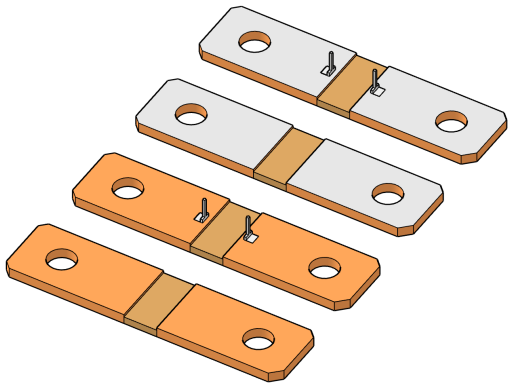
SBZ 8420 / 8518 Series

Low Ohmic EB Welded Precision Resistor



Features

- High Conductivity Copper Terminals
- Excellent Long Term Stability
- RoHS and REACH Compliant
- AEC-Q200 Compliant
- Customised versions available on request
- **Pin Variants** available on request
- **Tinned Terminals** available on request

Applications

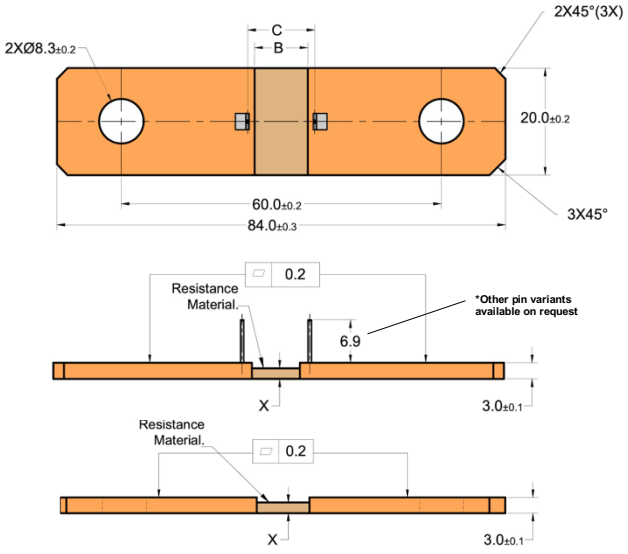
- Current Sensing for BMS (Battery Management Systems) in Hybrid and Electric automotive applications.
- Current Sensing for bus bars
- Current Sensing for welding equipment

Technical Data									
Resistance Value	0.035	0.05	0.10	0.125	0.20	0.25	0.50	1.0	(mΩ)
Tolerance (R)	5								(%)
TCR - Temperature Coefficient of Resistance Alloy (20-60ºC)	< ± 10 (Copper Manganese Alloys) < - 25 (Aluchrom Alloy)								(ppm/K)
TCR (20-60ºC)	± 100 for 0.035 mΩ and 0.05 mΩ								(ppm/K)
	± 50 for 0.1 mΩ to 0.25 mΩ								
Applicable Temperature Range	- 55 to +170								ºC
Power Rating	See Table 2(a), 2(b)								W
Inductance	< 1								nH
Thermal EMF	< 1 (< 3 for 0.5 mΩ and 1 mΩ)								µV/ºC
Stability Deviation	< 0.5 after 2000 Hours, T_t^* = 110ºC								%
* T_t = Terminal Temperature	< 1.0 after 2000 Hours, T_t^* = 140ºC								%

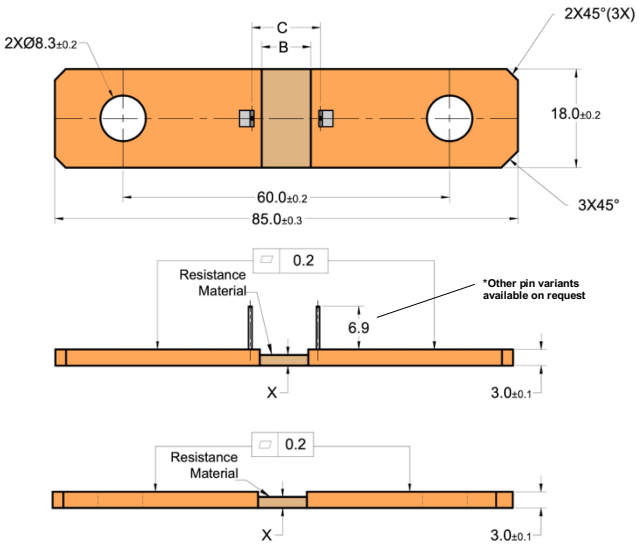
Dimensions are in mm, See table 2(a) and 2(b) for dimensions

Table 1

8420



8518



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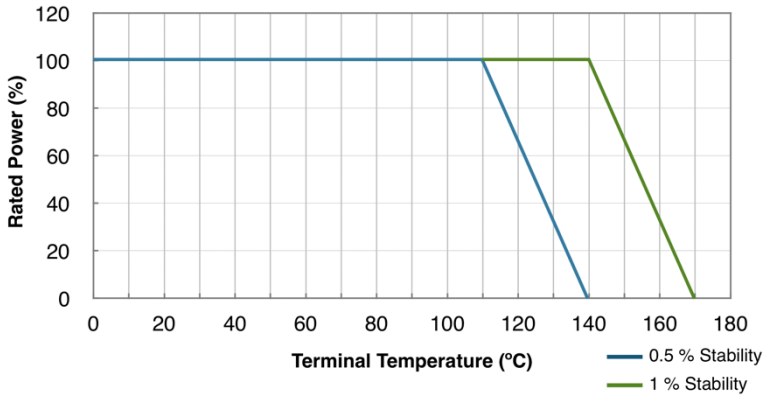
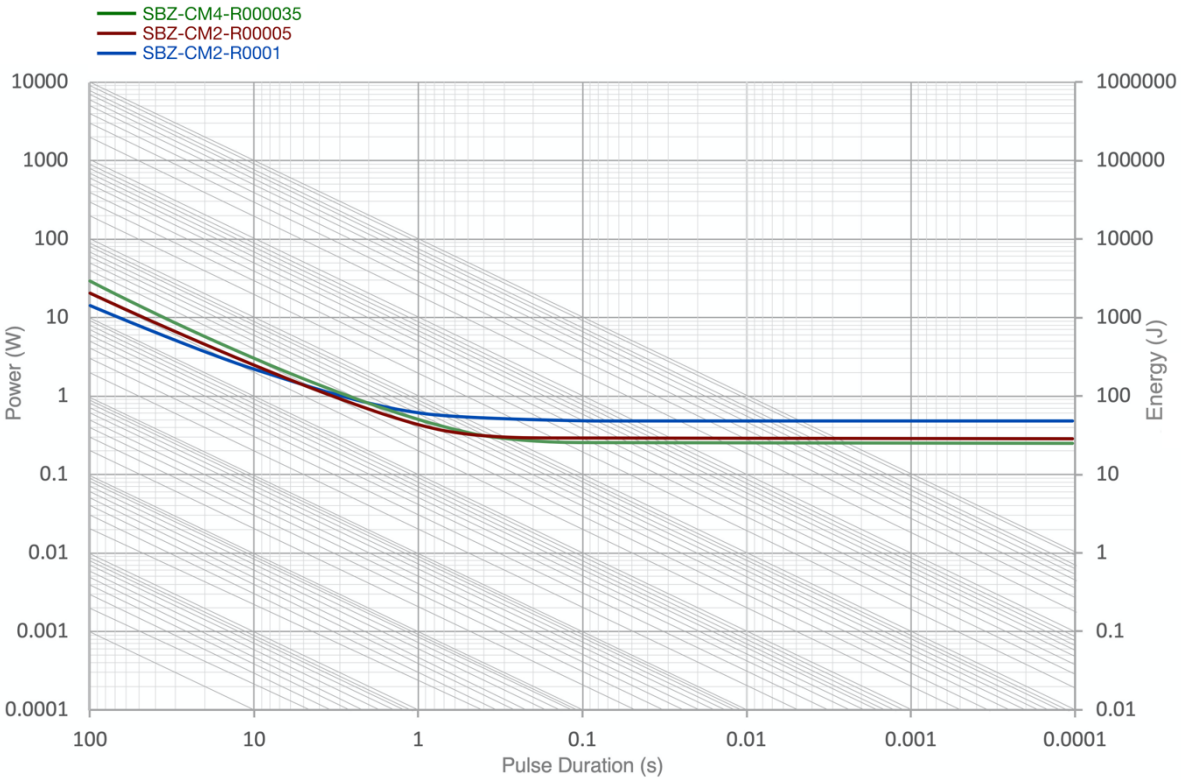
Power Derating Curve R: 0.1mΩ



Maximum Pulse Energy Curve



Power curve for continuous operation at 140ºC

Packaging Options

Bulk Packaging	Tray Packaging	Tube Packaging
100 pcs per bag: vacuum sealed in plastic bags with dry nitrogen *(NP - without sense pins)*	35 Shunts per tray	140 Shunts per tube *(NP - without sense pins)*

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SBZ 8420

Part Code	Resistance Value (mΩ)	Dimension X (+/-0.20)	Dimension B (+/-0.50)	Dimension C (+/-0.20)	R_{thi} (K/W)	Resistance Alloy	$P_{100°C}$ (W)	$P_{70°C}$ (W)
SBZ-8420-CM4-R000035	0.035	2.0	4.8	8.00	1.0	Copper Manganese Tin Alloy	30	36
SBZ-8420-CM2-R00005	0.05	2.20	5.00	8.20	1.5	Copper Manganese Alloy	20	36
SBZ-8420-CM2-R0001	0.10	2.20	10.00	13.20	2.0	Copper Manganese Alloy	15	36
SBZ-8420-CM2-R0002	0.20	2.00	18.00	21.20	3.0	Copper Manganese Alloy	10	24
SBZ-8420-CM2-R00025	0.25	2.00	23.00	26.20	3.0	Copper Manganese Alloy	10	24
SBZ-8420-A1-R0005	0.50	2.00	14.00	17.20	7.0	Aluchrom Alloy	4	10
SBZ-8420-A1-R001	1.00	2.00	28.00	31.20	12.0	Aluchrom Alloy	3	7

Table 2(a)

SBZ 8518

Part Code	Resistance Value (mΩ)	Dimension X (+/-0.20)	Dimension B (+/-0.50)	Dimension C (+/-0.20)	R_{thi} (K/W)	Resistance Alloy	$P_{100°C}$ (W)	$P_{70°C}$ (W)
SBZ-8518-CM2-R00005	0.05	2.20	4.50	7.70	1.0	Copper Manganese Alloy	20	36
SBZ-8518-CM2-R0001	0.10	2.20	9.00	12.20	1.5	Copper Manganese Alloy	15	36
SBZ-8518-CM2-R000125	0.125	2.00	10.30	13.50	2.0	Copper Manganese Alloy	15	36
SBZ-8518-CM2-R0002	0.20	2.00	16.50	19.70	3.0	Copper Manganese Alloy	10	24
SBZ-8518-CM2-R00025	0.25	2.00	21.00	24.20	3.0	Copper Manganese Alloy	10	24
SBZ-8518-A1-R0005	0.50	2.00	12.80	15.80	7.0	Aluchrom Alloy	4	10

Table 2(b)

Performance:

Type of Test	Reference STD	Test Specifications	Acceptance Criteria
High Temperature Exposure	MIL-STD-202 Method 108	1000 hrs. @ T=170°C.Unpowered.	ΔR +/-1%
Temperature Cycling	JESD22 Method JA-104	-55°C to 150°C, 1000 Cycles, 30 minutes at each extreme	ΔR +/-0.5%
Biased Humidity	MIL-STD-202 Method 103	85°C & 85RH with 10% operating power, 1000 hrs.	ΔR +/-0.5%
Operational Life	MIL-STD-202 Method 108	125°C at rated power, 1000 hrs.	ΔR +/-1%
External Visual	MIL-STD-883 Method 2009	Visual inspection	Visual
Physical Dimension	JESD22 Method JB-100	Dimensional inspection as per internal specifications	Shall confirm within tolerance limits
Resistance to Solvents	MIL-STD-202 Method 215	Clean with Aqueous Chemical	Marking shall be legible
Mechanical Shock	MIL-STD-202 Method 213	100g for 6ms, Half Sine	ΔR +/-0.2%
Vibration	MIL-STD-202 Method 204	5g for 20 minutes, 12 cycles each of 3 orientations.10-2000Hz	ΔR +/-0.2%
Resistance to Soldering Heat	MIL-STD-202 Method 210	Solder Temp. 260°C, Time 10 seconds	ΔR +/-0.5%
Solderability	J-STD-002E	As per IPC J-STD-002E	>95% Coverage in 10x Magnification
Electrical Characterization	User Specification	Resistance as defined	Shall confirm within tolerance limits
Short Time Over Load	--	5x Rated Power for 5 seconds	ΔR +/-1%
Low Temperature Storage	--	-65°C for 24 hrs.	ΔR +/-0.2%

Table 3

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Example of Ordering Code: SBZ-8420-CM2-R0001-5-U-NP-BK
(Example: 0.1mΩ SBZ 8420 without sense pins on un-plated terminals, shipped in bulk packing)

SBZ	8420	CM2	R0001	5	U	NP	BK
TYPE	SIZE	MATERIAL	RESISTANCE	TOLERANCE	PLATING	PIN	PACKING
SBZ	8420	CM2	0.1mΩ	±5%	U	NP	BK
8420 8518	CM4 =Copper Manganese Tin Alloy CM2 = Copper Manganese Alloy AC= Aluchrom Alloy		R000035 = 0.035mΩ R00005 = 0.05mΩ R0001 = 0.1mΩ R0002 = 0.2mΩ R00025 = 0.25mΩ R0005 = 0.5mΩ R001 = 1.0mΩ	5 = ± 5%	P = Plated Terminals U = Un-plated Terminals	SP = Sense Pin NP = No Pin	BK = Bulk TY = Tray TB = Tube

Tinned Variant

- RoHS Compliant Plating
- Sn : 2.5 to 8 µm
- Ni : 0.5 to 4 µm Inter-liner
- Base Material: C102 - CuOF Half-Hard
- Available **without Ni inter-liner** on request