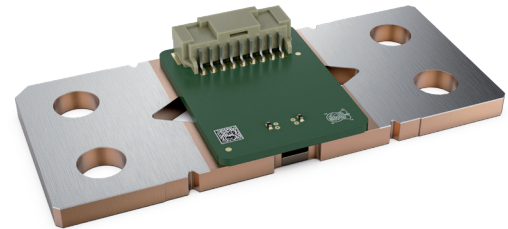


PRELIMINARY VERSION

BSX (8436 metric)

ISA-WELD® PRECISION RESISTOR



FEATURES

- Analog sensor with connector and thermistor (NTC)
- Up to 53 W permanent power
- High pulse power rating
- High temperature measurement stability (improved temperature coefficient of resistance, TCR)
- Shunt with partial nickel-tin-plating
- Data Matrix Code (DMC) containing resistance value
- AEC-Q200 qualification



APPLICATIONS

- Current sensor for BMS (Battery Management Systems)

Technical data

		BSX-L025-002	BSX-L025-003
Resistance value	μOhm	25	
Resistance tolerance, manufactured	%	±5	
Resistance tolerance 1&2, measured	%	DMC ±0.2 (4σ)	
TCR 1&2 (20-60°C)	ppm/K	0 ± 10 (4σ), measured	0 ± 20 (4σ), manufactured
Applicable temperature range for continuous operation	°C	-40 to 125 (limited by connector)	
Power rating (nominal load, P_{nom}) at $T_K = 85^\circ\text{C}$	W	53*	
Load for continuous operation at $T_K = 85^\circ\text{C}$	A	1,460	
Load for pulse operation with following boundary conditions: - Maximum resistance temperature 200°C - Maximum connector temperature 125°C - Terminal temperature $T_K = 85^\circ\text{C}$	time	current	
	10 s	±2,700 A	
	5 s	±3,000 A	
	1 s	±3,500 A	
	100 ms	±7,500 A	
Internal heat resistance (R_{thi})	K/W	0.75	
Thermal EMF (30-60°C)	μV/K	<0.6	
Inductance	nH	<3	
Maximum resistance drift at P_{nom} after 2,000 h of continuous operation at maximum temperature $T_{max} = 125^\circ\text{C}$	%	<0.3	

*The rated power and current can also be higher at a lower maximum terminal temperature

Note: For calculation of the maximum derating terminal temperature (T_K) the following formula can be used: $T_K = T_{max} - (R_{thi} \times P_{nom})$.

Ordering code example

BSX – L025 – 002

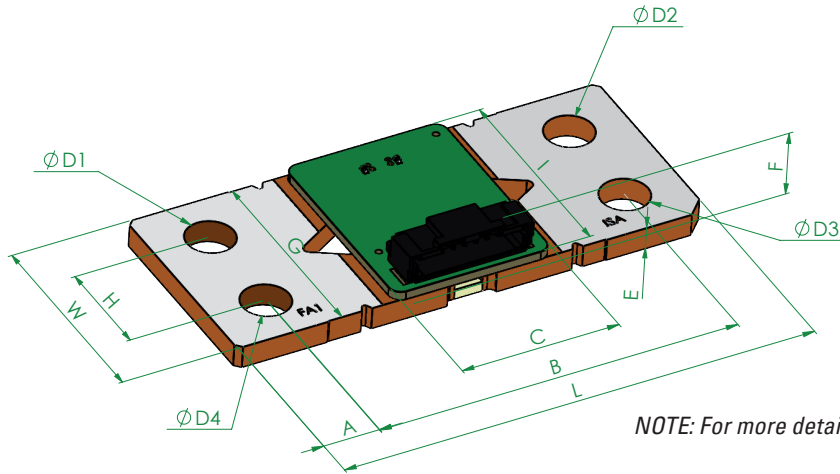
..... Version
 Resistance value [mOhm] / „L“ represents decimal point
 Type

Packaging information

Delivery in ESD trays

BSX // SIZE 8436 (METRIC)

Mechanical specification [mm]



NOTE: For more detailed information, please refer to the customer drawing.

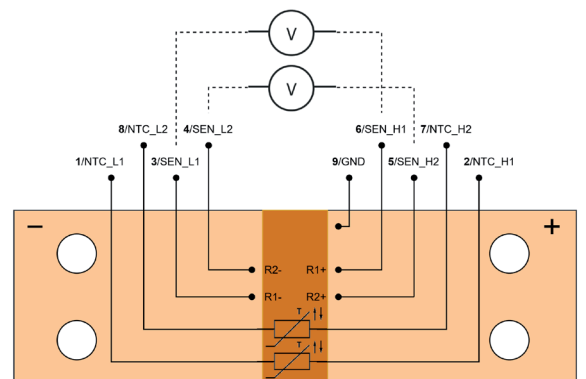
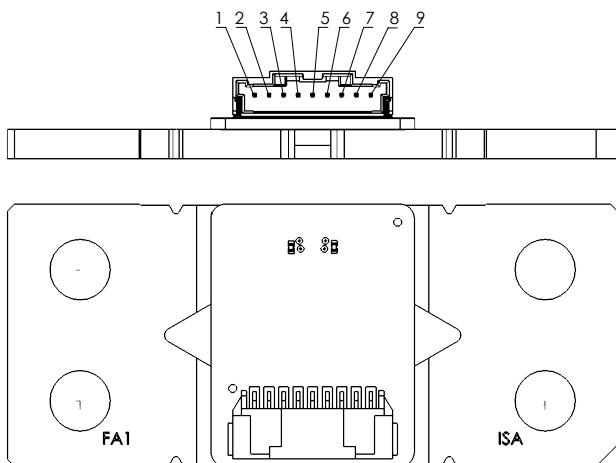
Type / Ordering code	A	B	C	Dx	E	F	G	H	I	L	W
BSX-L025-002	10 ± 0.1	64 ± 0.2	28 ± 0.3	∅ 8.3 ± 0.15	4 ± 0.1	12 ± 0.5	35.7 ± 0.1	18 ± 0.15	36 ± 0.3	84 ± 0.2	36 ± 0.2
BSX-L025-003											

Type / Ordering code	shunt plating	underlayer	alloy	weight	tightening torque
BSX-L025-002	Sn partial-plating	Ni partial-plating	ZERANIN®	93.3 g	15-25 Nm
BSX-L025-003					

PCB Specification

Type / Ordering code	Connector	Part no.	Orientation	Positions	NTC quantity	NTC part no.	Receptacle	Crimp contacts
BSX-L025-002	Molex	5023520900	horizontal	9	2	B57232V5103F360	5023510900 (example)	5051538000
BSX-L025-003								

PIN specification



Connector Pin	Signal
1	NTC_L1
2	NTC_H1
3	SENSE_L1
4	SENSE_L2
5	SENSE_H2
6	SENSE_H1
7	NTC_H2
8	NTC_L2
9	GND

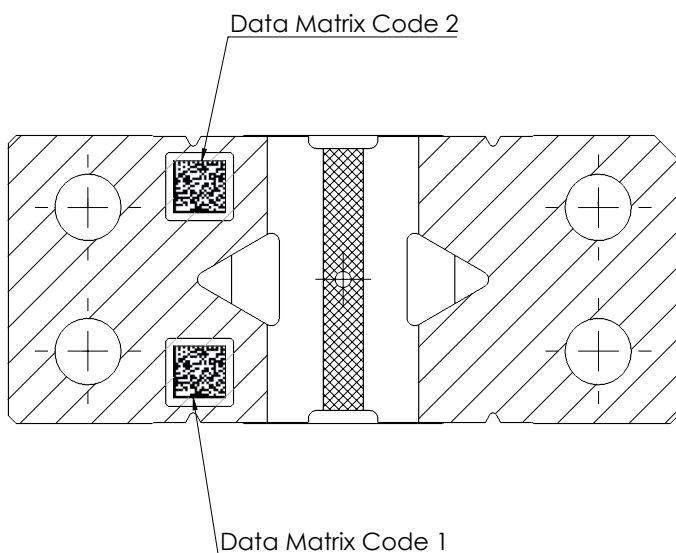
BSX // SIZE 8436 (METRIC)

DMC specification (standard)

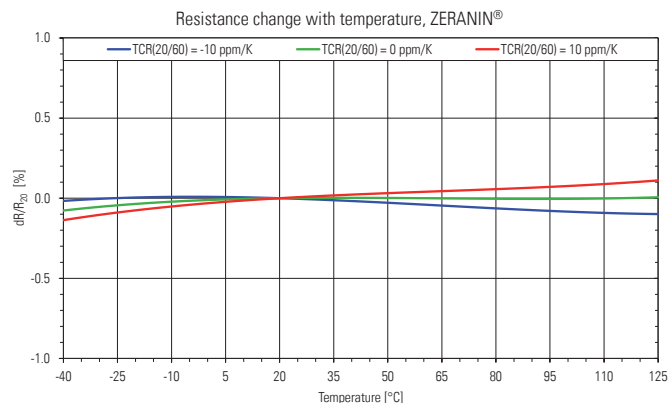
Name	Explanation	Start position	Number of Digits	Meaning (example)	Code*	BSX-L025-002	BSX-L025-003
PPPPPP	ERP-system part number	1	6	BSX-L025-002	164935	DMC1	DMC1
XXX	manufacturing plant code	7	3	Dillenburg	000		
YY	manufacturing year (Gregorian calendar)	10	2	2023	23		
JJJ	day of manufacturing (Gregorian calendar)	12	3	25.08.2023	237		
vvvvvvvv	production batch number	15	10	1000907226	1000907226		
nnnnnn	starting consecutive number per month each	25	6	000013	000013		
RRRRRR1	resistance value 1 in nano ohms @20°C	31	6	024997	024997		
RRRRRR2	resistance value 2 in nano ohms @20°C	37	6	024998	024998		
±a',aaa'e'-x	cubic polynom coefficient sign (+/-)**	43	6	9,952E-08	199528	no 2nd DMC	DMC2
±b',bbb'e'-y	quadratic polynom coefficient sign (+/-)**	49	6	-1,712E-05	017125		
±c',ccc'e'-z	linear polynom coefficient 1 sign (+/-)**	55	6	9,602E-04	196024		
±c',ccc'e'-z	linear polynom coefficient 2 sign (+/-)**	61	6	9,385E-04	193854		

*not applicable or used digits will have only zeros at their digit numbers // ** Prefix „+“ = „1“; Prefix „-“ = „0“

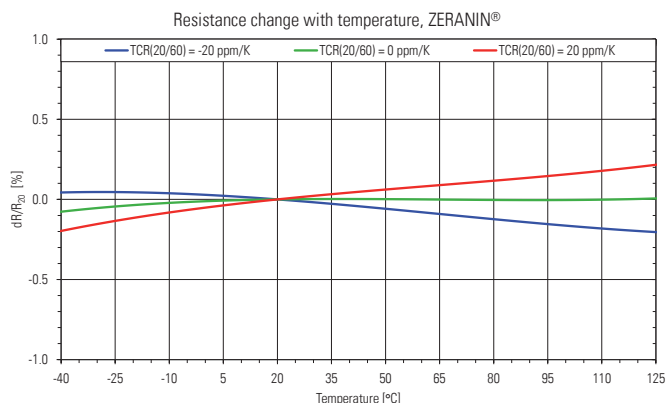
Note: TCR formular: $dR/R20 [\%] = a \cdot (T-20)^3 + b \cdot (T-20)^2 + c \cdot (T-20)$



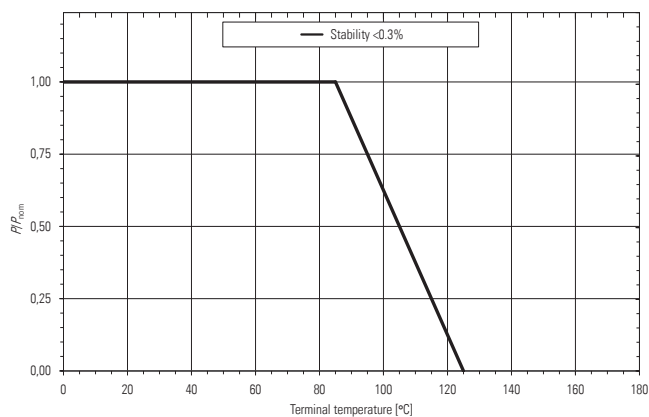
Temperature dependence of the electrical resistance (BSX-L025-002)



Temperature dependence of the electrical resistance (BSX-L025-003)



Power derating curve



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