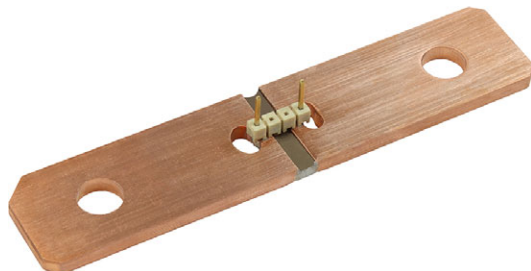


Power Metal Strip® Shunt Resistor, Low TCR (Down to $< \pm 10 \text{ ppm}/^\circ\text{C}$), Very Low Value (Down to $15 \mu\Omega$)



LINKS TO ADDITIONAL RESOURCES



3D Models



Infographics



Reference Designs

FEATURES

- High power capability that enables current sensing to 1825 A
- 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⁾ Ω	WEIGHT (typical) g
WSBE8518	8518	36	5	30μ to 100μ	50μ , 100μ	36
WSBE8536	8536	50	5	15μ to 50μ	50μ	72

Note

⁽¹⁾ Other values may be available, contact factory

TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	RESISTOR CHARACTERISTICS	
		WSBE8518	WSBE8536
Temperature coefficient (-20°C to $+150^\circ\text{C}$)	$\text{ppm}/^\circ\text{C}$	± 10 for all R values	
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	$(P/R)^{1/2}$	

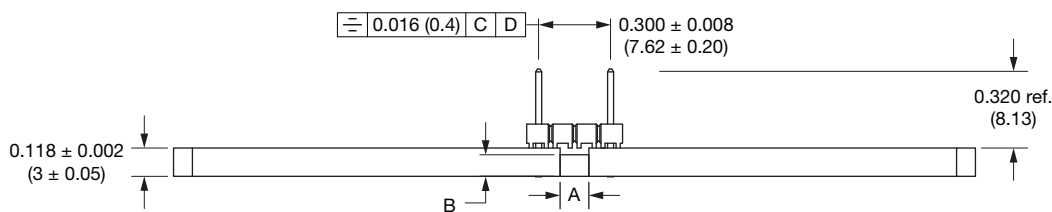
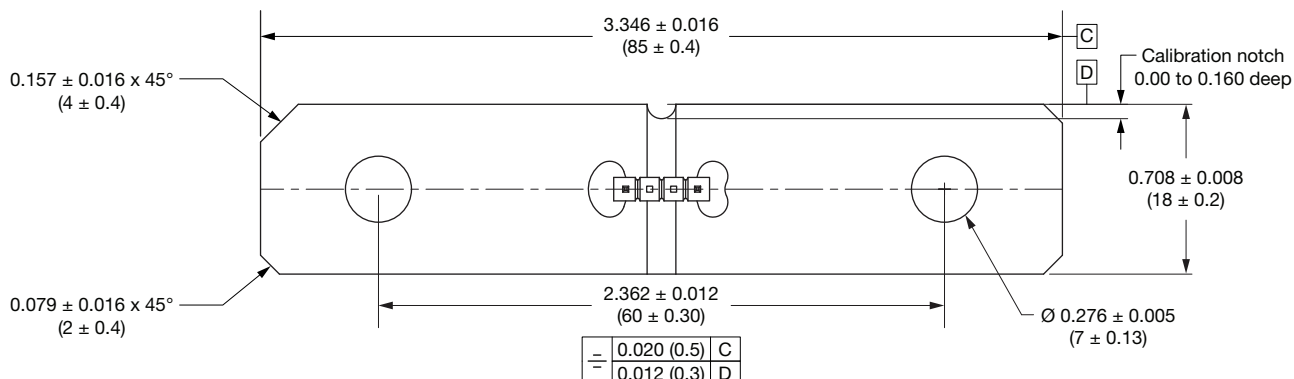
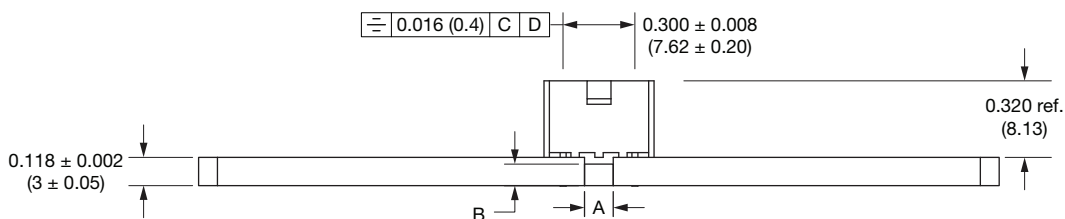
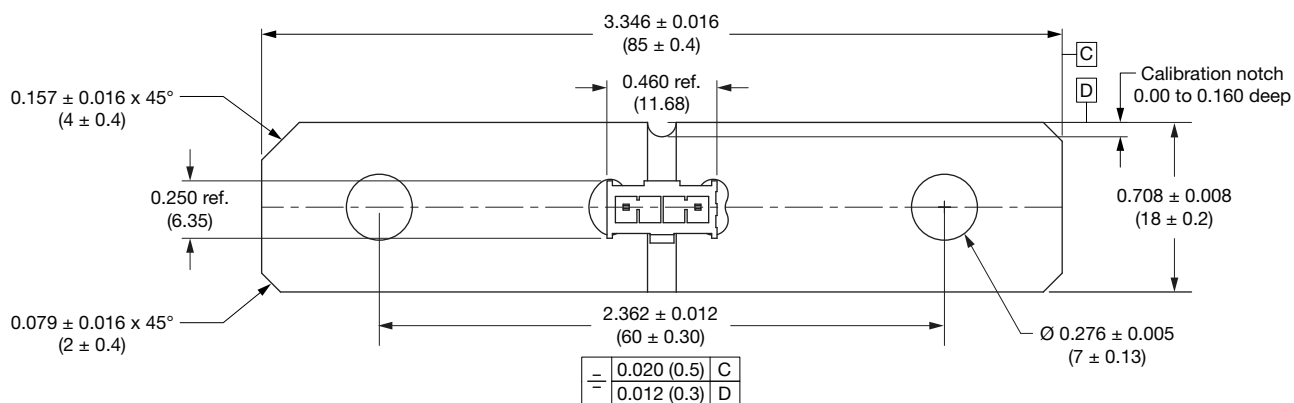
GLOBAL PART NUMBER INFORMATION

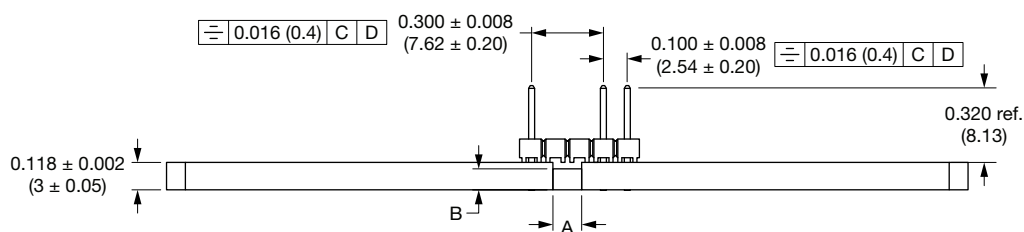
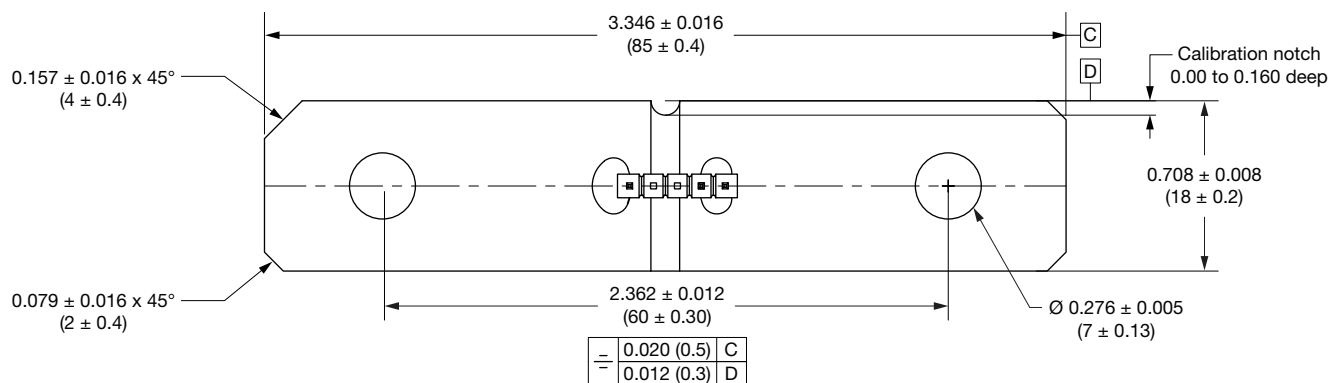
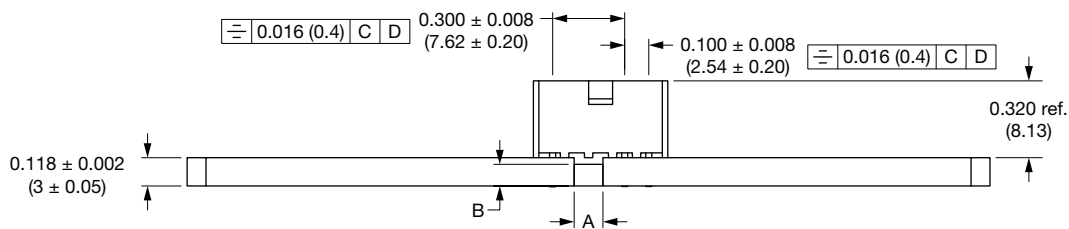
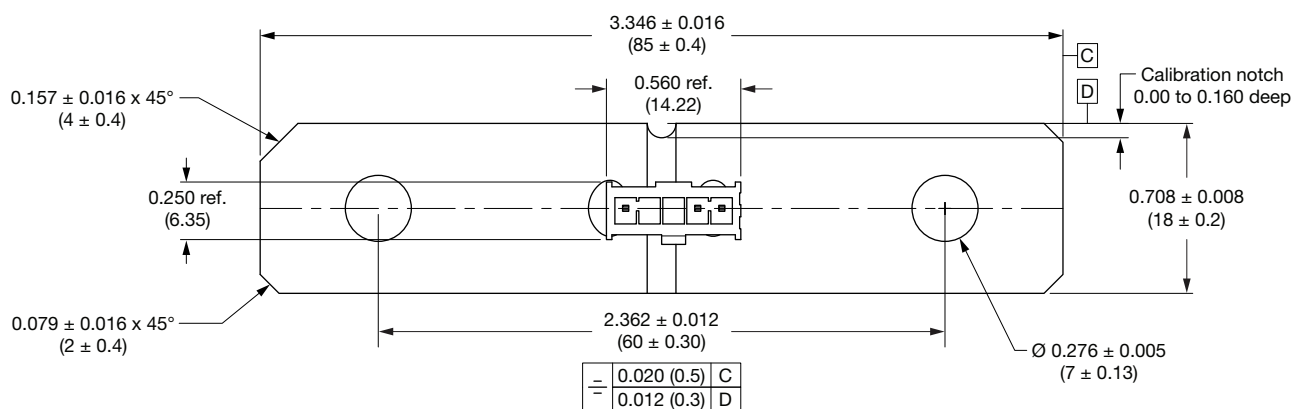
GLOBAL PART NUMBERING: WSBE8518L1000JTA2 (WSBE8518...A2, 0.0001Ω , $\pm 5 \%$, tray pack)

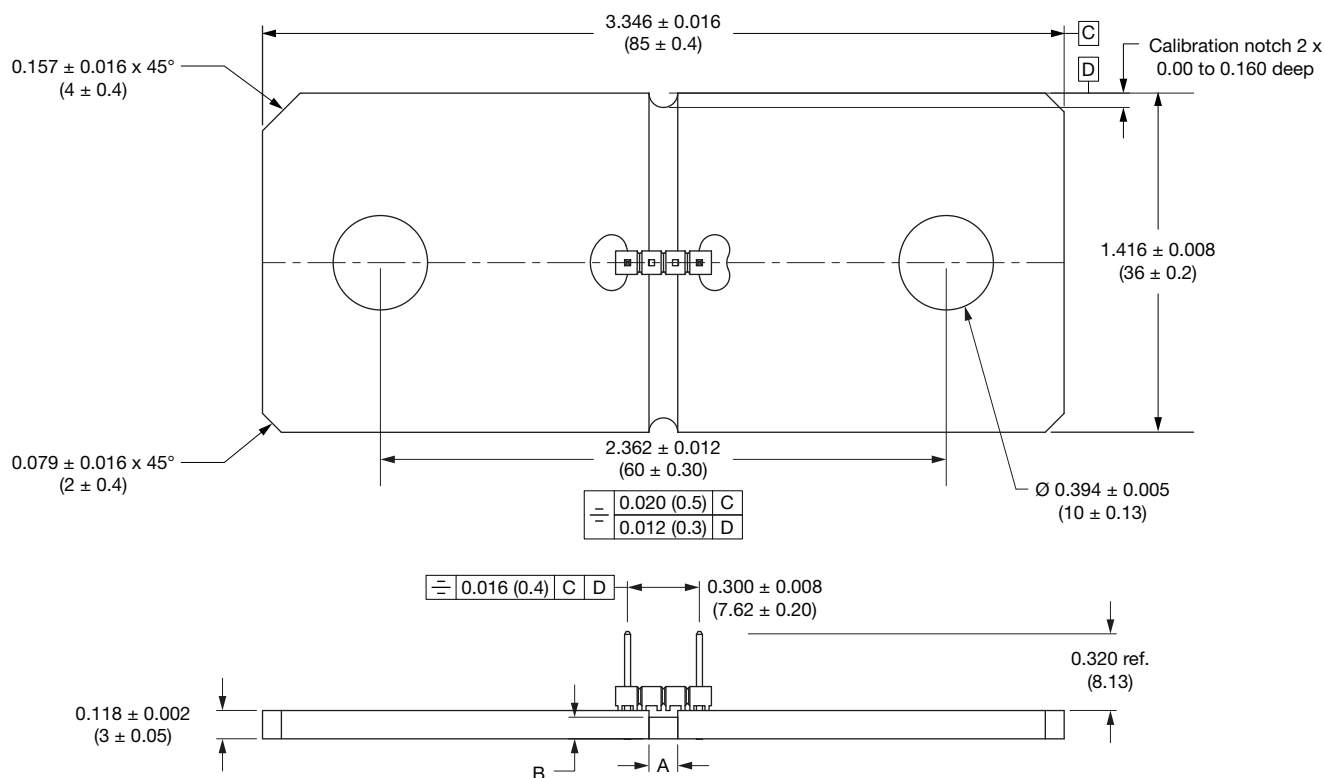
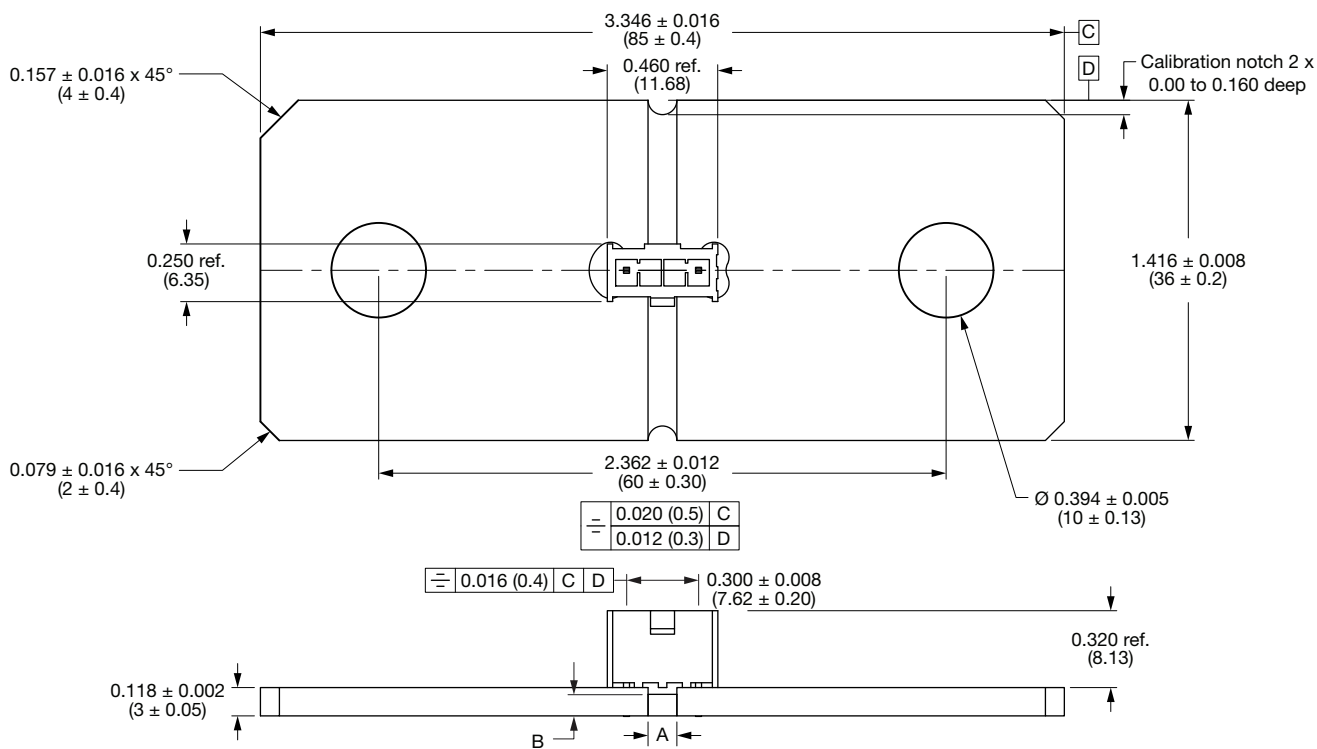
W	S	B	E	8	5	1	8	L	1	0	0	0	J	T	A	2			
GLOBAL MODEL				RESISTANCE VALUE				TOLERANCE CODE				PACKAGING CODE				SPECIAL		PLATING OPTIONS	
WSBE8518 WSBE8536				L = mΩ L1000 = 0.0001 Ω				J = ± 5 %				K = bulk pack T = tray pack				Blank = no pins A2 / A3 = 2 / 3 pins B2 / B3 = 2 / 3 shrouded header pins		Blank = unplated P = tin plated	

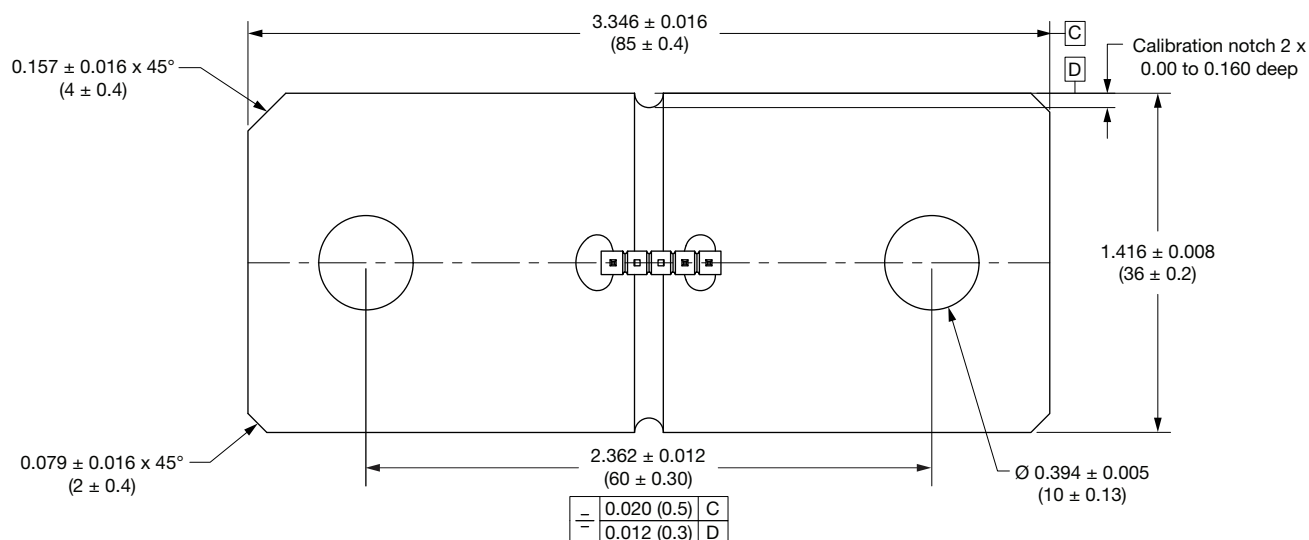
PATENT(S): www.vishay.com/patents

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

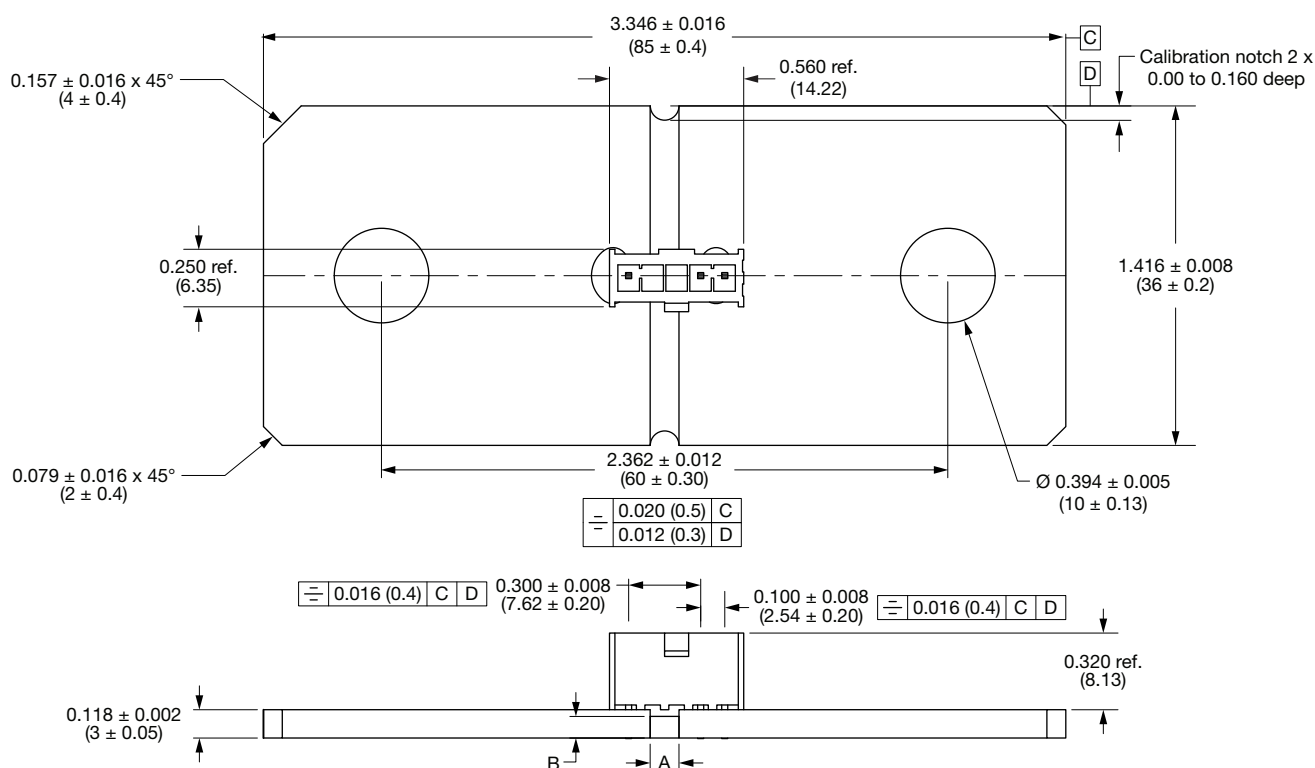
DIMENSIONS in inches (millimeters)

WSBE8518L1000JTA2

WSBE8518L1000JTB2P


WSBE8518L1000JTA3

WSBE8518L1000JTB3P


WSBE8536L0500JTA2

WSBE8536L0500JTB2



WSBE8536L0500JTA3



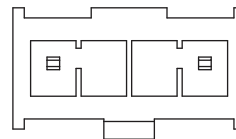
WSBE8536L0500JTB3

CONNECTION OPTIONS



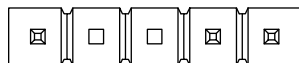
Voltage sense pins in position 1 and 4,
position 2 and 3 are blank.

A Series



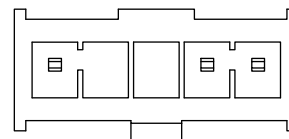
Voltage sense pins in position 1 and 4,
position 2 and 3 are blank.

B Series



Voltage sense pins in position 1 and 4,
ground pin in position 5,
position 2 and 3 are blank.

A3 Series



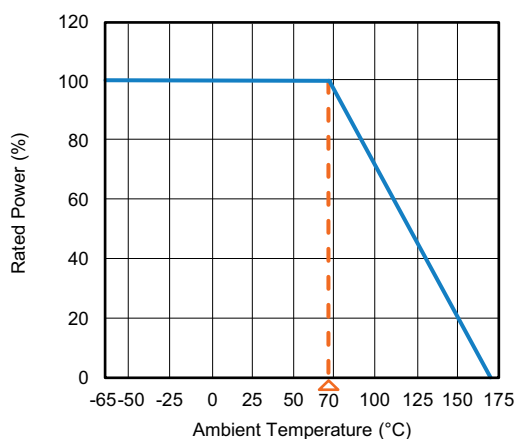
Voltage sense pins in position 1 and 4,
ground pin in position 5,
position 2 and 3 are blank.

B3 Series

Notes

- 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

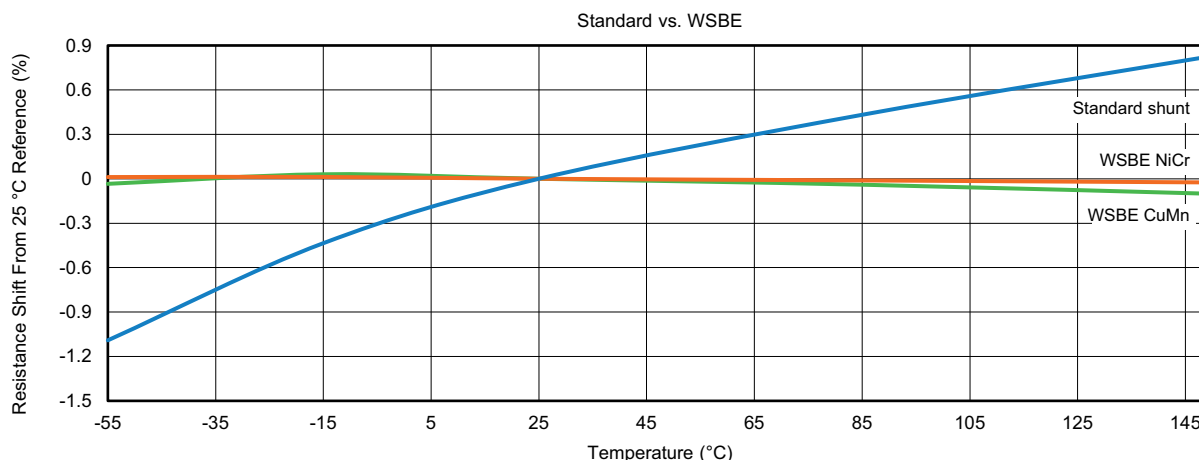


SIZE	RESISTANCE VALUE ($\mu\Omega$)	ELEMENT MATERIAL	A REF.	B REF.
8518	100	NiCr	0.120 (3.05)	0.090 (2.29)
8518	50	CuMn	0.160 (4.06)	0.050 (1.27)
8536	50	NiCr	0.120 (3.05)	0.090 (2.29)

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

UNLESS OTHERWISE LISTED

TCR COMPARISON



Note

- www.vishay.com/doc?30405 - click for more information on TCR and the way it affects your application

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

LINKS TO RELATED DOCUMENTS	
TECHNICAL NOTES	
The Benefit of Using a Three Sense Pin Design on Battery / Meter Shunt Resistors	www.vishay.com/doc?30381
WHITE PAPERS	
Temperature Coefficient of Resistance for Current Sensing	www.vishay.com/doc?30405
REFERENCE DESIGNS	
HV-IBSS-CANFD	www.vishay.com/doc?15003



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