ISABELLENHÜTTE
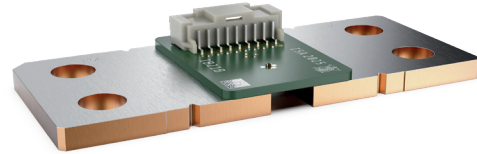
BSX (8436 metric)

ISA-WELD® PRECISION RESISTOR

FEATURES

- Analog sensor with connector and thermistor (NTC)
- Up to 36 W permanent power
- High pulse power rating
- High temperature measurement stability (improved temperature coefficient of resistance, TCR)
- Shunt with nickel-tin-plating
- Data Matrix Code (DMC) containing resistance value and polynominal fitting function of TCR-curve
- AEC-Q200 qualification

RoHS

APPLICATIONS

- Current sensor for BMS (Battery Management Systems)

Technical data		BSX-L025-001	
Product status		B-samples (leadtime 6 weeks) / C-samples (08/2025)	
Resistance value	**µOhm**	25	
Resistance tolerance (manufactured)	**%**	±5	
Tolerance of measured resistance value Sense 1 & 2	**%**	±0.2	
Deviation of the 3rd resistance value from the 1st & 2nd	**%**	±2.0	
TCR value (20-60 °C) of Sense 1 & 2 & 3	**ppm/K**	0	
TCR tolerance of Sense 1 & 2 & 3 (manufactured)	**ppm/K**	±35	
Tolerance of measured TCR value of Sense 1 & 2	**ppm/K**	±20	
Applicable temperature range for continuous operation	**°C**	-40 to 125 (limited by connector)	
Power rating (nominal load, P_{nom}) at T_K = 85 °C	**W**	45*	
Load for continuous operation at T_K = 85 °C	**A**	1,340	
Load for pulse operation with following boundary conditions: - Maximum resistance temperature 200 °C - Maximum connector temperature 125 °C - Terminal temperature T_K = 85 °C		time 10 s 5 s 1 s 100 ms	current tbd ±3,000 A ±3,400 A ±7,500 A
Internal heat resistance (R_{thi})	**K/W**	0.85	
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 °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: $T_K = T_{max} - (R_{thi} \times P_{nom})$.

BSX // SIZE 8436 (METRIC)

Mechanical specification [mm]
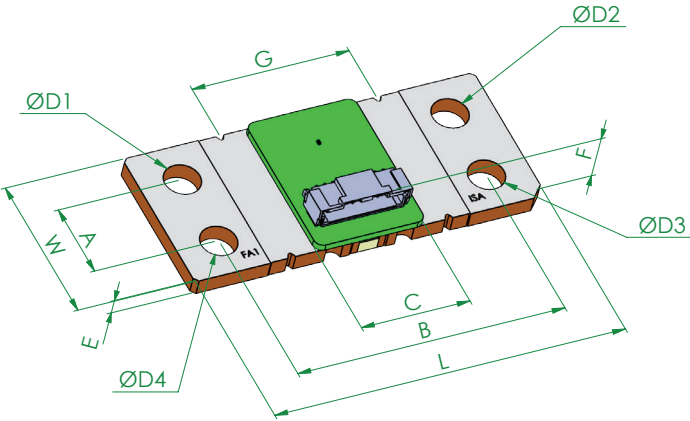
Type / Ordering code	A	B	C	Dx	E	F	G	L	W
BSX-L025-001	18 ± 0.2	64 ± 0.2	26 ± 0.3	ø 8.3 ± 0.1	4 ± 0.1	11 ± 0.3	37.6 ± 0.2	84 ± 0.2	36 ± 0.2

Type / Ordering code	shunt plating	underlayer	alloy
BSX-L025-001	Sn	Ni	MANGANIN®

PCB Specification

Type / Ordering code	Connector	Part no.	Orientation	Positions	NTC quantity	NTC part no.	Receptacle	Crimp contacts
BSX-L025-001	Molex	5023520900	horizontal	9	1	B57232V5103F360	5023510900 (example)	5051538000

PIN specification BSX-L025-001
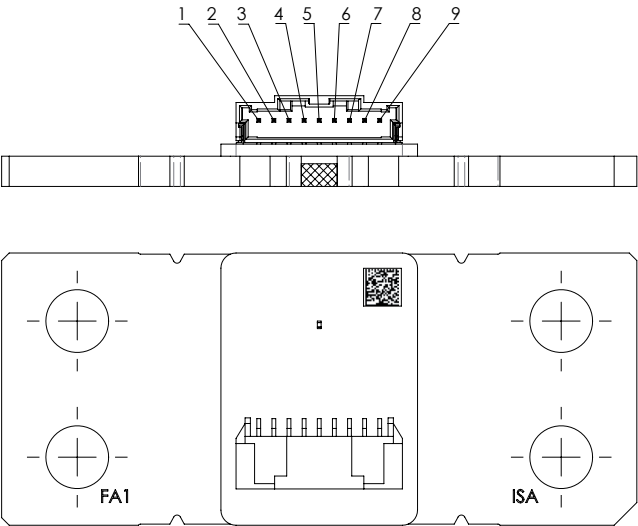
Connector Pin	Signal
1	SHUNT_V⋯⋯_3
2	SHUNT_V⋯⋯_3
3	SHUNT_V⋯⋯_1
4	SHUNT_V⋯⋯_1
5	SHUNT_V⋯⋯_2
6	SHUNT_V⋯⋯_2
7	SHUNT_GND
8	NTC_T⋯⋯
9	NTC_T⋯⋯

Ordering code example

BSX - L025 - 001

································· Version

···························· Resistance value [mOhm] / „L" represents decimal point

···························· Type
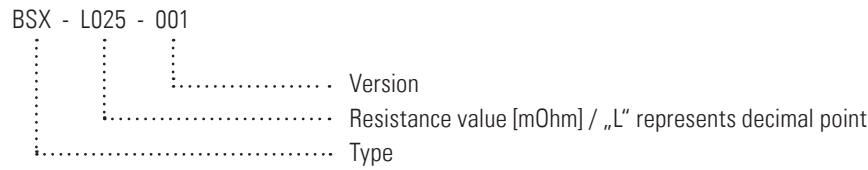
DMC specification (standard)

Name	Explanation	Start position	Number of Digits	Meaning (example)	Code*
PPPPPP	ERP-system part number	1	6	BSX-L025-001	164935
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
vvvvvvvvvv	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
±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

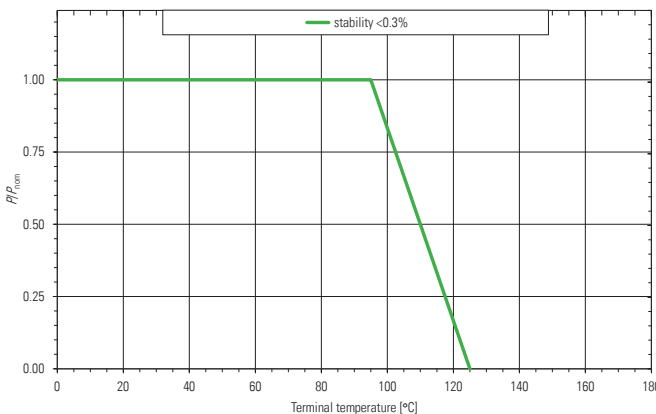*not applicable or used digits will have only zeros at their digit numbers

** Prefix „+" = „1"; Prefix „-" = „0"

B-samples will have Batch-R(t) curve

Temperature dependence of the electrical resistance (manufactured)

Resistance Change with Temperature, MANGANIN®

TCR(20/60) = 0 ppm/K   TCR(20/60) = -35 ppm/K   TCR(20/60) = +35 ppm/K
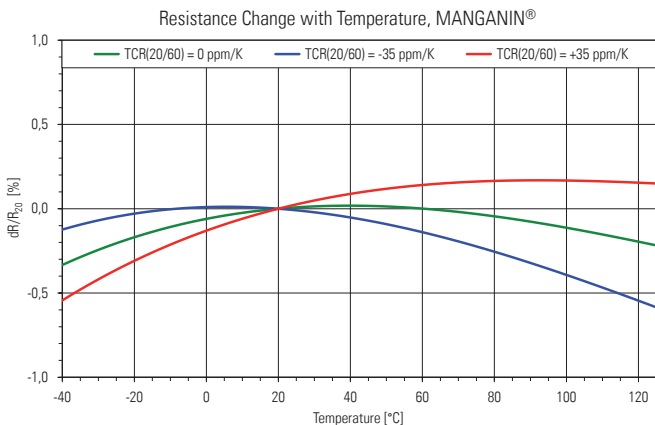
Power derating curve

stability <0.3%

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