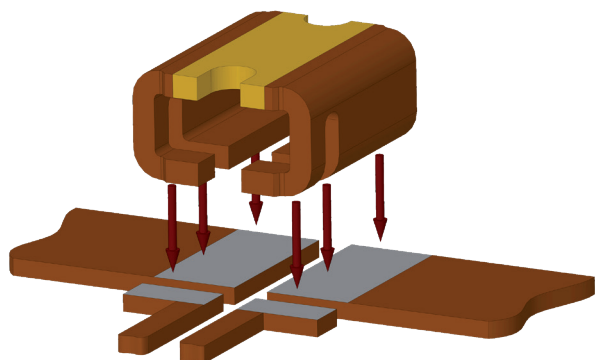




ISA-WELD® // PRECISION RESISTORS



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



Applications

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

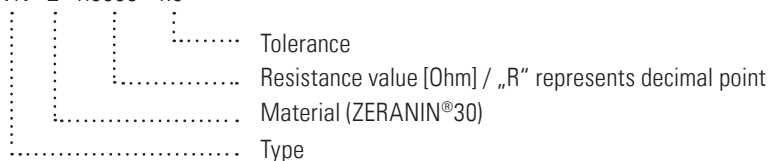
Technical data ¹

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)

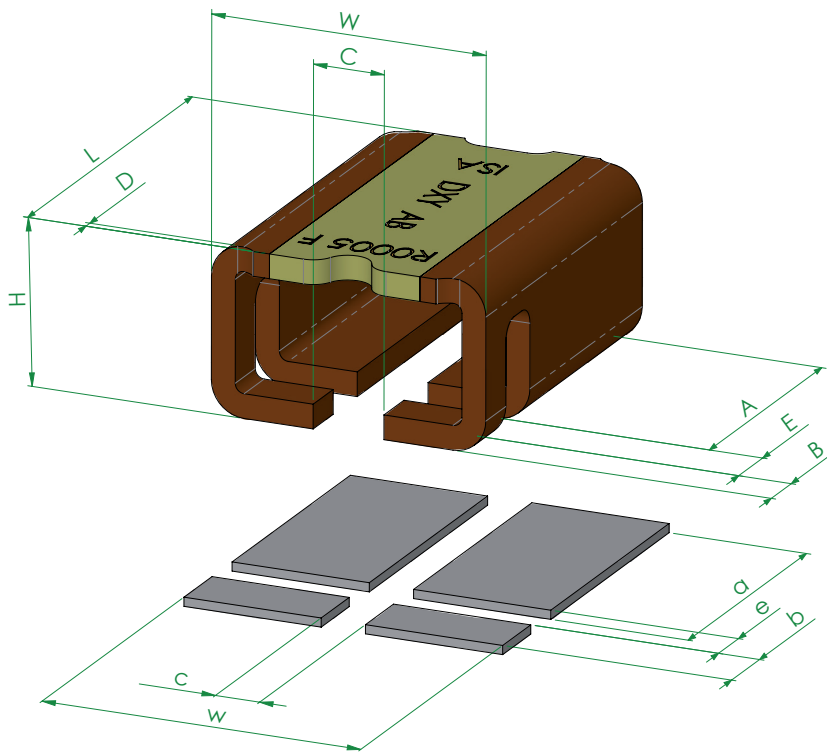
¹ For detailed information see table on page 2

Ordering code

BVN - Z - R0005 - 1.0



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

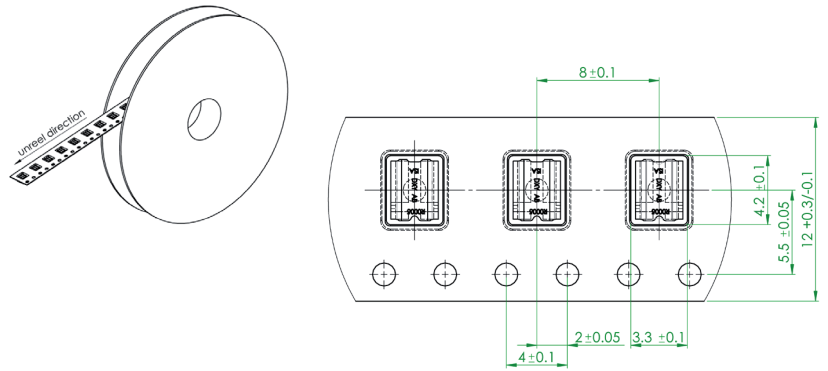
solder pad type:	w	a	b	c	e
BVN	3.6	2.95	0.7	0.6	0.5

Type	Value [mΩ]	R _{thi} [K/W]	TCR [ppm/K]	P _{70 °C}	P _{T_K > 100 °C} T _K = 170 °C - (R _{thi} x P)	Notes
BVN-Z-R0003	0.3	≈ 5	<75	10 W	5 W	new value, qualification in process
BVN-Z-R0004	0.4	≈ 6.5	<50	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

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

Recommended solder profile

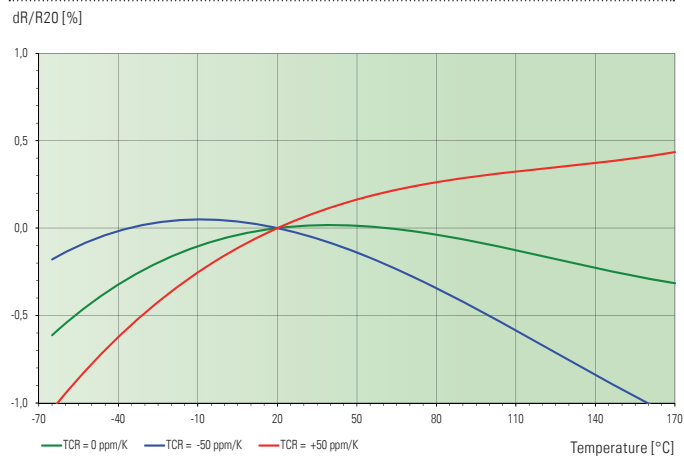
Reflow- and IR-soldering				
Temperature	°C	260	255	217
Time	sec	peak	40	90



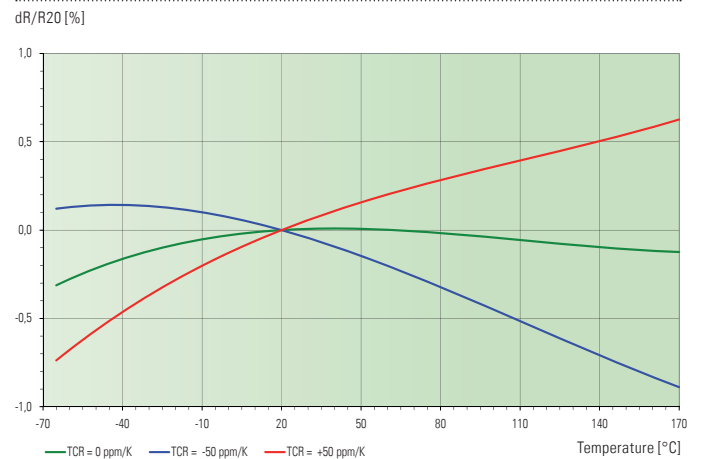
Tape and reel information

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

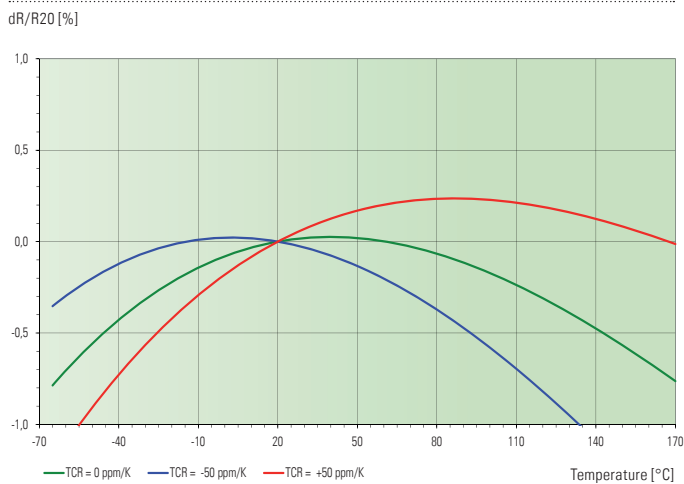
Temperature dependence of the electrical resistance of MANGANIN® resistors



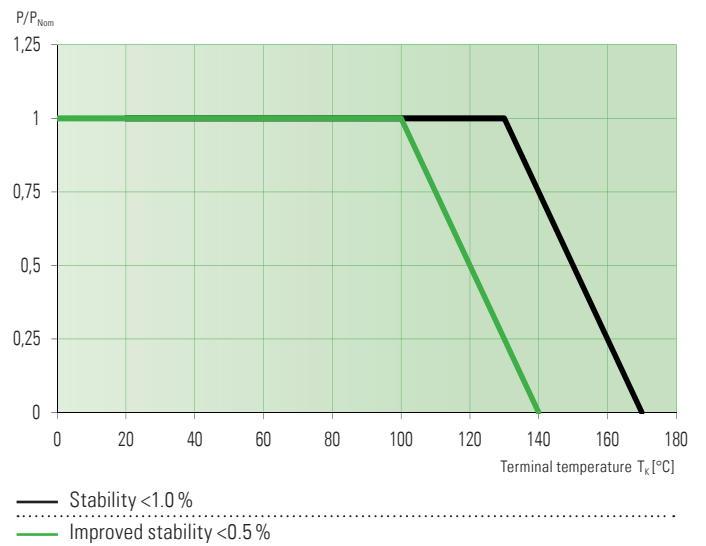
Temperature dependence of the electrical resistance of ZERANIN® resistors



Temperature dependence of the electrical resistance of NOVENTIN® resistors



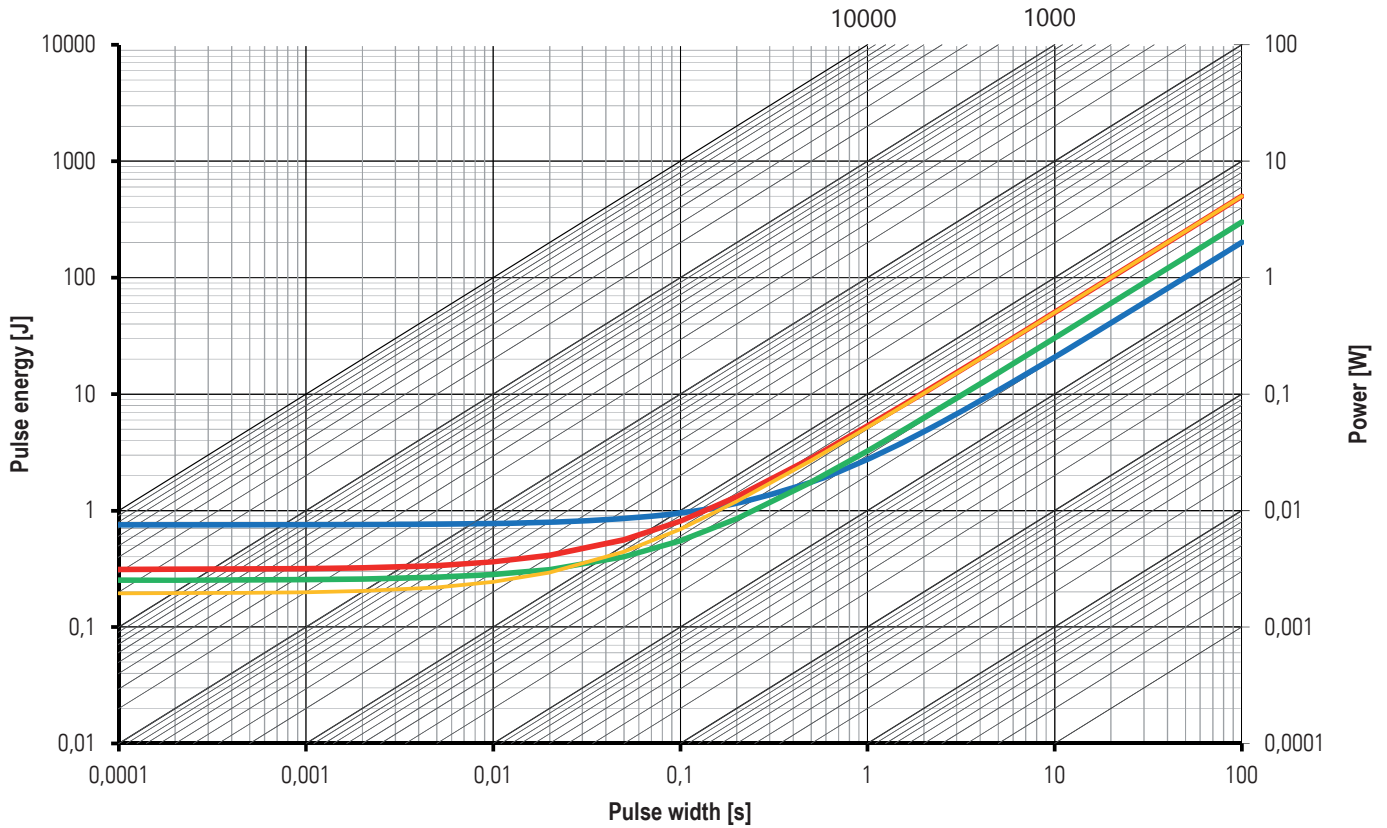
Power derating curve



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 %, $T_K = 130^\circ\text{C}$
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

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