.5 % ΔR
Short time overload	5 x rated power for 5 s	\pm 0.5 % ΔR
Low temperature storage	-65 °C for 24 h	\pm 0.2 % ΔR
High temperature exposure	1000 h at +170 °C	\pm 1.0 % ΔR
Bias humidity	+85 °C, 85 % RH, 10 % bias, 1000 h	\pm 0.5 % ΔR
Mechanical shock	100 g's for 6 ms, 5 pulses	\pm 0.2 % ΔR
Vibration	Frequency varied 10 Hz to 2000 Hz in 1 min, 3 directions, 12 h	\pm 0.2 % ΔR
Load life	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	\pm 1.0 % ΔR
Moisture resistance	MIL-STD-202, method 106, 0 % power, 7b not required	\pm 0.2 % ΔR



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