



ISA-WELD® // PRECISION RESISTORS



BVE Size 5930



Features

- Power rating up to 15 W
- Continuous current load up to 315 A (0.1 mOhm)
- Heavy copper connectors
- Excellent long-term stability
- Max. solder temperature up to 350 °C / 30 sec
- AEC-Q200 qualified
- RoHS 2011/65/EU compliant



Applications

- Current sensor for power hybrid applications
- For welding on bus bars
- High current applications for the automotive market
- Frequency converters
- Power modules

Technical data ¹

Resistance values	mOhm	0.1 to 3
Tolerance	%	1 / 5
Temperature coefficient (20-60 °C)	ppm/K	from 50
Applicable temperature range	°C	-55 to +170
Power rating P_{100°C}	W	up to 10
Power rating P_{70°C}	W	up to 15
Internal heat resistance (R _{thi})	K/W	2
Inductance	nH	<3
Stability (at rated power) deviation after 2000h, T _K = Terminal temperature		<0.5% (T _K =90 °C) <1.0% (T _K =120 °C)

¹ For detailed information see table on page 3

Ordering code

BVE - M - R0005 - 1.0

.....	Tolerance
.....	Resistance value [Ohm] / „R” represents decimal point
.....	Material (MANGANIN®)
.....	Type



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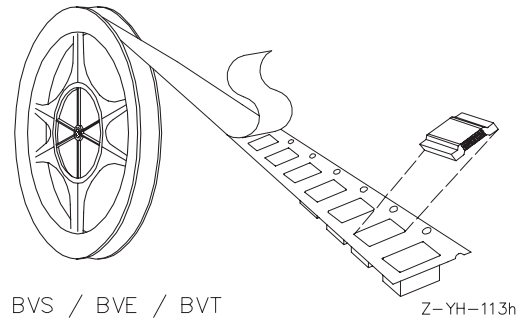
Recommended solder profile

Reflow-, IR- and wave-soldering

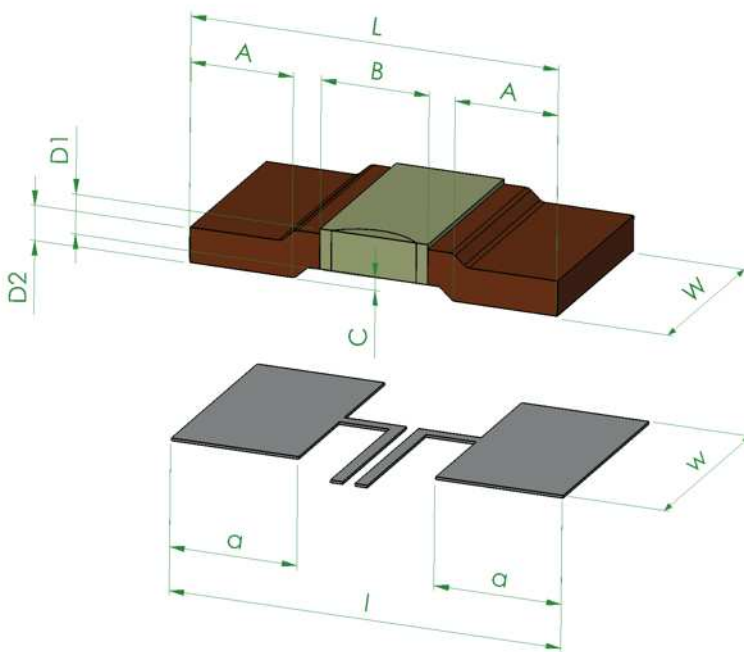
Temperature	°C	260	255	217
Time	sec	peak	40	90

Tape and reel information

Specification	DIN EN 60286-3			
Tape width	mm	24		
Reel size	inch	13		
Parts per reel	pcs	2000		
Packaging weight	g	563		



Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm]



type:	value / mOhm	L	W	A	B	C	D1	D2
BVE-Z-R0001	0.1	15 ±0.2	7.75 +0.3/-0.2	4.95 +0.1/-0.7	3.7 +0.2/-0.3	0.5 ±0.1	1.42 ±0.1	1.42 ±0.1
BVE-M-R0002	0.2	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	1.42 ±0.1	1.42 ±0.1
BVE-M-R0003	0.3	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	0.94 ±0.1	0.4 ±0.1
BVE-M-R0005	0.5	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	0.56 ±0.1	0.56 ±0.1
BVE-A-R0005	0.5	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.4 +0.2/-0.3	0.5 ±0.1	1.62 ±0.1	1.42 ±0.1
BVE-A-R001	1	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.9 +0.2/-0.3	0.5 ±0.1	0.91 ±0.1	0.84 ±0.1
BVE-A-R002	2	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.9 +0.2/-0.3	0.5 ±0.1	0.44 ±0.05	0.64 ±0.1
BVE-A-R003	3	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	0.31 ±0.05	0.4 ±0.1

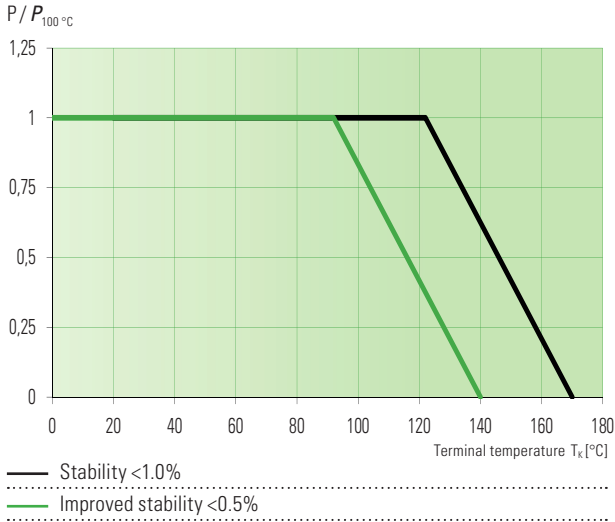
solder pad type:	l	w	a
BVE	16	8.75	5.2



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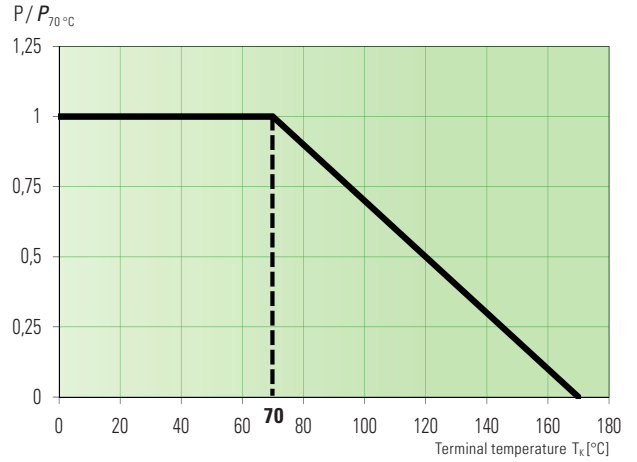
Power derating curve at 100 °C

Example: BVE-M-R0005



Power derating curve at 70 °C

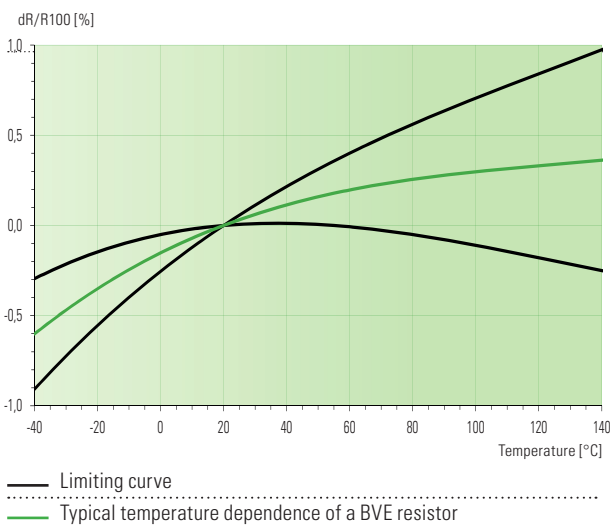
Example: BVE-A-R002



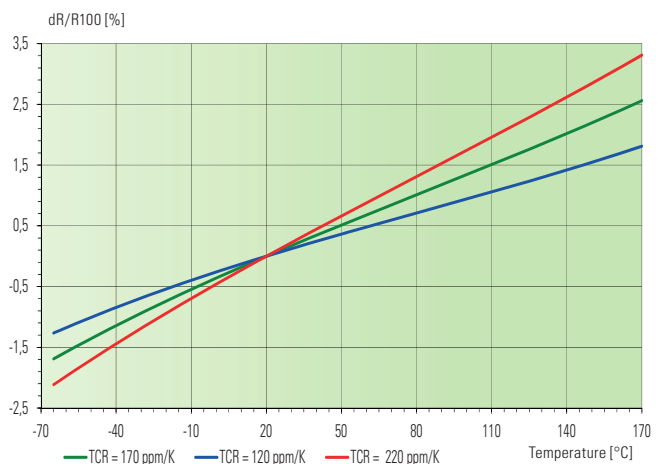
Type	Material	Value [mΩ]	R _{thi} [K/W]	TC [ppm/K]	P _{100 °C} [W]	P _{70 °C} [W]	Note
BVE-Z-R0001*	ZERANIN®30	0.1	2.0	<220	10	15	
BVE-M-R0002	MANGANIN®	0.2	3.0	<100	10	15	
BVE-M-R0003	MANGANIN®	0.3	4.5	<100	7	10	
BVE-M-R0005	MANGANIN®	0.5	8.0	<75	6	8	
BVE-A-R0005	Aluchrom	0.5	5.0	<75	7	10	
BVE-A-R001	Aluchrom	1.0	8.0	<50	6	9	Material has ferromagnetic properties and should not be used in AC-applications
BVE-A-R002	Aluchrom	2.0	14.5	<50	4	7	
BVE-A-R003	Aluchrom	3.0	24	<50	3	4	

* only available with a tolerance of 5%

Temperature dependence of the electrical resistance of MANGANIN® for BVE-M-R0005



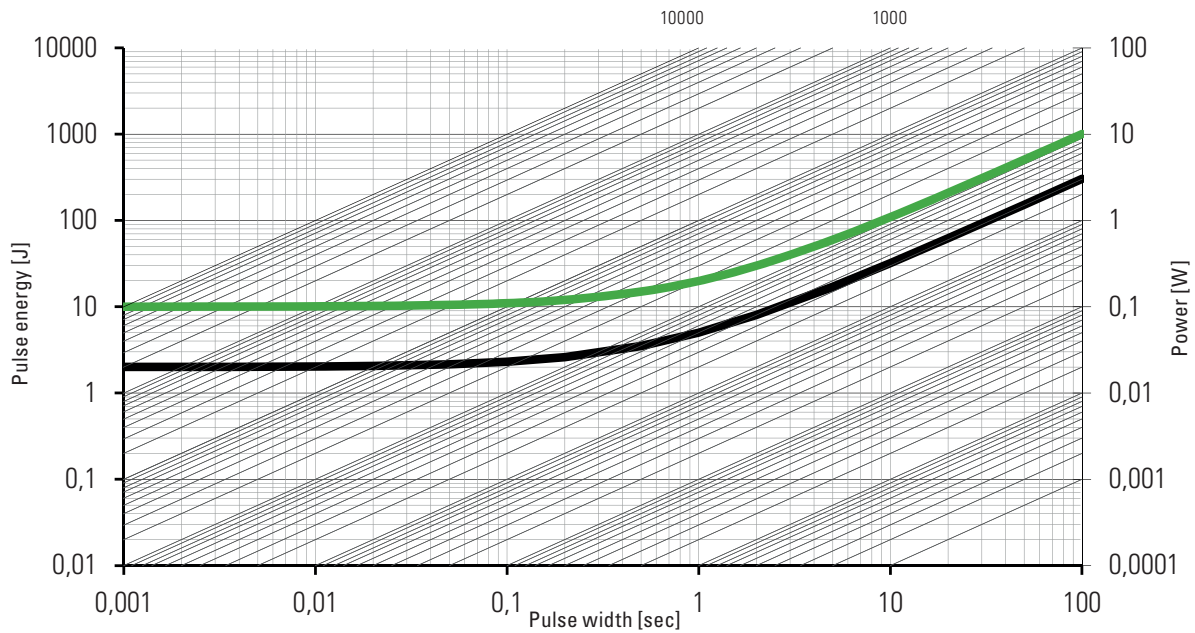
Temperature dependence of the electrical resistance of ZERANIN® for BVE-Z-R0001





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Maximum pulse energy respectively pulse power for permanent operation



— This curve is valid for the resistance value R0001 only.
 — This curve is valid for the resistance value R003 only.
 For other values the area inbetween the max. and min curve is valid.

Specification

Parameters	Test conditions	Specified values
Temperature Cycling	2000 cycles (-55 °C to +150 °C)	±0.5%
Low Temperature Storage and Operation	-65 °C for 24 h	±0.1%
Resistance to Soldering Heat	260 °C for 10 sec / 8h steam aging	n.a.
Moisture Resistance	MIL-STD-202 method 106	±0.1%
Mechanical Shock	100 g, 6 ms half sine	±0.2%
Vibration, High Frequency	10 g, 10-2000 Hz	±0.2%
Operational Life	2000 h, T _k max at rated power	±1.0%, T _k = 120 °C
High Temperature Exposure	2000 h / 170 °C	±1.0% (in covered condition)*
Bias Humidity	+85 °C, 85 r.F., 1000 h	±0.5%

* for MANGANIN® and ZERANIN®30

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