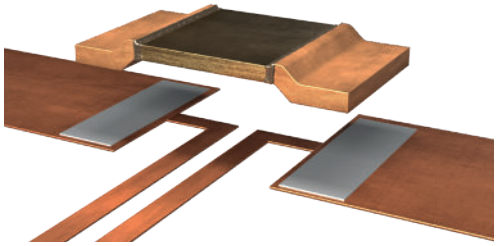
ISABELLENHÜTTE
Innovation by Tradition

ISA-WELD® // PRECISION RESISTORS

BVS
Size 3920



Features

- Power rating up to 12 W [1]
- Continuous current load up to 245 A (0.2 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

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 50
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 3
Inductance	**nH**	<3
Stability (at rated power) deviation after 2000h, T_K = Terminal temperature		<0.5 % (T_K=100 °C) <1.0 % (T_K=130 °C)

[1] For detailed information see table on page 3

Ordering code

BVS - M - R0005 - 1.0

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

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Recommended solder profile

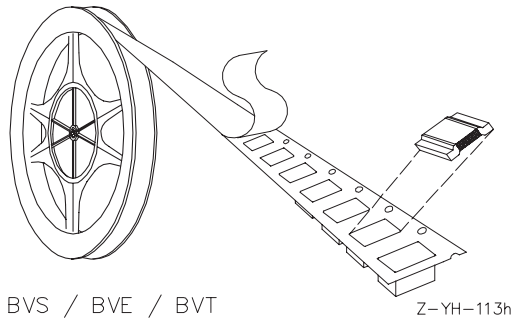
Reflow-, IR-soldering				
Temperature	**°C**	260	255	217
Time	**sec**	peak	40	90

Alternative solder profile

H2 soldering under vacuum		
Temperature	**°C**	350
Time	**min**	20

Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	16
Reel size	**inch**	13
Parts per reel	**pcs**	3000
Packaging weight	**g**	474

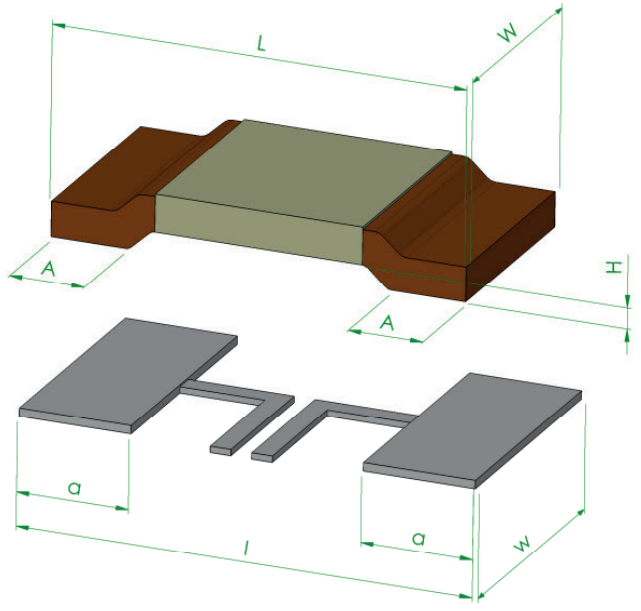


Specification

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 %
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, 24 h each axis	±0.2 %
Operational Life	2000 h, T_K max at rated power	±1.0 %, T_K = 130 °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

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

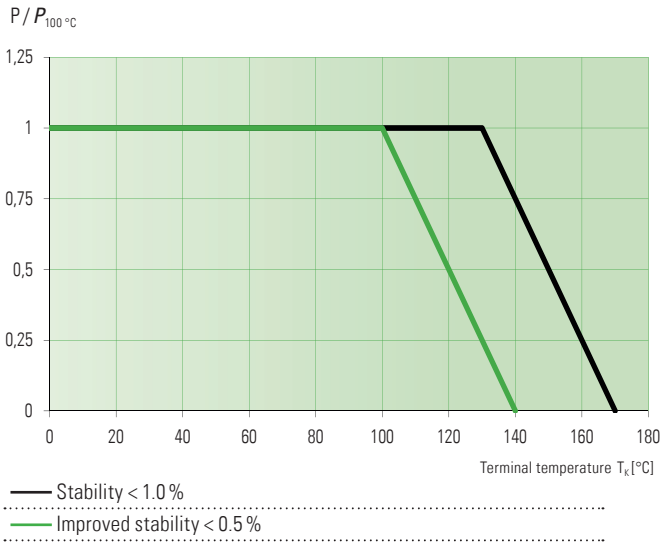


Type	**L**	**W**	**H**	**A**
BVS	10.0 +0.3	5.2 +0.3/-0.2	0.5 ±0.1	2.0 -0.5

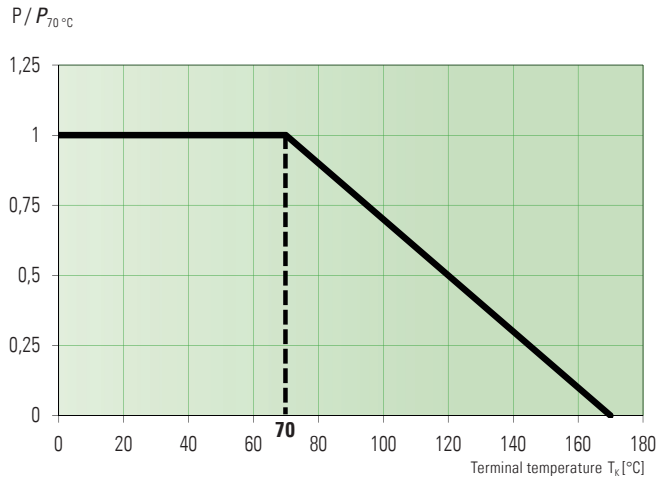
Solder pad type	**l**	**w**	**a**
BVS	11.0	6.2	2.7

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Power derating curve at 100 °C
Example: BVS-M-R0005



Power derating curve at 70 °C
Example: BVS-M-R001



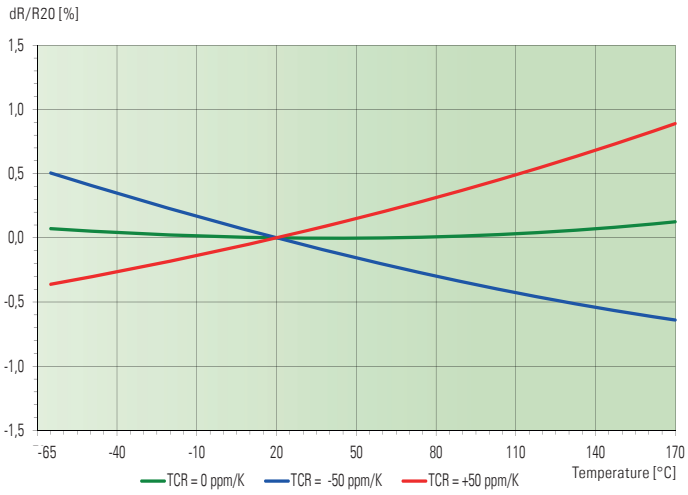
Type	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70\,°C}$ [W]	$P_{T_K > 100°C}$ $T_K = 170°C - (R_{thi} \times P)$	Note
BVS-Z-R0002	0.2	3	200	12	5	
BVS-M-R0003	0.3	4.5	150	10	5	
BVS-M-R0005	0.5	8	70	9	5	
BVS-M-R0007	0.7	11	60	8	5	
BVS-M-R001	1	15	<50	7	4	
BVS-A-R001	1	9	<50	8	5	Aluchrom material has ferromagnetic properties and should not be used in AC-applications
BVS-A-R0015	1.5	12	<50	7	4.5	
BVS-A-R002	2	16	<50	6	4	
BVS-A-R0028	2.8	21	<50	5	3	
BVS-A-R003	3	22	<50	5	3	
BVS-A-R004	4	30	<50	4	2.5	
BVS-I-R001	1	9	<50	8	5	Samples available, qualification in process
BVS-I-R002	2	16	<50	6	4	
BVS-I-R003	3	22	<50	5	3	
BVS-I-R004	4	30	<50	4	2.5	
BVS-I-R005	5	38	<50	3	2	
BVS-V-R002	2	20	<50	5	3.5	
BVS-K-R000	<0.2 mOhm			I_{max} = 160 A		

Abbrevation type:
A=Aluchrom
I=ISAOHM®
K=SF-copper tinned
M=MANGANIN®
V=NOVENTIN®
Z=ZERANIN®30

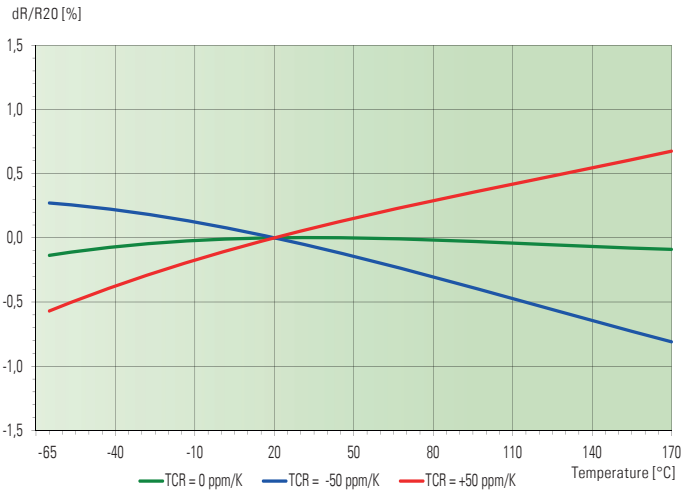
T_K: terminal temperature (Kontaktstellentemperatur)

BVS // 3920

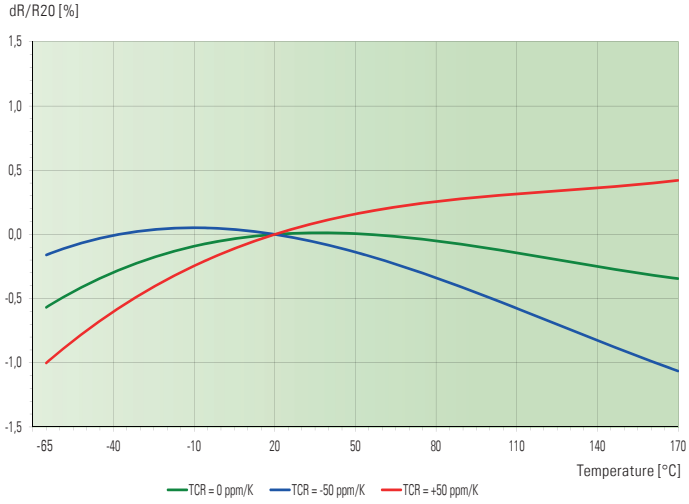
Temperature dependence of the electrical resistance of Aluchrom resistors



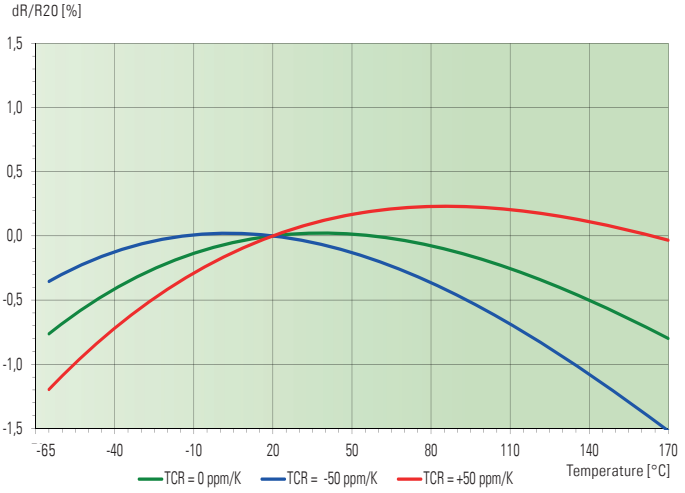
Temperature dependence of the electrical resistance of ISAOHM® resistors



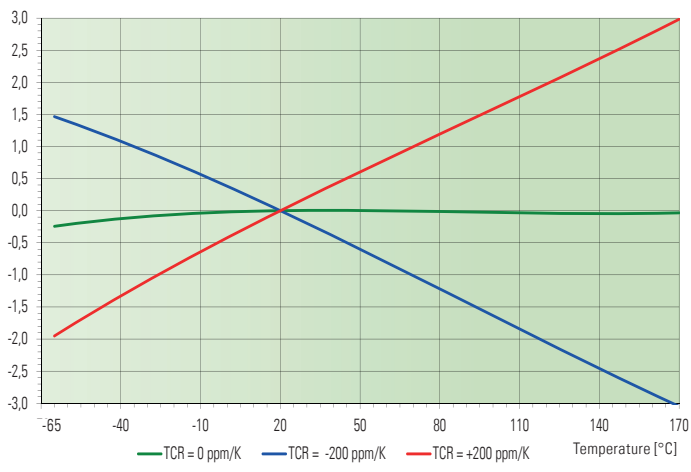
Temperature dependence of the electrical resistance of MANGANIN® resistors



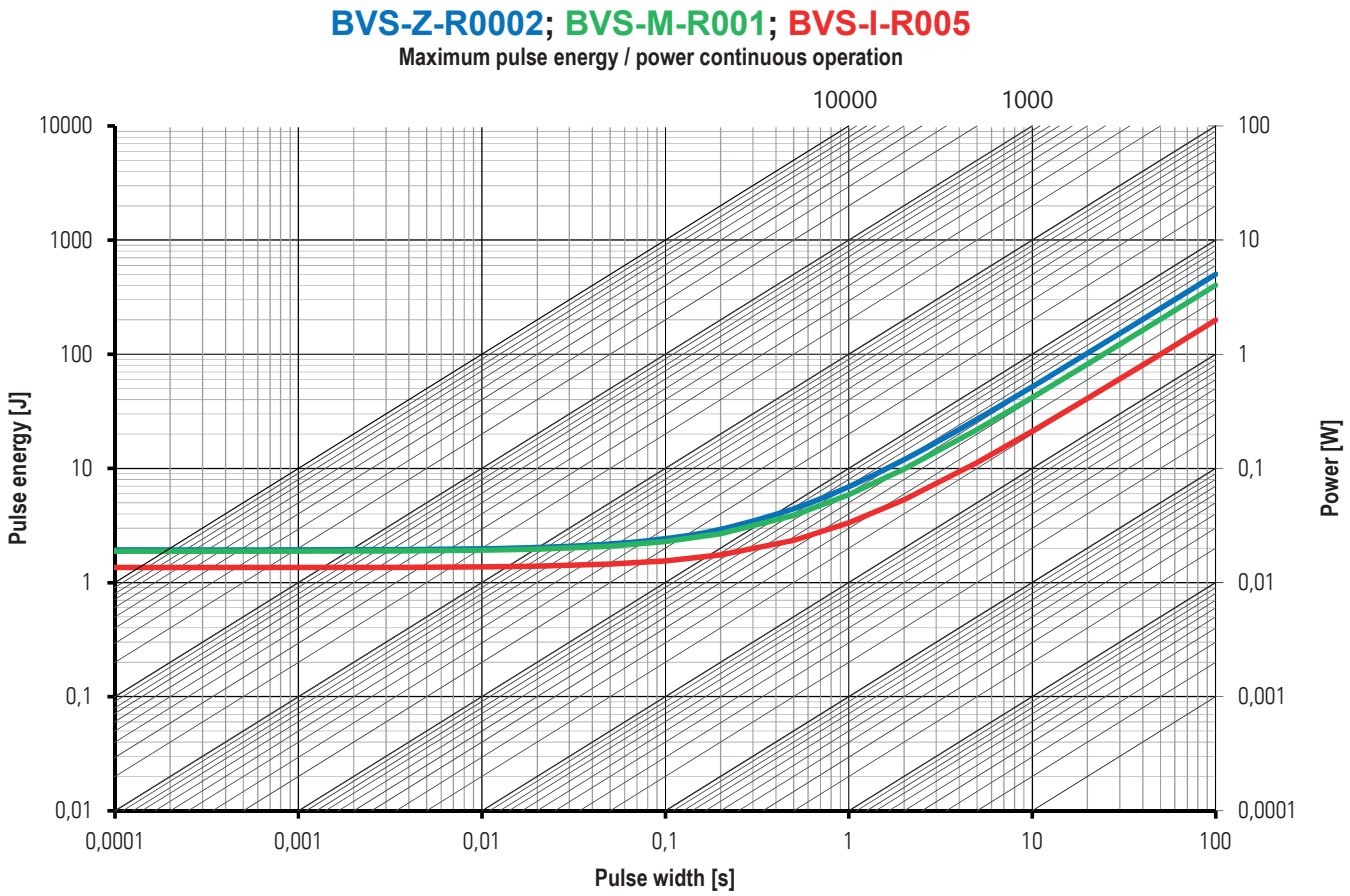
Temperature dependence of the electrical resistance of NOVENTIN® resistors



Temperature dependence of the electrical resistance of ZERANIN® resistors



Maximum pulse energy respectively pulse power for permanent operation



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