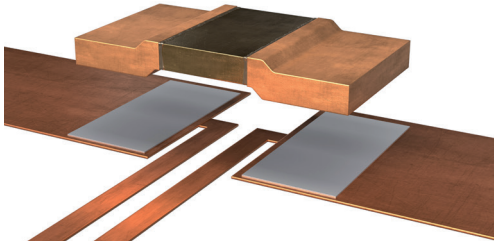
ISABELLENHÜTTE

BVE (5930)

ISA-WELD® PRECISION RESISTOR



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

APPLICATIONS

- High current applications for the automotive market
- E-fuses
- Power modules
- Frequency converters
- Onboard charger

Technical data [1]

Resistance values	**mOhm**	0.1 to 3
Tolerance	**%**	1 / 5
Temperature coefficient (20-60 °C)	**ppm/K**	from 0 ± 50
Applicable temperature range	**°C**	-65 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**	from 2
Inductance	**nH**	<3
Stability (at rated power) deviation after 2000 h	**%**	<0.5 ($T_{max.}$ = 140 °C) <1.0 ($T_{max.}$ = 170 °C)

[1] For detailed information see table on page 3

Ordering code

BVE - M - R0005 - 1.0

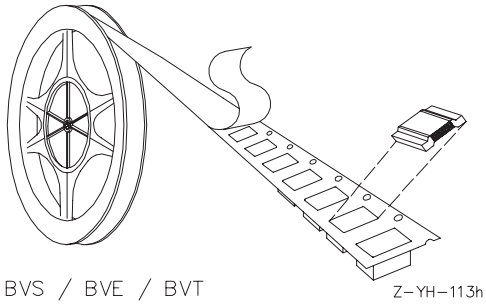
- Tolerance
- Resistance value [Ohm] / „R“ represents decimal point
- Material (MANGANIN®)
- Type

Recommended solder profile

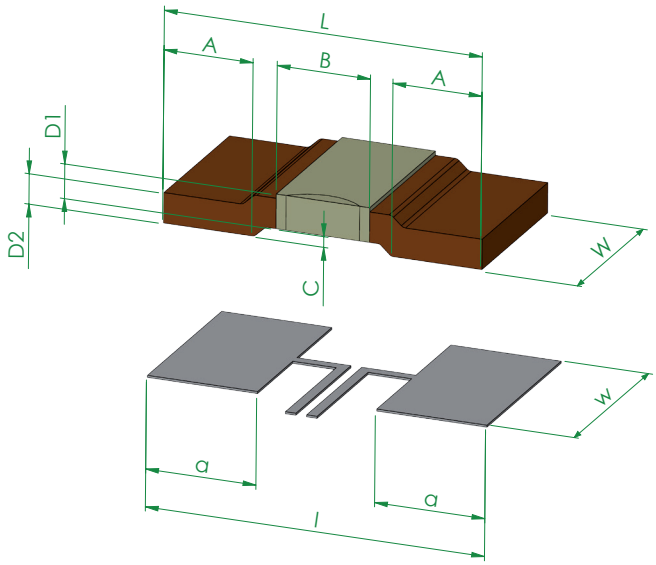
Reflow-, IR-soldering				
Temperature	**°C**	260	255	217
Time	**sec**	peak	40	90

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]



Mechanical dimensions

Type	Value [mΩ]	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 ± 0.2	1.42 +0.15/-0.1
BVE-M-R0002	0.2			4.2 +0.1/-0.7	5 +0.2/-0.3		1.42 ± 0.1	1.42 ± 0.1
BVE-M-R0003	0.3				5 +0.2/-0.3		0.94 ± 0.1	0.84 ± 0.1
BVE-M-R0005	0.5				5 +0.2/-0.3		0.56 ± 0.1	0.56 ± 0.1
BVE-A-R0005	0.5				4.4 +0.2/-0.3		1.62 ± 0.1	1.42 ± 0.1
BVE-A-R001	1				4.9 +0.2/-0.3		0.91 ± 0.1	0.84 ± 0.1
BVE-A-R002	2				4.9 +0.2/-0.3		0.44 ± 0.1	0.64 ± 0.1
BVE-A-R003	3				5 +0.2/-0.3		0.31 ± 0.1	0.4 ± 0.1

Solder pad dimensions

Type	l	w	a
BVE	16	8.75	5.2

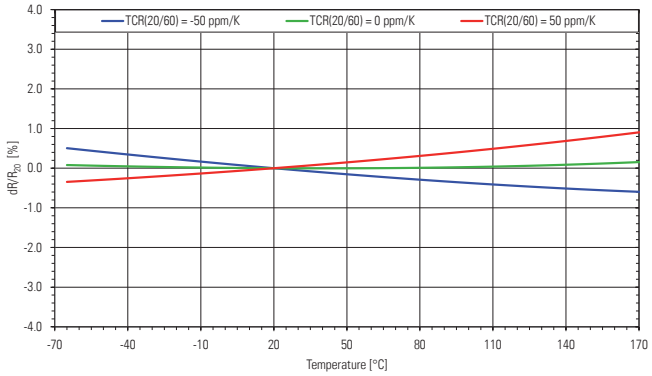
Electrical specification

Type	Material	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70\,°C}$* [W]	$P_{>100\,°C}$* [W]	Note
BVE-Z-R0001	ZERANIN®30	0.1	2	170 ± 50	15	10	
BVE-M-R0002	MANGANIN®	0.2	3	50 ± 50	15	10	
BVE-M-R0003	MANGANIN®	0.3	4.5	50 ± 50	10	7	
BVE-M-R0005	MANGANIN®	0.5	8	25 ± 50	8	5	
BVE-A-R0005	Aluchrom	0.5	5	25 ± 50	10	6	Aluchrom material has ferromagnetic properties and should not be used in AC-applications
BVE-A-R001	Aluchrom	1	8	0 ± 50	9	6	
BVE-A-R002	Aluchrom	2	14.5	0 ± 50	7	4	
BVE-A-R003	Aluchrom	3	24	0 ± 50	4	2.5	

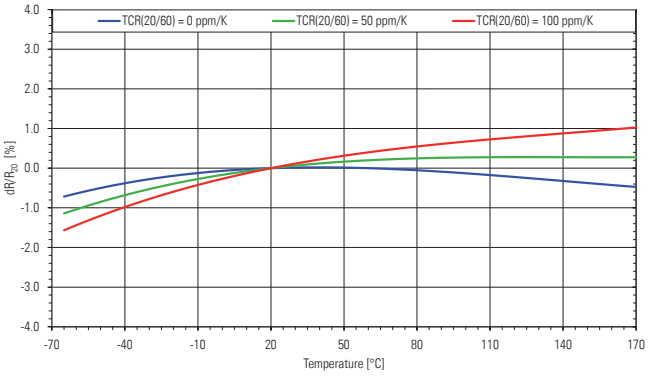
* Recommended max. power (limited by thermal conditions of the assembly)

Note: For calculation of the maximum derating terminal temperature (T_K) the following formula can be used: $T_K = T_{max.} - (R_{thi} \times P)$.
Example for BVE-M-R0005: T_K = 170 °C - (8 K/W x 5 W) = 130 °C.

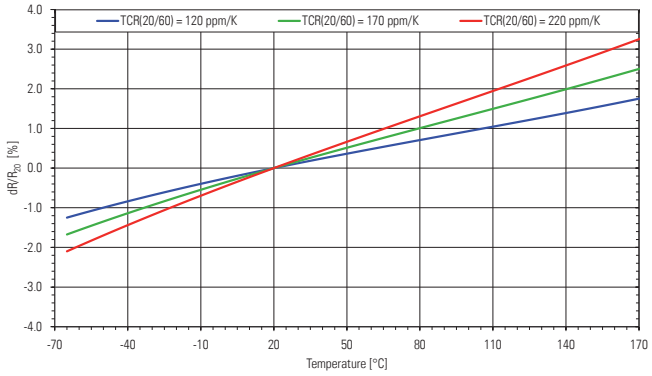
Temperature dependence of the electrical resistance of ALUCHROM resistors. Example: BVE-A-R001/R002/R003



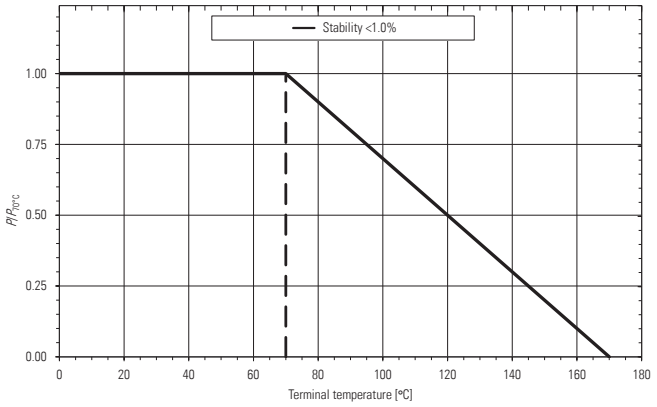
Temperature dependence of the electrical resistance of MANGANIN® resistors. Example: BVE-M-R0002/R0003



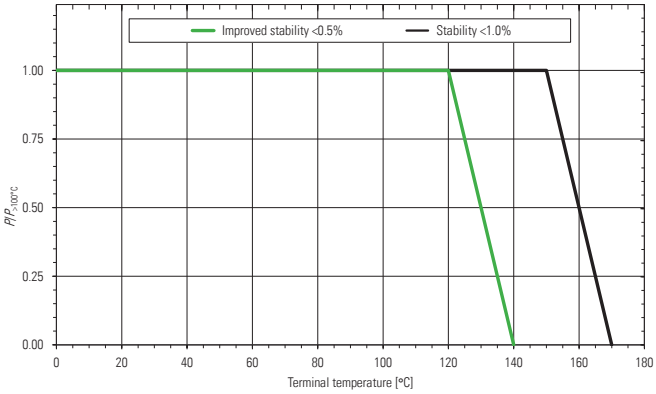
Temperature dependence of the electrical resistance of ZERANIN® resistors. Example: BVE-Z-R0001



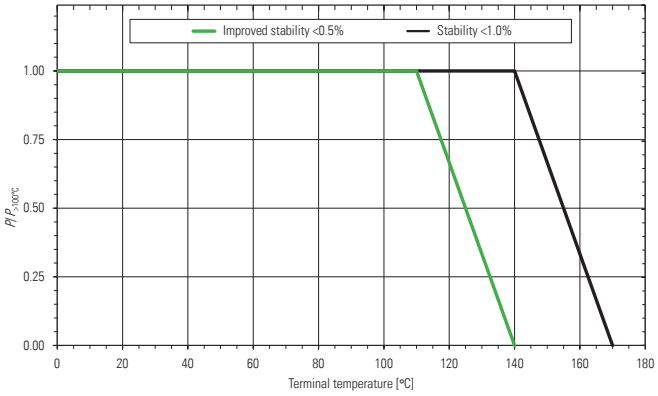
Power derating curve at 70 °C. (see table on page 3)



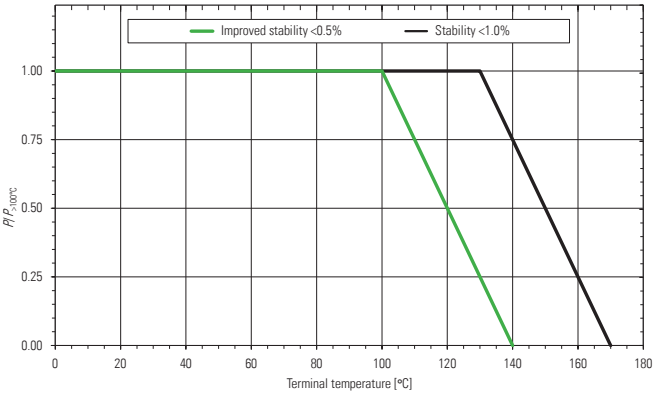
Power derating curve BVE-Z-R0001



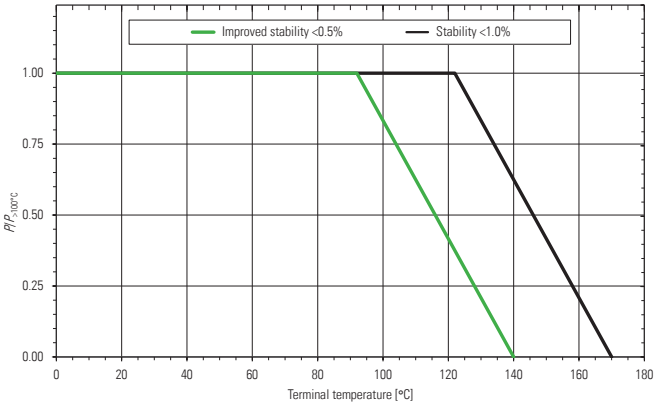
Power derating curve BVE-M-R0002/R0003, BVE-A-R0005



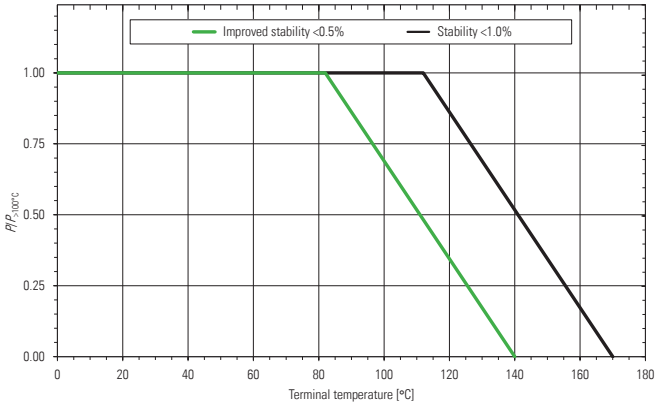
Power derating curve BVE-M-R0005



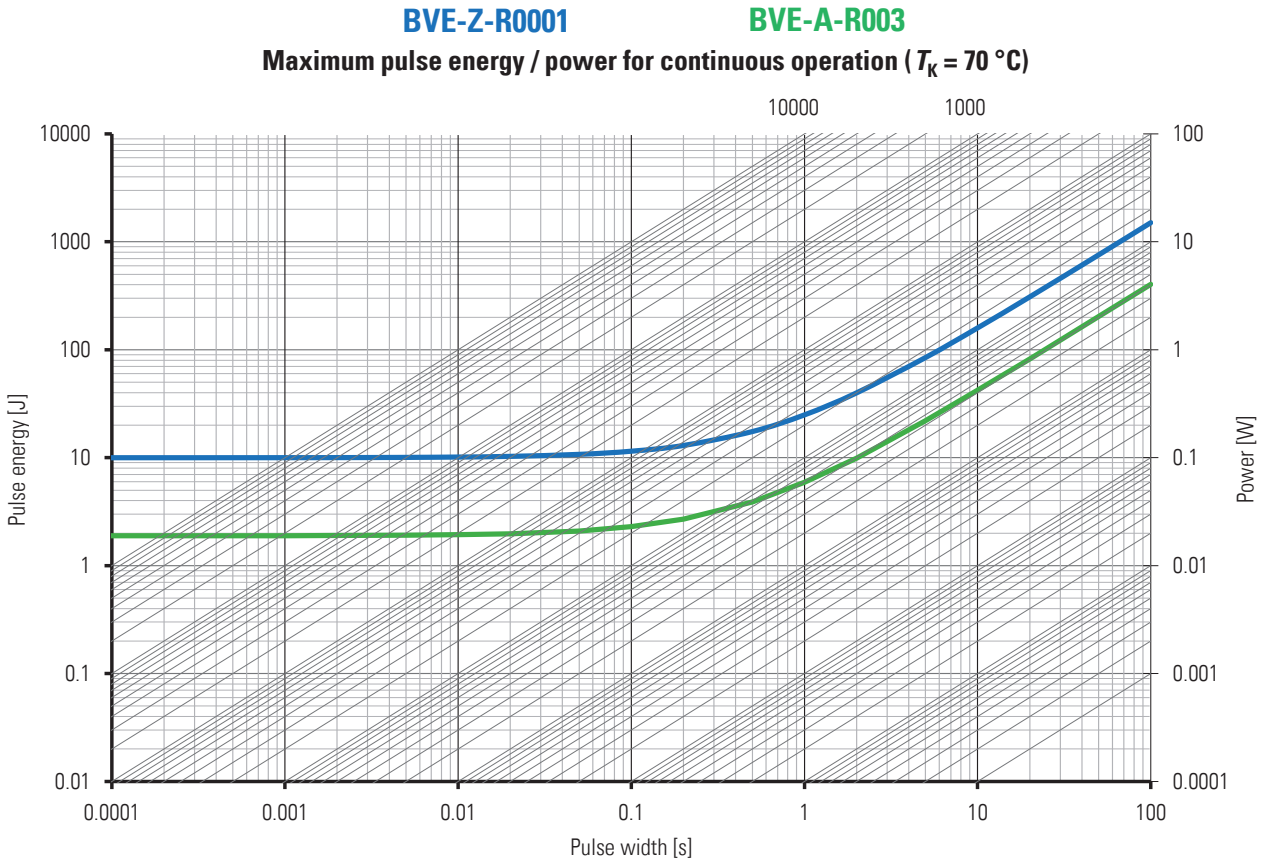
Power derating curve BVE-A-R001



Power derating curve BVE-A-R002/R003



Maximum pulse energy respectively pulse power for permanent operation



Test 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 250 h	±0.1 %
Mechanical Shock	100 g, 6 ms half sine	±0.2 %
Vibration, High Frequency	10 g, 10-2000 Hz, 24 h each axis	±0.2 %
Operational Life	2000 h, max. T_K at rated power	±1.0 %
High Temperature Exposure	2000 h / 170 °C (in covered condition)*	±1.0 %
Bias Humidity	+85 °C, 85 r.F., 1000 h	±0.5 %

* for MANGANIN® and ZERANIN®30

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