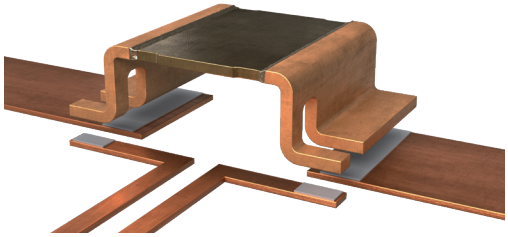
ISABELLENHÜTTE

BVR (4026)

ISA-WELD® PRECISION RESISTOR



FEATURES

- Constant current up to 245 A (0.2 mOhm)
- Power rating up to 12 W
- Four terminal-configuration
- Excellent long-term stability
- Ideal suited for mounting on DBC / IMS substrate
- Max. solder temperature up to 350 °C / 30 sec
- AEC-Q200 qualified

RoHS

APPLICATIONS

- High current applications for the automotive market
- Frequency converters
- Power modules

Technical data [1]

Resistance values	**mOhm**	0.2 to 3
Tolerance	**%**	1 / 5
Temperature coefficient (20-60 °C)	**ppm/K**	from 20
Applicable temperature range	**°C**	-65 to +170
Power rating $P_{100\,°C}$	**W**	up to 5
Power rating $P_{70\,°C}$	**W**	up to 12
Internal heat resistance (R_{thi})	**K/W**	from 4
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 2

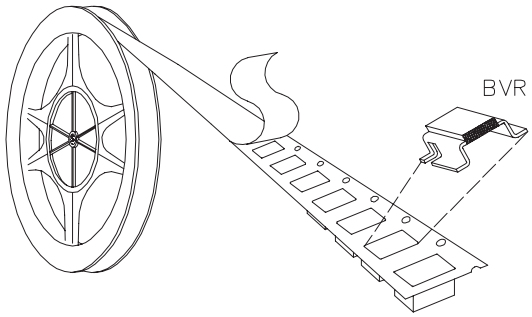
Ordering code

BVR - Z - R0005 - 1.0

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

Recommended solder profile

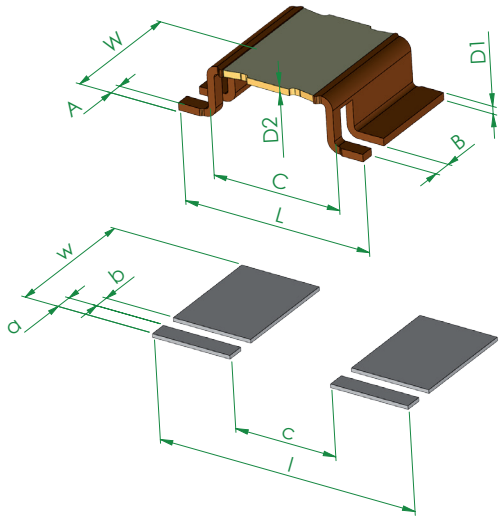
Reflow-, IR-soldering				
Temperature	**°C**	260	255	217
Time	**sec**	peak	40	90



Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	24
Reel size	**inch**	13
Parts per reel	**pcs**	1400
Packaging weight	**g**	576

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



Type:	A	B	C	D1	D2	L	W
BVR-Z-R0002	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	1.2 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-Z-R0003	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.85 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-Z-R0004	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.57 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-Z-R0005	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.42 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-Z-R00062	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.37 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-M-R0007	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.44 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-M-R001	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.35 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-I-R001	0.7 ±0.1	1.0 ±0.1	7.42 ±0.2	0.66 ±0.1	1.1 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-I-R002	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.55 ±0.1	10.1 ±0.2	6.6 +0.35/-0.2
BVR-V-R002	0.7 ±0.1	1.0 ±0.1	6.9 ±0.2	0.4 ±0.1	0.34±0.1	10.1 ±0.2	6.6 +0.35/-0.2

Solder Pad type:	a	b	c	l	w
BVR	0.9	0.8	5.5	10.6	7.3

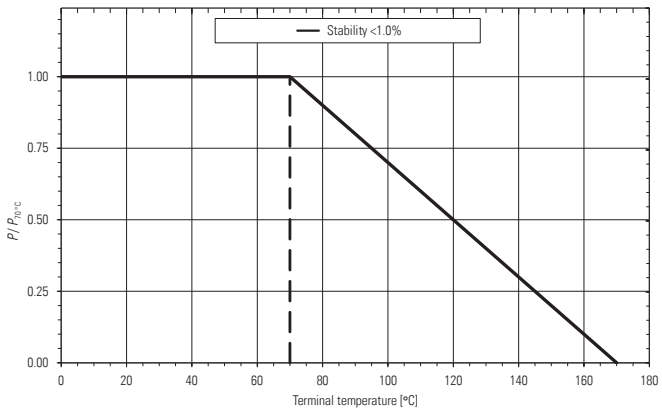
Electrical specification

Type	Material	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70\,°C}$* [W]	$P_{>100\,°C}$* [W]
BVR-Z-R0002	ZERANIN®	0.2	4	0 ± 20	12	6
BVR-Z-R0003	ZERANIN®	0.3	5	0 ± 20	11	5
BVR-Z-R0004	ZERANIN®	0.4	7	0 ± 20	10	5
BVR-Z-R0005	ZERANIN®	0.5	8	0 ± 20	9	5
BVR-Z-R00062	ZERANIN®	0.62	10	0 ± 20	8	4
BVR-M-R0007	MANGANIN®	0.7	12	0 ± 20	8	3.5
BVR-M-R001	MANGANIN®	1.0	14	0 ± 50	7	4
BVR-I-R001	ISAOHM®	1.0	9	0 ± 50	8	5
BVR-I-R002	ISAOHM®	2.0	14	0 ± 50	6	4
BVR-V-R002	NOVENTIN®	2.0	17	0 ± 50	6	4
BVR-I-R003	ISAOHM®	3.0	21	0 ± 50	5	3

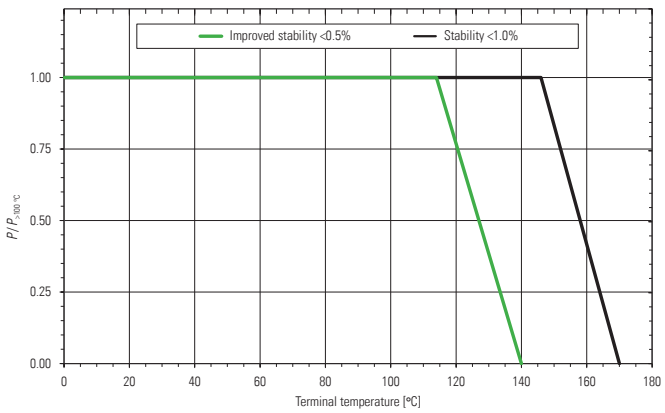
* Recommended max. power (limited by thermal conditions of the assembly)

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 BVR-Z-R0005: T_k = 170 °C - (8 K/W x 5 W) = 130 °C.

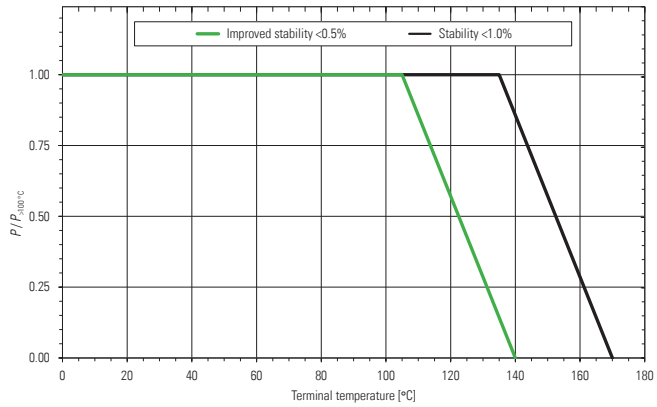
Power derating curve at 70 °C. (see table on page 2)



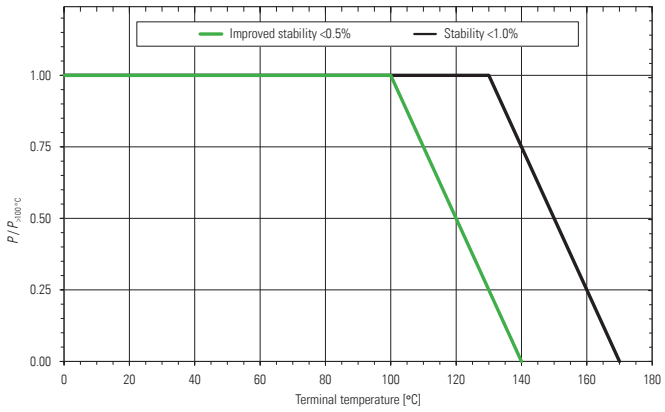
Power derating curve BVR-Z-R0002 / R0003



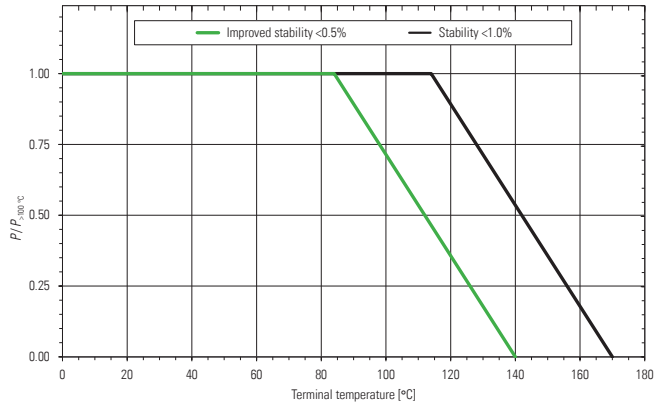
Power derating curve BVR-Z-R0004



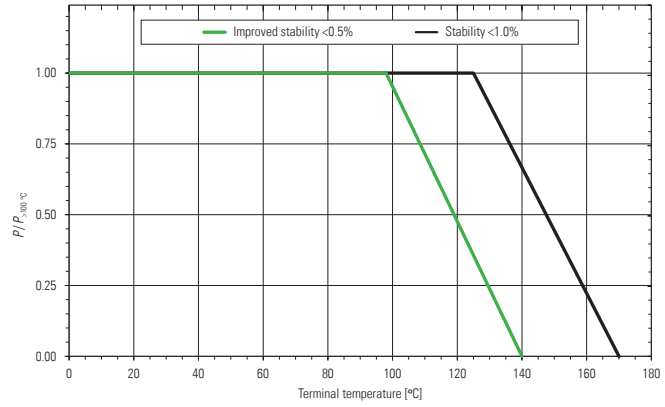
Power derating curve BVR-Z-R0005 // Z-R00062 // M-R0007



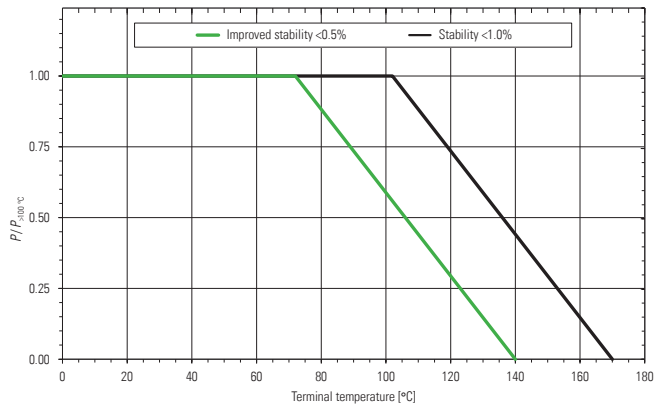
Power derating curve BVR-M-R001/BVR-I-R002/I-R003



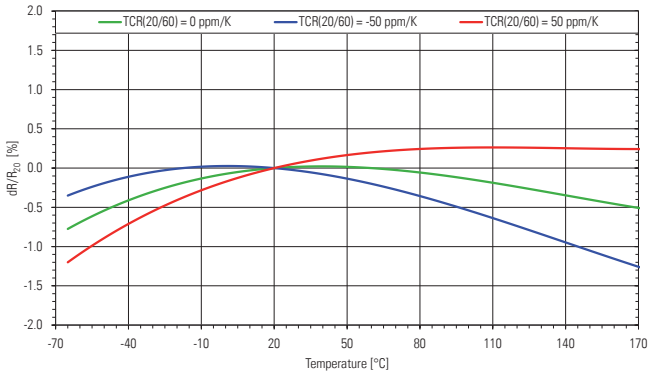
Power derating curve BVR-I-R001



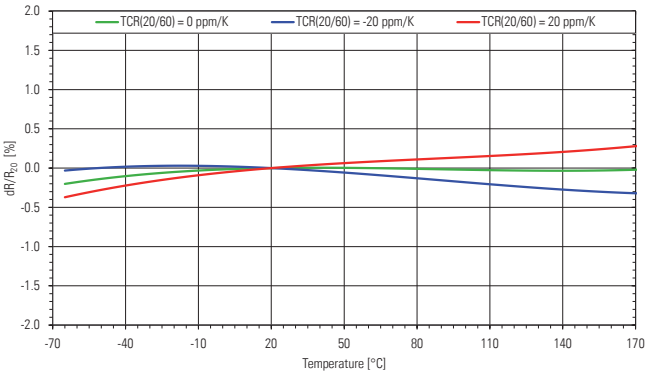
Power derating curve BVR-V-R002



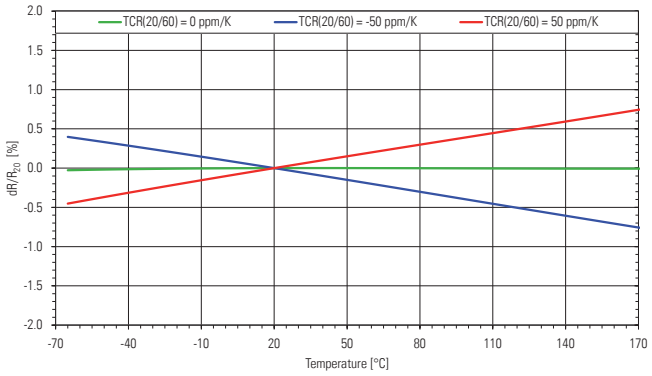
Temperature dependence of the electrical resistance of MANGANIN® resistors



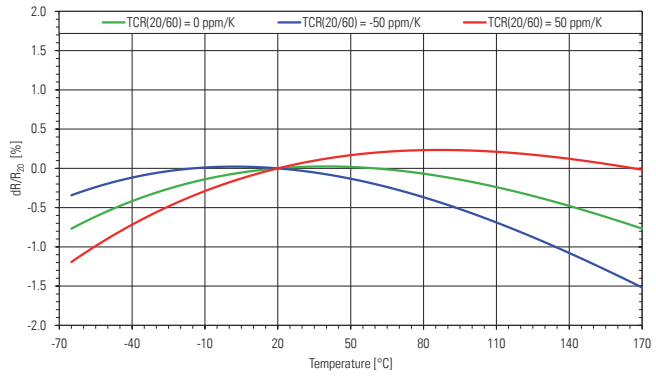
Temperature dependence of the electrical resistance of ZERANIN® resistors



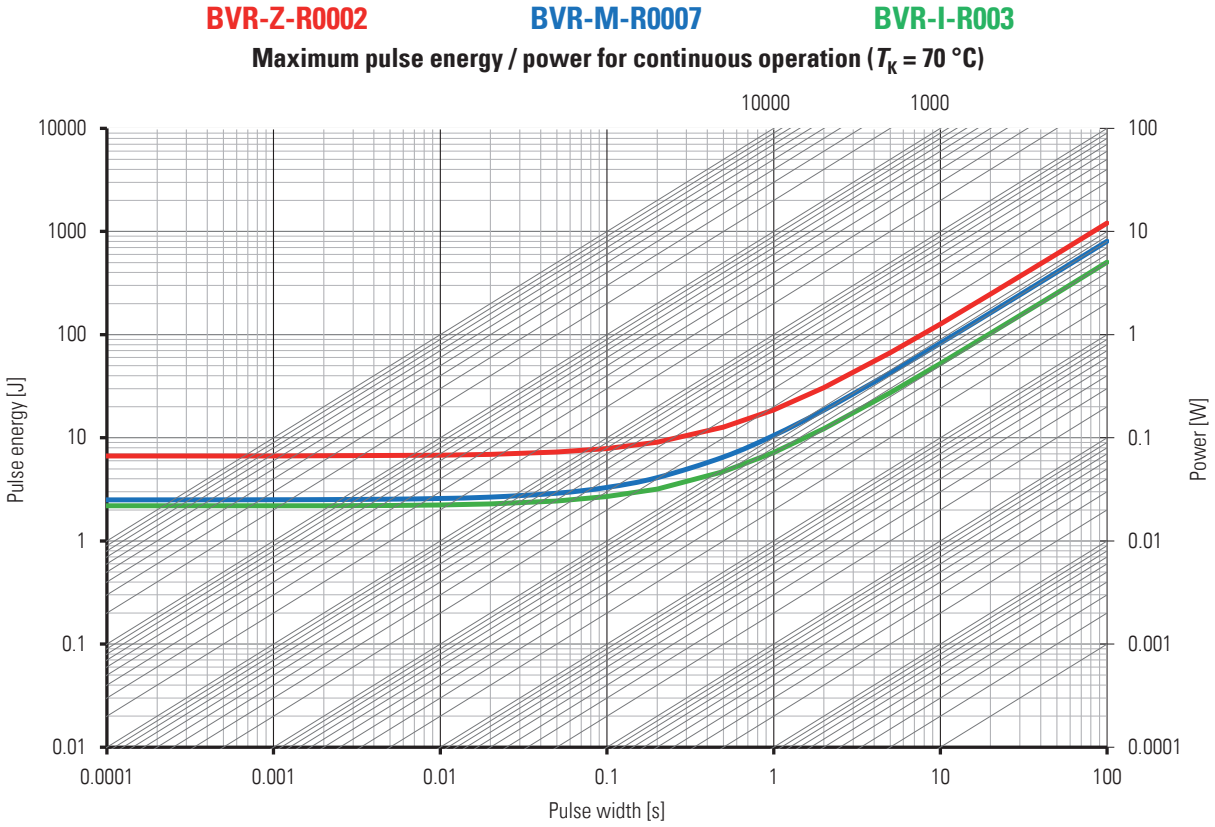
Temperature dependence of the electrical resistance of ISAOHM® resistors



Temperature dependence of the electrical resistance of NOVENTIN® resistors



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 %
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, 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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