



## ISA-WELD® // PRECISION RESISTORS



### BVR // Size 4026



#### Features

- Power rating up to 12 W <sup>1</sup>
- Heavy copper connectors
- Excellent long-term stability
- Max. solder temperature up to 350 °C / 30 sec
- AEC-Q200 qualified
- RoHS 2011/65/EU compliant



#### Applications

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

#### Technical data <sup>1</sup>

Resistance values	<b>mOhm</b>	0.2 to 3
Tolerance	<b>%</b>	1 / 5
Temperature coefficient (20-60 °C)	<b>ppm/K</b>	from 20
Applicable temperature range	<b>°C</b>	-65 to +170
Power rating <b>P<sub>100°C</sub></b>	<b>W</b>	up to 5
Power rating <b>P<sub>70°C</sub></b>	<b>W</b>	up to 12
Internal heat resistance (R <sub>thi</sub> )	<b>K/W</b>	from 4
Inductance	<b>nH</b>	<3
Stability (nominal load) deviation after 2000h, T <sub>K</sub> = Terminal temperature		<0.5 % (T <sub>K</sub> =100 °C) <1.0 % (T <sub>K</sub> =130 °C)

<sup>1</sup> For detailed information see table on page 3

#### Ordering code

BVR - Z - R0005 - 1.0

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



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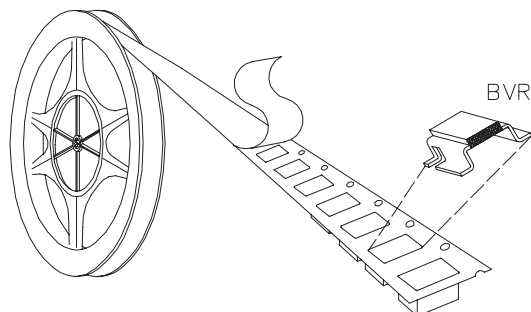
**Recommended solder profile**

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	


**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 <sub>K</sub> max at rated power	±1.0 %, T <sub>K</sub> = 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

Type	Value [mΩ]	R <sub>thi</sub> [K/W]	TCR [ppm/K]	P <sub>70 °C</sub>	P <sub>T<sub>K</sub> &gt; 100 °C</sub> T <sub>K</sub> = 170 °C - (R <sub>thi</sub> x P)
BVR-Z-R0002	0.2	4	<20	12 W	5 W
BVR-Z-R0003	0.3	5	<20	11 W	5 W
BVR-Z-R0004	0.4	7	<20	10 W	5 W
BVR-Z-R0005	0.5	8	<20	9 W	5 W
BVR-Z-R00062	0.62	10	<20	8 W	4 W
BVR-M-R0007	0.7	12	<20	8 W	4 W
BVR-M-R001	1.0	14	<50	7 W	4 W
BVR-I-R001	1.0	9	<50	8 W	5 W
BVR-I-R002	2.0	14	<50	6 W	4 W
BVR-V-R002	2.0	17	<50	6 W	4 W
BVR-I-R003	3.0	21	<50	5 W	3 W

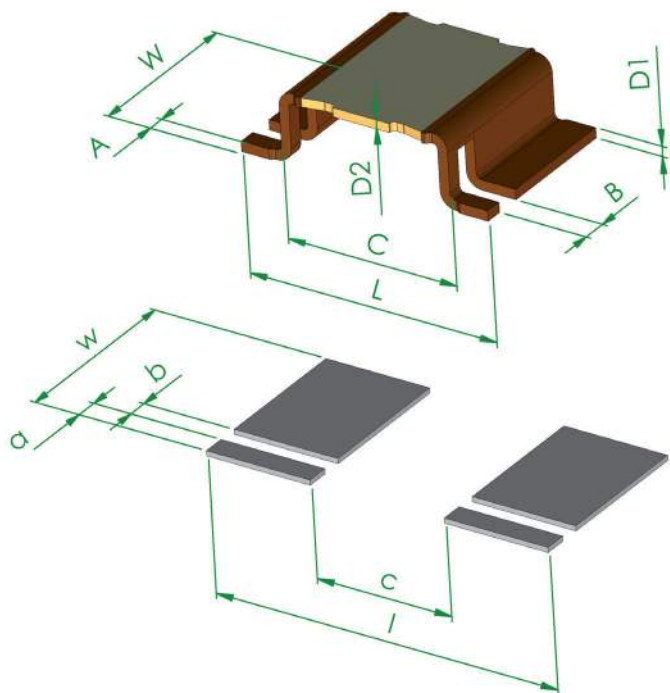
Abbreviation type I=ISA0HM®, M=MANGANIN®, V=NOVENTIN®, Z=ZERANIN®30

 T<sub>K</sub>: terminal temperature (Kontaktstellentemperatur)



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Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Z-YF-148e



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	0.55 ±0.1	0.55 ±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	0.355 ±0.1	0.355 ±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

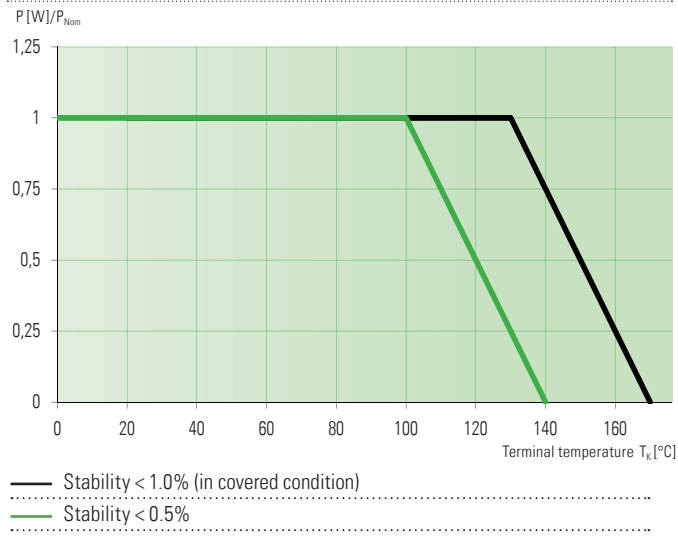
Solder Pad type:	a	b	c	l	w
BVR	0.9	0.8	5.5	10.6	7.3



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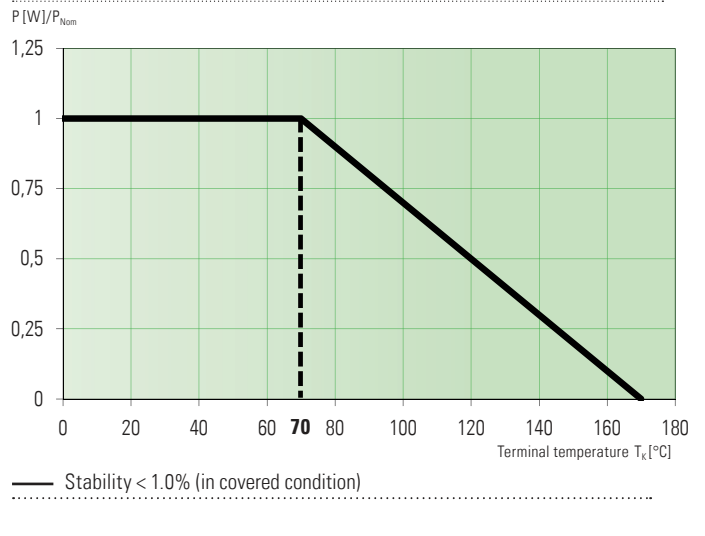
**Power derating curve at 100 °C**

Example: BVR-Z-R0005

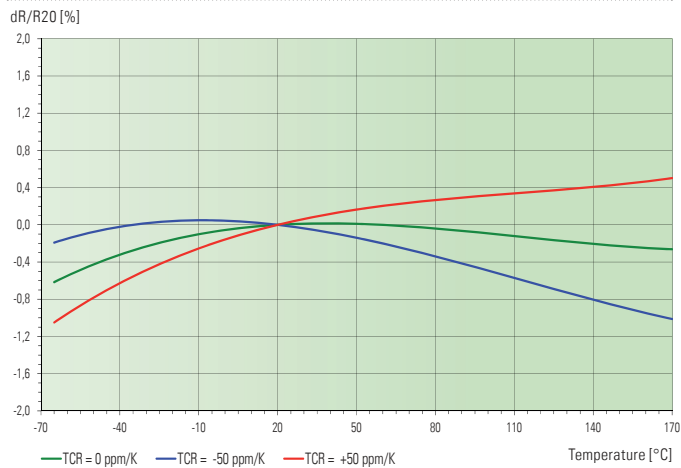


**Power derating curve at 70 °C**

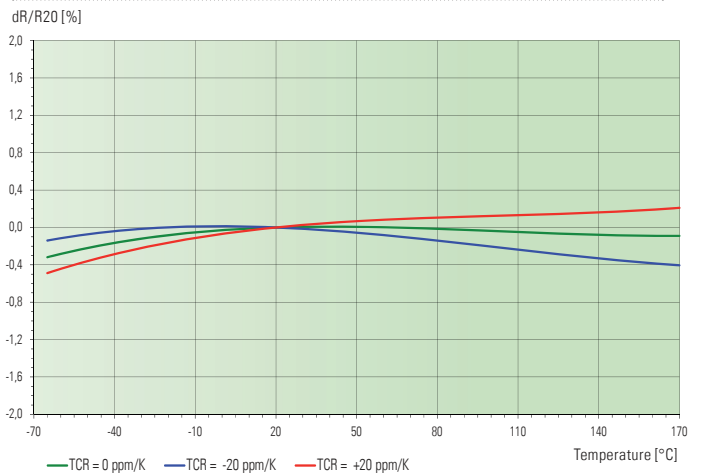
Example: BVR-I-R002



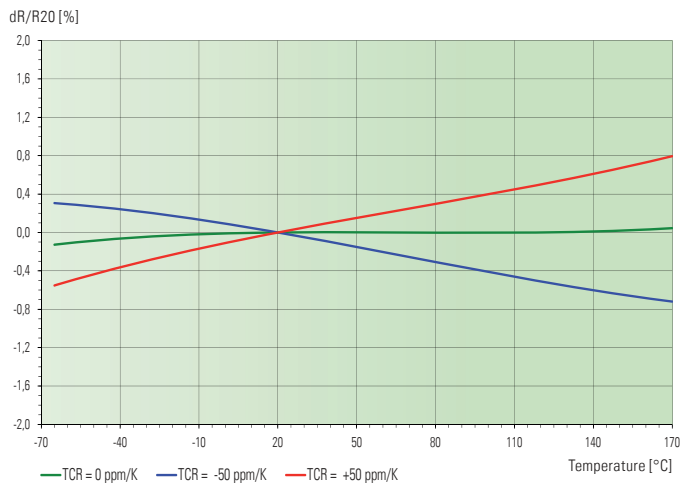
**Temperature dependence of the electrical resistance of MANGANIN® resistors**



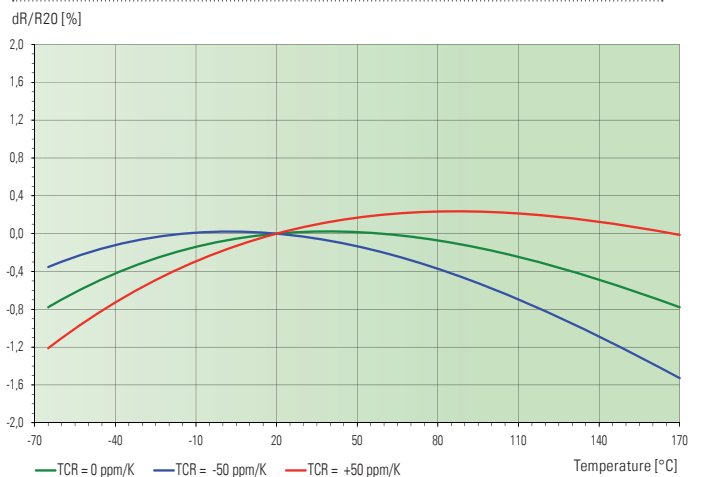
**Temperature dependence of the electrical resistance of ZERANIN® resistors**



**Temperature dependence of the electrical resistance of ISOHM® resistors**

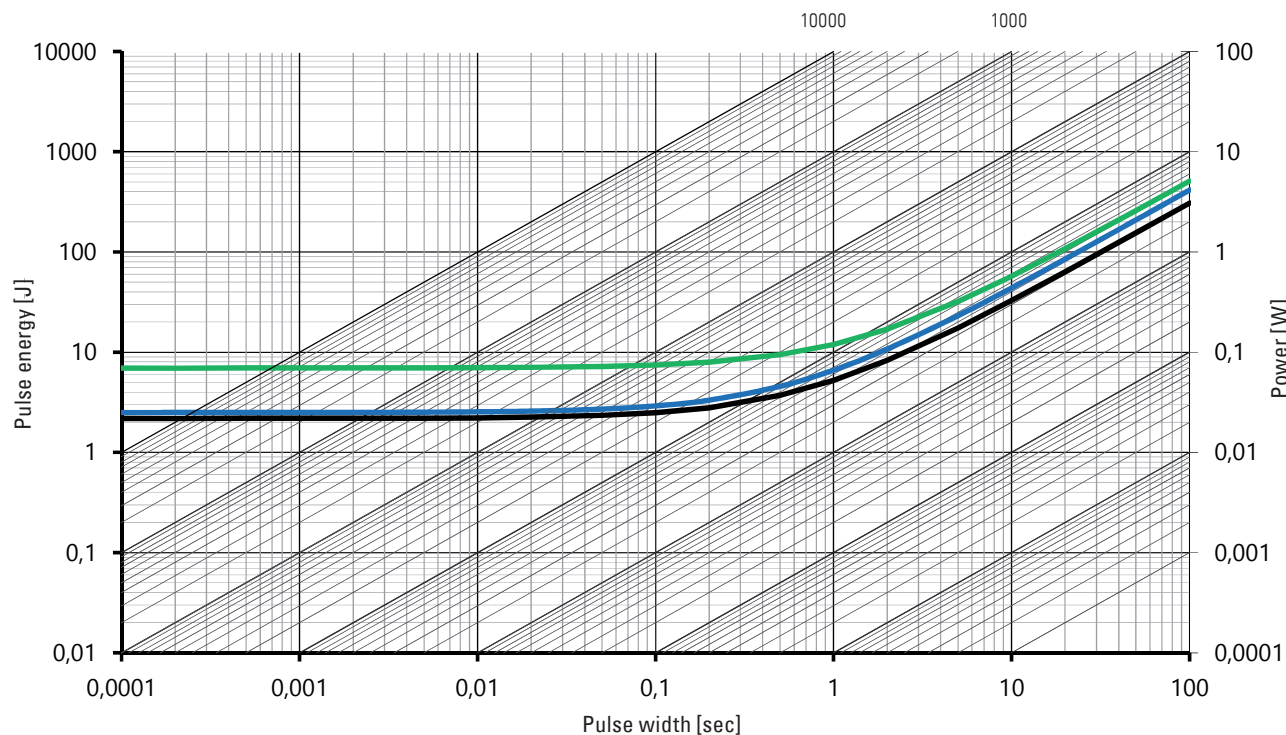


**Temperature dependence of the electrical resistance of NOVENTIN® resistors**





**Maximum pulse energy respectively pulse power for permanent operation**



- This curve is valid for the resistance value R0002
- This curve is valid for the resistance value R0007
- This curve is valid for the resistance value R003

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