



**THE DATASHEET OF  
BVT-I-R003-1.0**

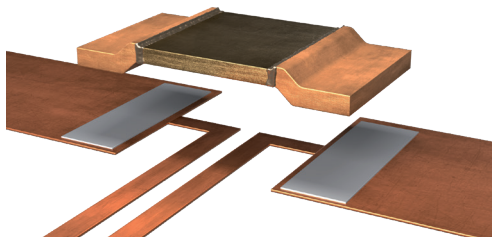




## ISA-WELD® // PRECISION RESISTORS



### BVT (2512)



#### Features

- Power rating up to 6 W <sup>1</sup>
- Continuous current load up to 100 A (0.3 mOhm)
- Heavy copper connectors
- Excellent long-term stability
- High application temperature range -65 to +170 °C due to special design
- RoHS 2011/65/EU compliant
- AEC-Q200 qualification



#### 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>	<b>0.3 to 6.8</b>
Tolerance	<b>%</b>	1 / 5
Temperature coefficient (20-60 °C)	<b>ppm/K</b>	from 50
Applicable temperature range	<b>°C</b>	-65 to +170
Power rating <b>P<sub>100°C</sub></b>	<b>W</b>	up to 3
Power rating <b>P<sub>70°C</sub></b>	<b>W</b>	up to 6
Internal heat resistance (R <sub>thi</sub> )	<b>K/W</b>	from 4
Inductance	<b>nH</b>	<2
Stability (at rated power) deviation after 2000h, T <sub>k</sub> = Terminal temperature		<0.5% (T <sub>k</sub> =110 °C) <1.0% (T <sub>k</sub> =140 °C)

<sup>1</sup> For detailed information see table on page 4

#### Ordering code

BVT - Z - R0003 - 1.0

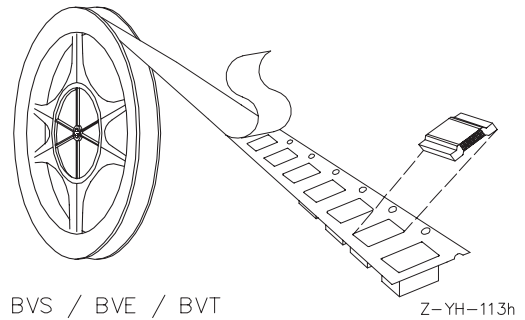
- ..... Tolerance
- ..... Resistance value [Ohm] / „R“ represents decimal point
- ..... Material (ZERANIN®30)
- ..... Type



## BVT (2512)

### Tape and reel information

Specification		DIN EN 60286-3
Tape width	<b>mm</b>	12
Reel size	<b>inch</b>	13
Parts per reel	<b>pcs</b>	5000
Packaging weight	<b>g</b>	453



BVS / BVE / BVT

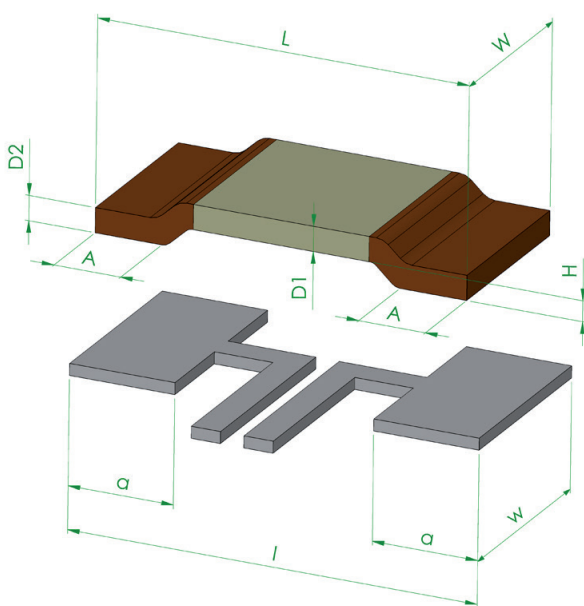
Z-YH-113h

### 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	±0.2%
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> = 140 °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] // Drawing no. Z-YE-968a



Type	L	W	H	A
BVT	6.35 ±0.15	3.05 ±0.2	0.35 ±0.03	1.14 -0.4

Solder pad type	l	w	a
BVT	7.0	3.4	1.8

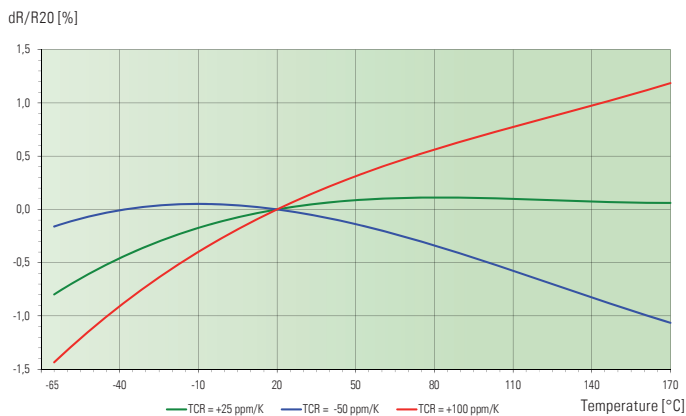
### Recommended surface mount soldering methods

Reflow-, IR- and vacuum soldering

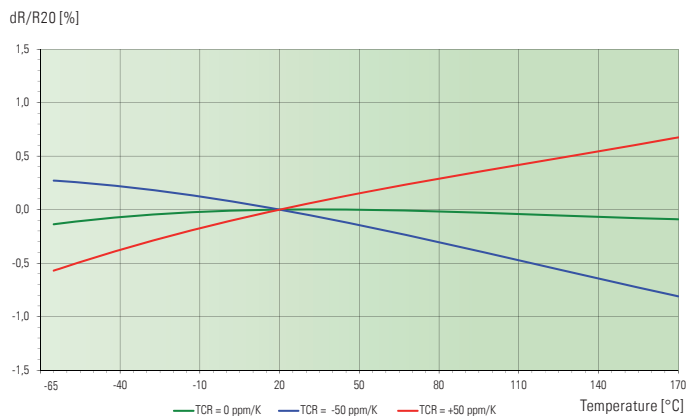


## BVT (2512)

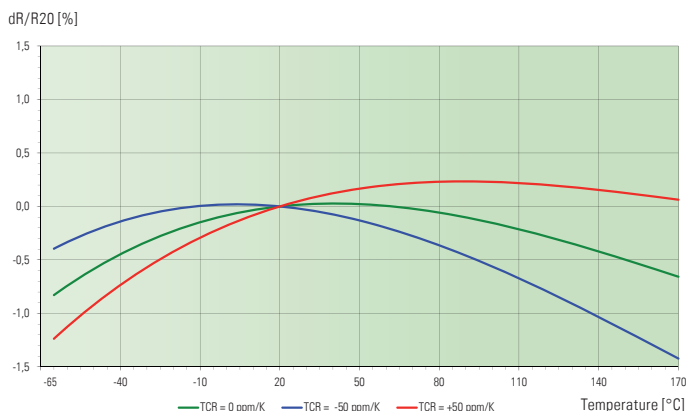
### Temperature dependence of the electrical resistance of MANGANIN® resistors. Example: BVT-M-R001



### Temperature dependence of the electrical resistance of ISAOHM® resistors



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

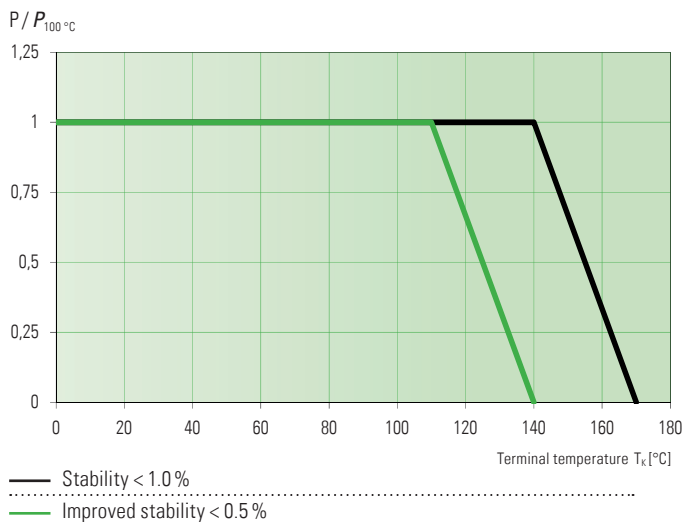


### Temperature dependence of the electrical resistance of ZERANIN® 30 resistors



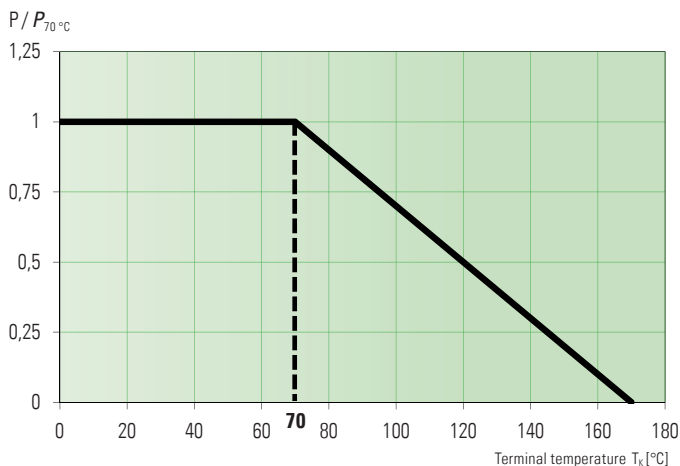
### Power derating curve at 100 °C

#### Example: BVT-M-R0005



### Power derating curve at 70 °C

For detailed information see table on page 4



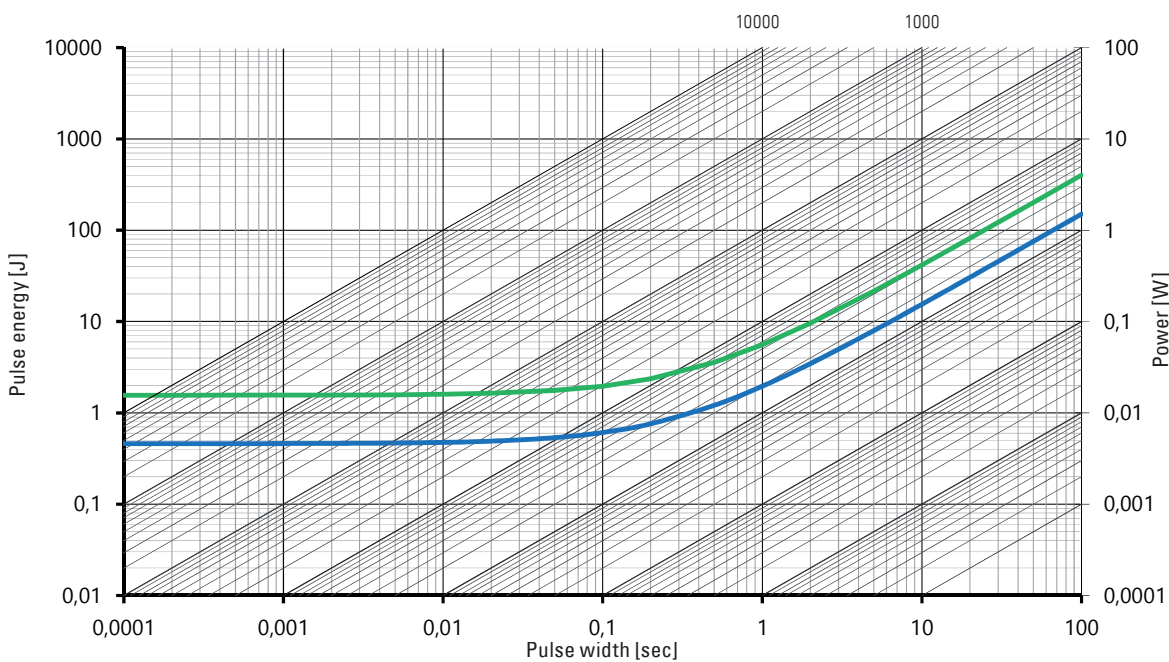


# BVT (2512)

Type	Value [mΩ]	Thickness [mm]		R <sub>thi</sub> [K/W]	TC [ppm/K]	P <sub>100 °C</sub> [W]	P <sub>70 °C</sub> [W]
		D1	D2				
BVT-K-R000	0	0.42	0.42			I <sub>max</sub> = 100 A	
BVT-Z-R0003	0.3	1.00	1.00	4	<175	4	6
BVT-M-R0005	0.5	0.85	0.84	7	<115	4	6
BVT-M-R001	1.0	0.42	0.42	14	<100	4	6
BVT-M-R00136	1.36	0.31	0.42	16	<80	3.8	5.5
BVT-V-R002	2.0	0.46	0.64	20	<50	3.5	5
BVT-I-R002	2.0	0.72	0.64	16	<50	4	6
BVT-I-R003	3.0	0.48	0.42	24	<50	3	4
BVT-I-R004	4.0	0.36	0.42	32	<50	2	3
BVT-I-R005	5.0	0.36	0.42	40	<50	1.5	2.5
BVT-I-R0068	6.8	0.36	0.42	60	<50	1.5	2

Material type I=ISAOHM®, K=SF-copper tinned, M=MANGANIN®, Z=ZERANIN®30, V=NOVENTIN®

## Maximum pulse energy respectively pulse power for permanent operation





- This curve is valid for the resistance value BVT-Z-R0003 only.
- This curve is valid for the resistance value R0068 only.

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