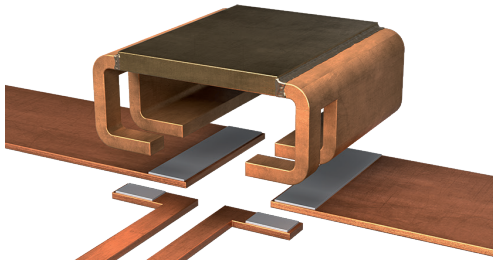
ISABELLENHÜTTE

BVB (2725)

ISA-WELD® PRECISION RESISTOR



FEATURES

- Power rating up to 12 W
- 4-terminal connection
- Excellent long-term stability
- Ideal for mounting on DCB/IMS substrate
- AEC-Q200 qualified

RoHS

APPLICATIONS

- Current sensor for power hybrid applications
- High current applications for the automotive market
- Frequency converters
- Power modules

Technical data [1]

Resistance values	**mOhm**	0.2 to 5
Tolerance	**%**	1 / 5
Temperature coefficient (20-60 °C)	**ppm/K**	from 0 ± 20
Applicable temperature range	**°C**	-65 to +170
Power rating $P_{100\,°C}$	**W**	up to 6
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 2000h	**%**	<0.5 ($T_{max.}$ = 140 °C) <1.0 ($T_{max.}$ = 170 °C)

[1] For detailed information see table on page 3

Ordering code

BVB - Z - R0005 - 1.0

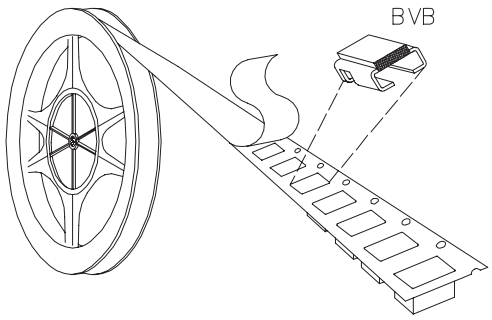
- Tolerance
- Resistance value [Ohm] / „R“ represents decimal point
- Material (ZERANIN®)
- Type

Recommended solder profile

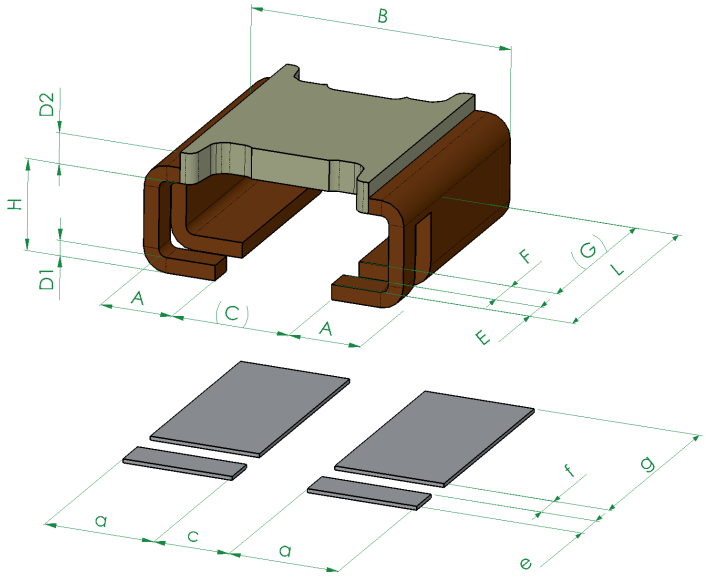
Reflow-, IR-soldering				
Temperature	**°C**	260	255	217
Time	**sec**	peak	40	90

Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	16
Reel size	**inch**	13
Parts per reel	**pcs**	1400
Packaging weight	**g**	439



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



Type	A	B	C	D1	D2	E	F	G	H	L
BVB-Z-R0002	1.9 ± 0.2	6.9 ± 0.2	3.1	0.4 ± 0.1	1.2 ± 0.1	0.7 ± 0.1	1.0 ± 0.1	4.9	2.4 ± 0.1	6.6 +0.35 / -0.2
BVB-Z-R0003					0.81 ± 0.1					
BVB-Z-R0005					0.42 ± 0.1					
BVB-M-R0007					0.44 ± 0.1					
BVB-M-R001					0.35 ± 0.1					
BVB-V-R002					0.34 ± 0.1					
BVB-I-R002					0.55 ± 0.1					
BVB-I-R003					0.36 ± 0.1					
BVB-I-R004					0.36 ± 0.1					
BVB-I-R005					0.36 ± 0.1					

Solder pad dimensions

a	c	e	f	g
2.9	2.0	0.9	0.8	5.6

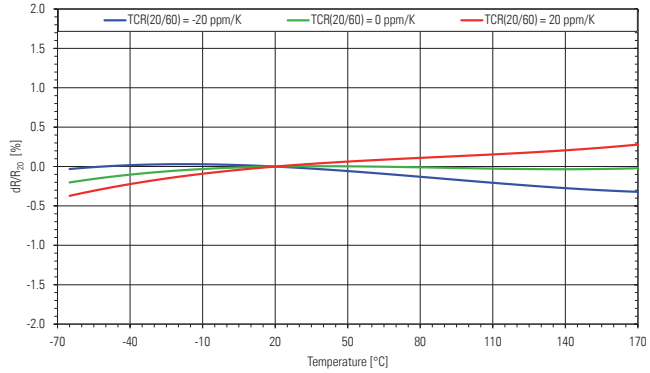
Electrical specification

Type	Material	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70\,°C}$* [W]	$P_{>100\,°C}$* [W]	Note
BVB-Z-R0002	ZERANIN®	0.2	4	0 ± 20	12	6	
BVB-Z-R0003	ZERANIN®	0.3	5	0 ± 20	11	5	
BVB-Z-R0005	ZERANIN®	0.5	8	0 ± 20	9	5	
BVB-M-R0007	MANGANIN®	0.7	12	0 ± 20	8	4	
BVB-M-R001	MANGANIN®	1.0	14	0 ± 50	7	4	
BVB-I-R002	ISAOHM®	2.0	14	0 ± 50	6	4	
BVB-V-R002	NOVENTIN®	2.0	17	0 ± 50	6	4	
BVB-I-R003	ISAOHM®	3.0	21	0 ± 50	5	3	
BVB-I-R004	ISAOHM®	4.0	28	0 ± 50	4	2	
BVB-I-R005	ISAOHM®	5.0	33	0 ± 50	3	2	

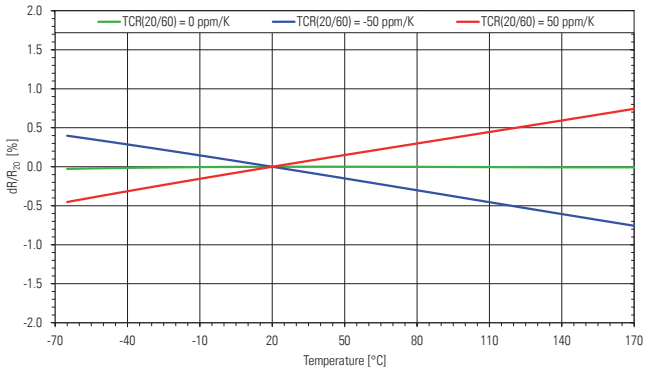
* Recommended max. power (limited by thermal conditions of the assembly)

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

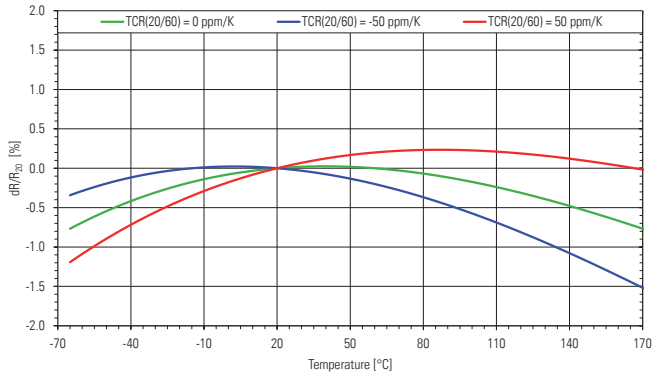
Temperature dependence of the electrical resistance of ZERANIN® resistors



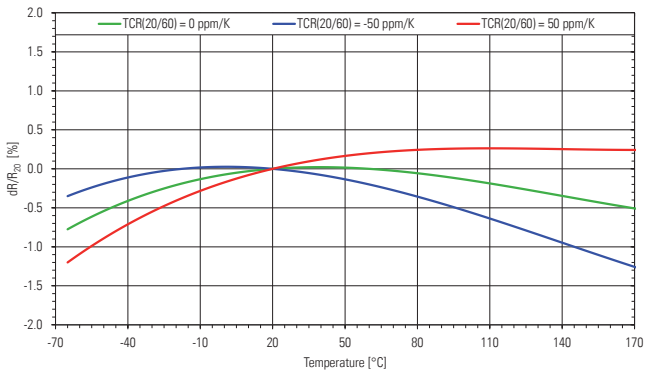
Temperature dependence of the electrical resistance of ISAOHM® resistors



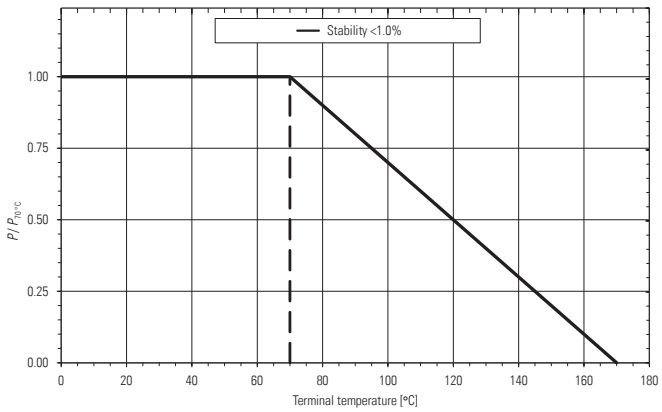
Temperature dependence of the electrical resistance of NOVENTIN® resistors



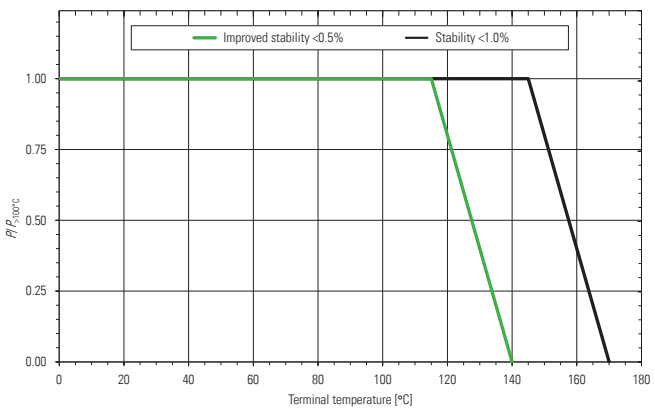
Temperature dependence of the electrical resistance of MANGANIN® resistors. Example: BVB-M-R001



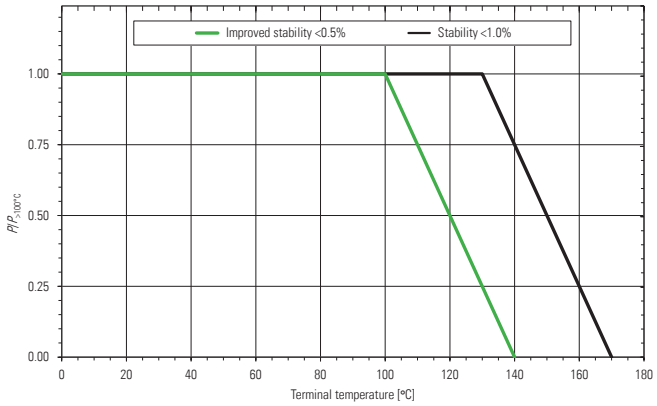
Power derating curve at 70 °C. (see table on page 3)



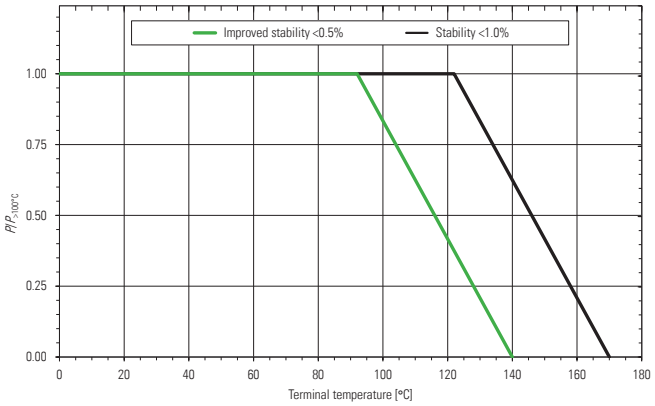
Power derating curve BVB-Z-R0002 / Z-R0003



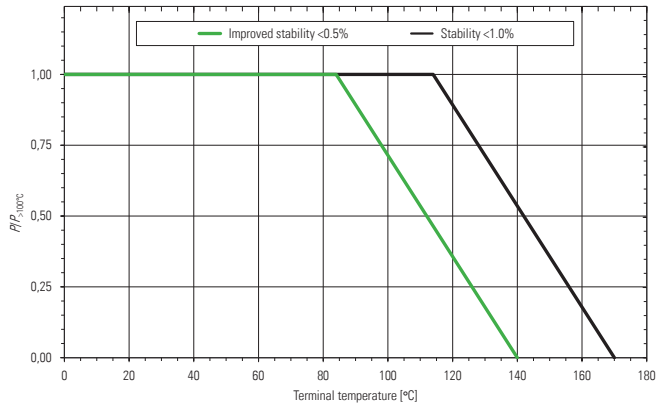
Power derating curve BVB-Z-R0005



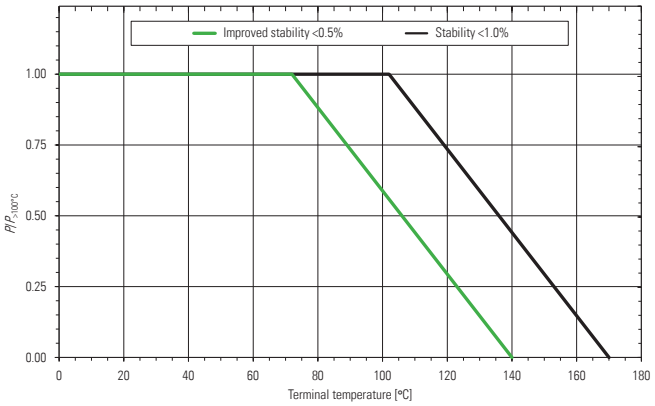
Power derating curve BVB-M-R0007



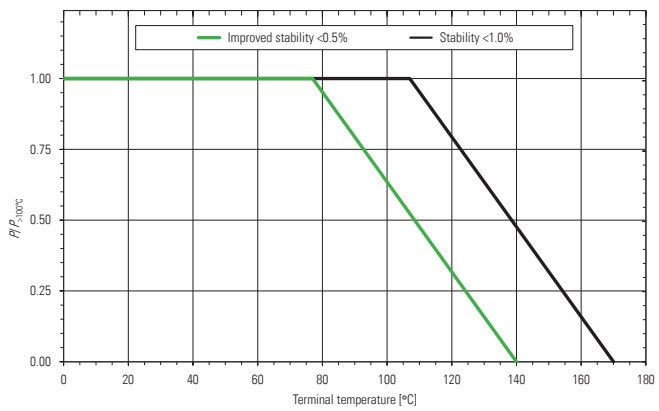
Power derating curve BVB-M-R001 / BVB-I-R002 / I-R004



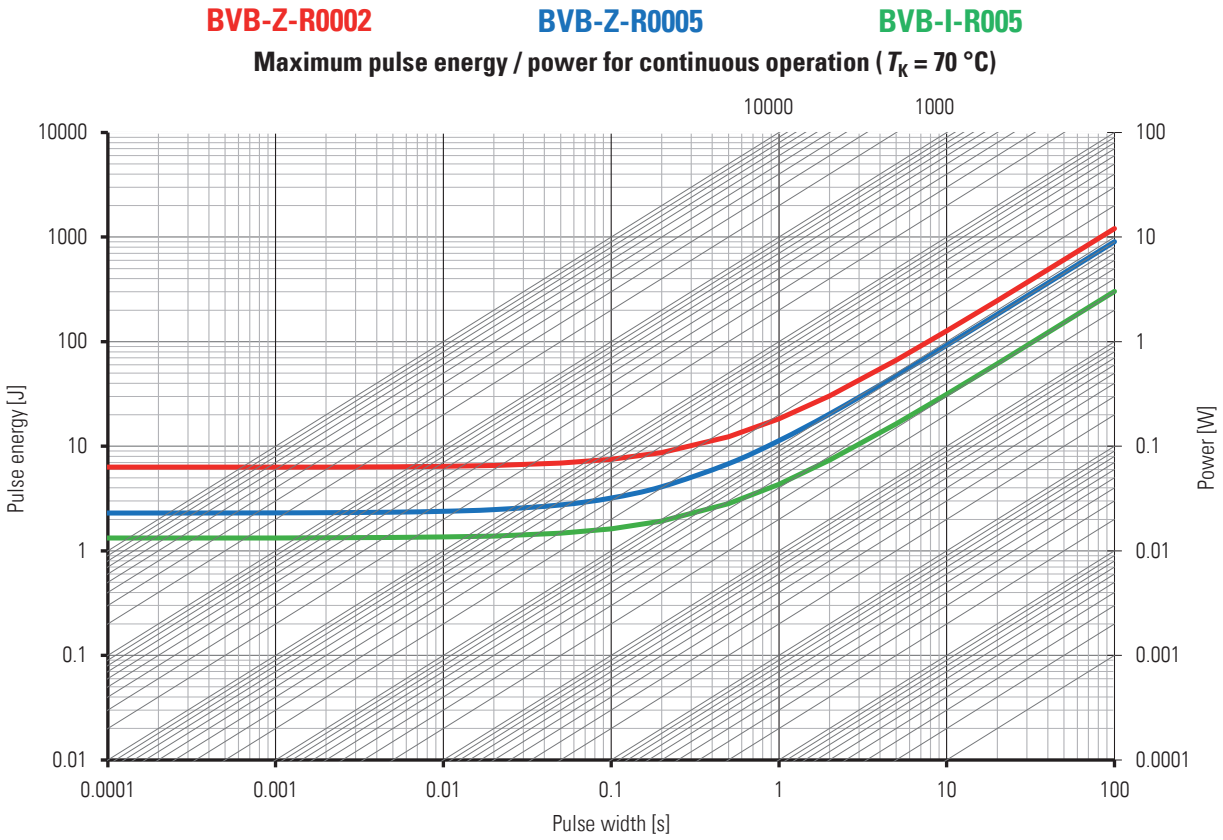
Power derating curve BVB-V-R002



Power derating curve BVB-I-R003 / I-R005



Maximum pulse energy respectively pulse power for permanent operation



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, T_K max at nominal load	±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

ISABELLENHÜTTE