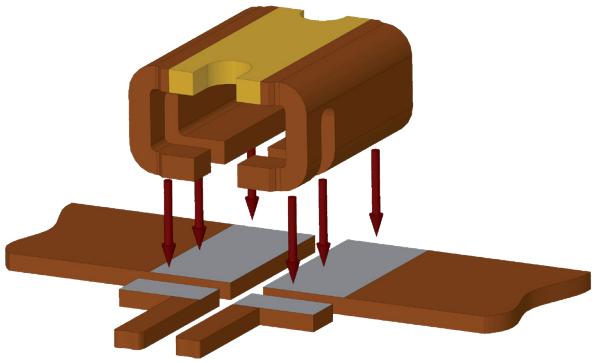
ISABELLENHÜTTE
Innovation by Tradition

ISA-WELD® // PRECISION RESISTORS

BVN (1216)



Features

- Constant current up to 100 A (0.5 mOhm)
- 5 W power rating up to 130 °C
- Four terminal-configuration
- Excellent long-term stability
- Ideal suited for mounting on DBC / IMS substrate
- High application temperature range -65 to +170 °C
- Max. solder temperature up to 350 °C / 30 sec
- RoHS 2011/65/EU compliant
- 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**	0.3 / 0.4 / 0.5 / 1 / 2 / 3
Tolerance	**%**	1 / 5
Temperature coefficient (20-60 °C)	**ppm/K**	<50
Applicable temperature range	**°C**	-65 to +170
Power rating $P_{70\,°C}$	**W**	up to 10
Internal heat resistance (R_{thi})	**K/W**	from 5
Inductance	**nH**	<2
Stability (at rated power) deviation after 2000h, T_K = Terminal temperature		<0.5% (T_K=100 °C) <1.0% (T_K=130 °C)

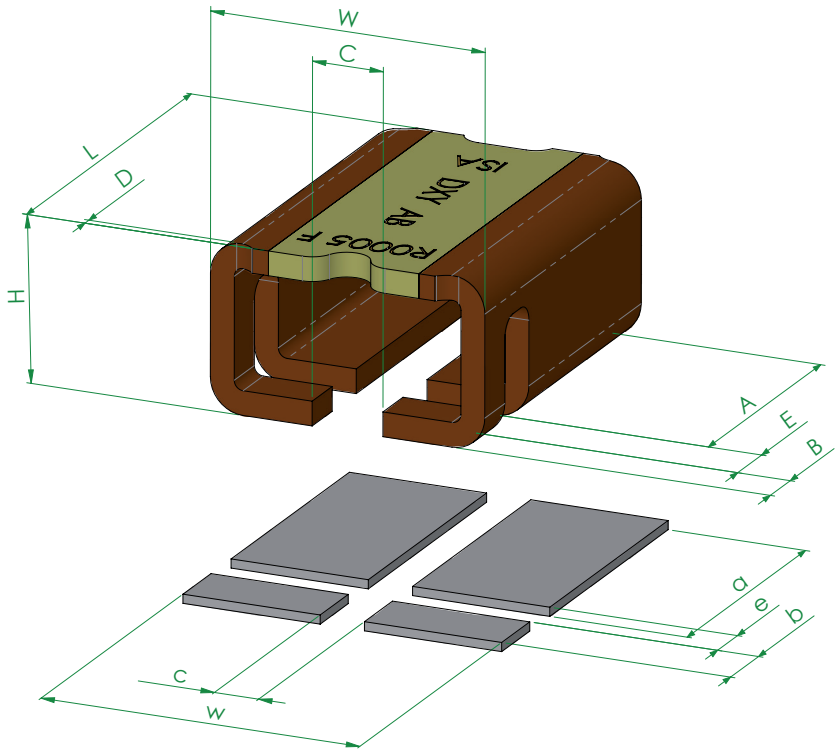
[1] For detailed information see table on page 2

Ordering code

BVN - Z - R0005 - 1.0

- Tolerance
- Resistance value [Ohm] / „R“ represents decimal point
- Material (ZERANIN®30)
- Type

Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Z-YE-846e



type:	value / mOhm	L	W	H	A	B	C	D	E
BVN-Z-R0003	0.3	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	(0.8)	0.1	0.6 ±0.15
BVN-Z-R0004	0.4	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	(0.8)	0.1	0.6 ±0.15
BVN-Z-R0005	0.5	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	0.8 +0.3	0.1	0.6 +0.15
BVN-M-R001	1	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	0.8 +0.3	0.1	0.6 +0.15
BVN-V-R002	2	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	(0.8)	0.1	0.6 ±0.15
BVN-V-R003	3	4.1 -0.3	3.1 -0.35	1.9 -0.35	2.7 ±0.1	0.5 ±0.1	(0.8)	0.1	0.6 ±0.15

solder pad type:	w	a	b	c	e
BVN	3.6	2.95	0.7	0.6	0.5

Type	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70\,°C}$	$P_{T_K > 100°C}$ $T_K = 170°C - (R_{thi} \times P)$	Notes
BVN-Z-R0003	0.3	≈ 5	<100	10 W	5 W	new value, qualification in process
BVN-Z-R0004	0.4	≈ 6.5	<75	10 W	5 W	new value, qualification in process
BVN-Z-R0005	0.5	8	<50	9 W	5 W	available standard resistance value
BVN-M-R001	1.0	13	<50	7 W	3 W	available standard resistance value
BVN-V-R002	2.0	17	<50	5 W	2 W	samples available, qualification in process
BVN-V-R003	3.0	35	<50	4 W	2 W	samples available

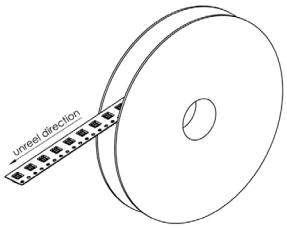
Abbrevation type M=MANGANIN®, V=NOVENTIN®, Z=ZERANIN®30
T_K: terminal temperature (Kontaktstellentemperatur)

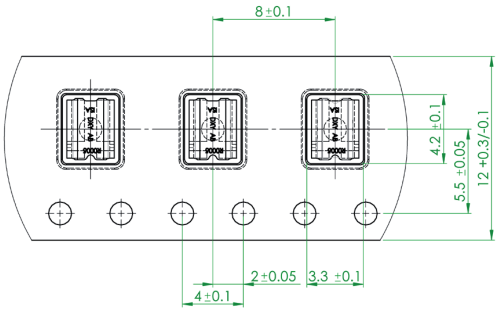
Recommended solder profile

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

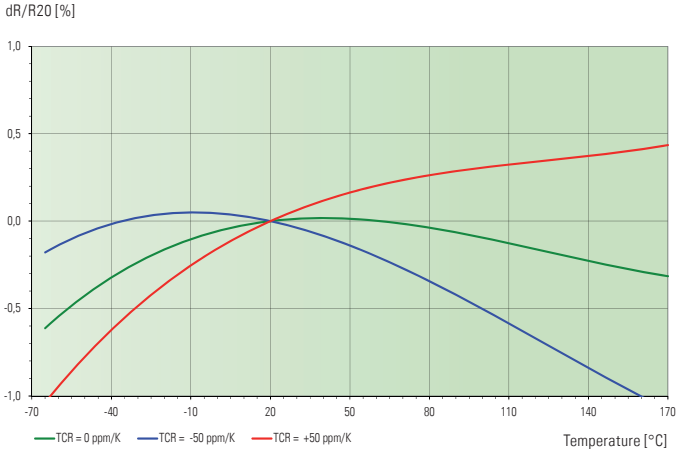
Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	12
Parts per reel	**pcs**	3000

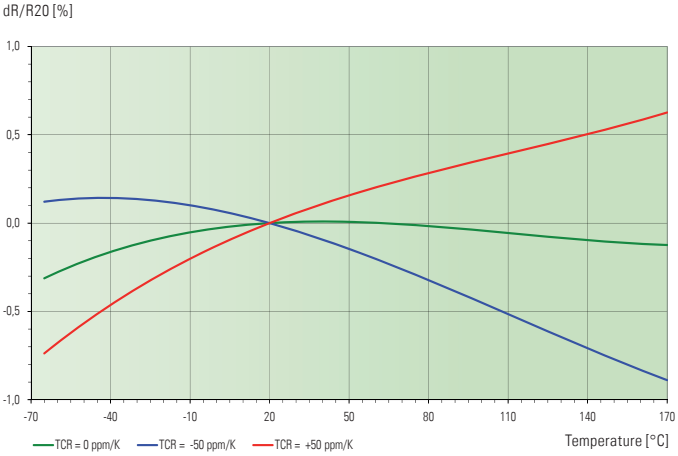




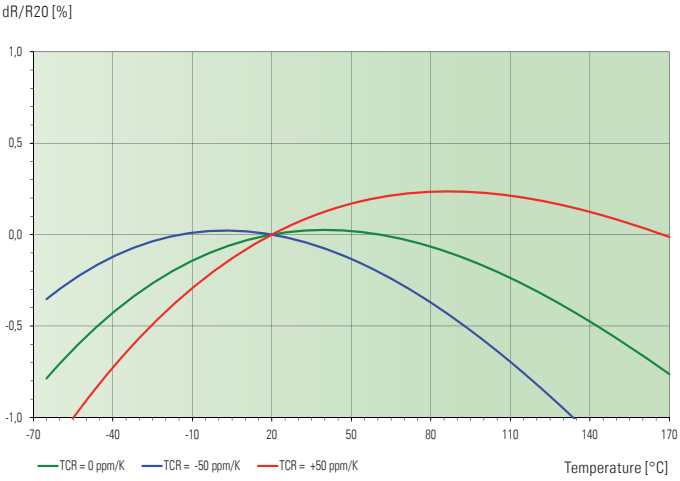
Temperature dependence of the electrical resistance of MANGANIN® resistors



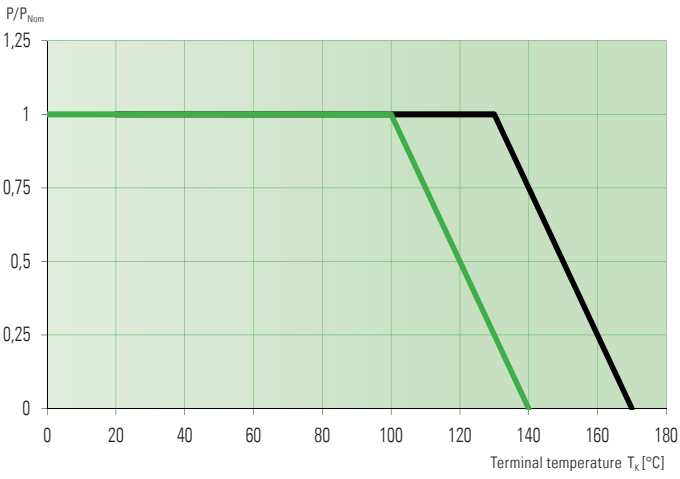
Temperature dependence of the electrical resistance of ZERANIN® resistors



Temperature dependence of the electrical resistance of NOVENTIN® resistors



Power derating curve



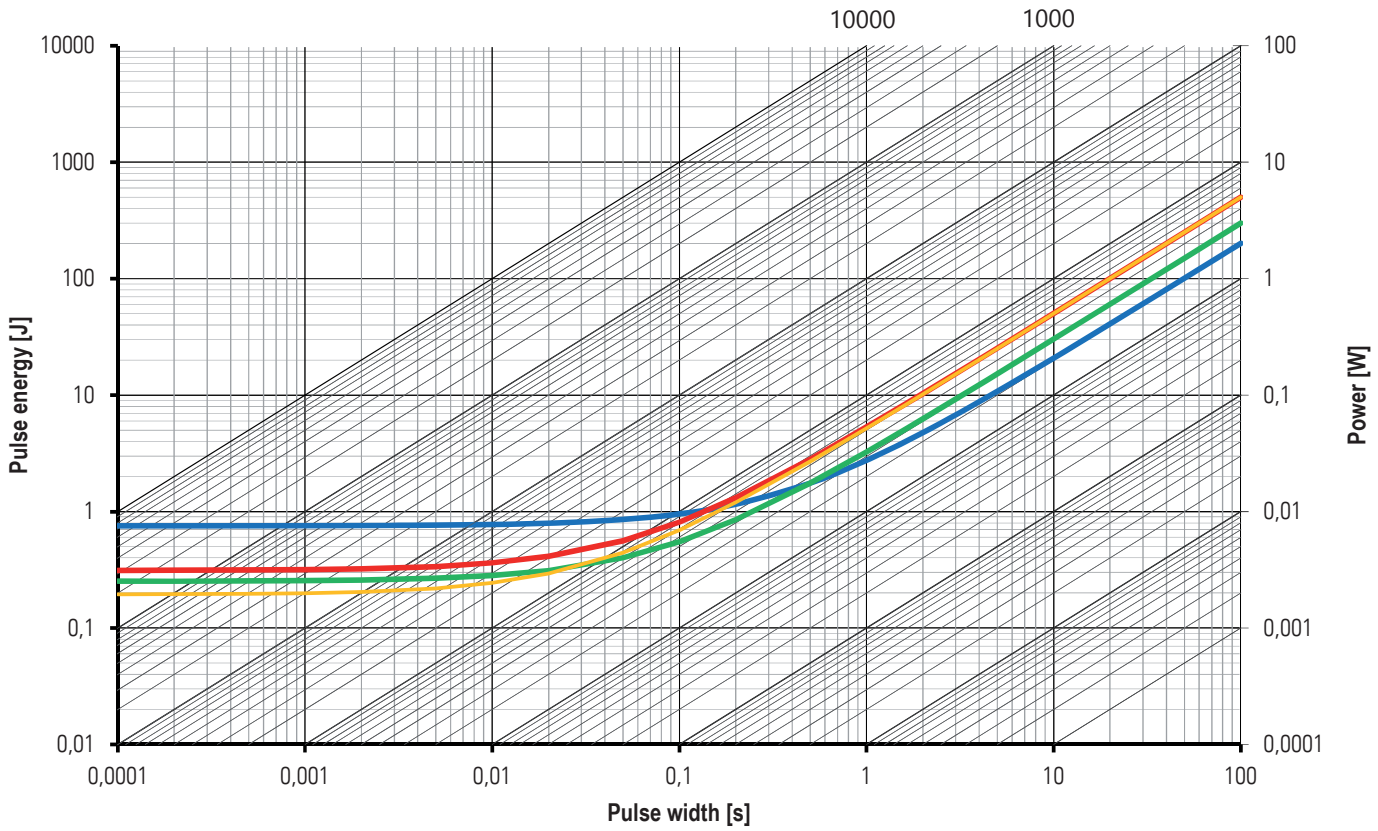
Stability <1.0 %

Improved stability <0.5 %

Maximum pulse energy respectively pulse power for permanent operation

BVN-V-R003, BVN-M-R001, BVN-Z-R0005, BVN-Z-R0003

Maximum pulse energy / power continuous 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 %
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