



## ISA-WELD® // PRECISION RESISTORS



### BVE Size 5930



#### Features

- Power rating up to 15 W
- Continuous current load up to 220 A (0.2 mOhm)
- Heavy copper connectors
- Excellent long-term stability
- Ideal suited for mounting on DBC / IMS substrate
- Max. solder temperature up to 350 °C / 30 sec
- AEC-Q200 qualified
- RoHS 2011/65/EU compliant



#### Applications

- Current sensor for power hybrid applications
- For welding on bus bars
- High current applications for the automotive market
- Frequency converters
- Power modules

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

Resistance values	<b>mOhm</b>	0.1 to 2
Tolerance	<b>%</b>	1 / 5
Temperature coefficient (20-60 °C)	<b>ppm/K</b>	from 50
Applicable temperature range	<b>°C</b>	-55 to +170
Power rating <b>P<sub>100°C</sub></b>	<b>W</b>	up to 10
Power rating <b>P<sub>70°C</sub></b>	<b>W</b>	up to 15
Internal heat resistance (R <sub>thi</sub> )	<b>K/W</b>	from 3
Inductance	<b>nH</b>	<3
Stability (at rated power) deviation after 2000h, T <sub>K</sub> = Terminal temperature		<0.5% (T <sub>K</sub> =90 °C) <1.0% (T <sub>K</sub> =120 °C)

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

#### Ordering code

BVE - M - R0005 - 1.0

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



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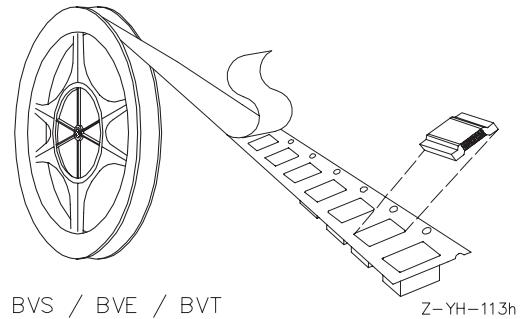
**Recommended solder profile**

Reflow-, IR- and wave-soldering

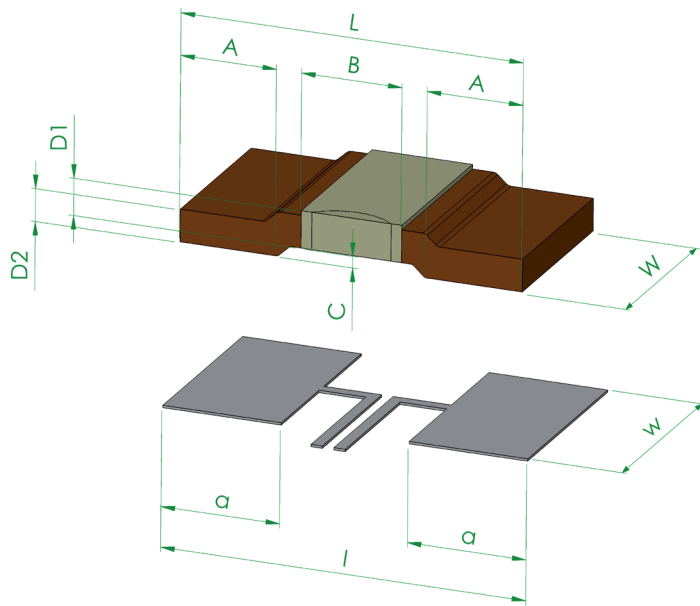
Temperature	°C	260	255	217
Time	sec	peak	40	90

**Tape and reel information**

Specification	DIN EN 60286-3			
Tape width	mm	24		
Reel size	inch	13		
Parts per reel	pcs	2000		
Packaging weight	g	563		



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



Z-YE-583

type:	value / mOhm	L	W	A	B	C	D1	D2
BVE-Z-R0001	0.1	15 ±0.2	7.75 +0.3/-0.2	4.95 +0.1/-0.7	3.7 +0.2/-0.3	0.5 ±0.1	1.42 ±0.1	1.42 ±0.1
BVE-M-R0002	0.2	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	1.42 ±0.1	1.42 ±0.1
BVE-M-R0003	0.3	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	0.94 ±0.1	0.4 ±0.1
BVE-M-R0005	0.5	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	5 +0.2/-0.3	0.5 ±0.1	0.56 ±0.1	0.56 ±0.1
BVE-A-R0005	0.5	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.4 +0.2/-0.3	0.5 ±0.1	1.62 ±0.1	1.42 ±0.1
BVE-A-R001	1	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.9 +0.2/-0.3	0.5 ±0.1	0.91 ±0.1	0.84 ±0.1
BVE-A-R002	2	15 ±0.2	7.75 +0.3/-0.2	4.2 +0.1/-0.7	4.9 +0.2/-0.3	0.5 ±0.1	0.44 ±0.05	0.64 ±0.1

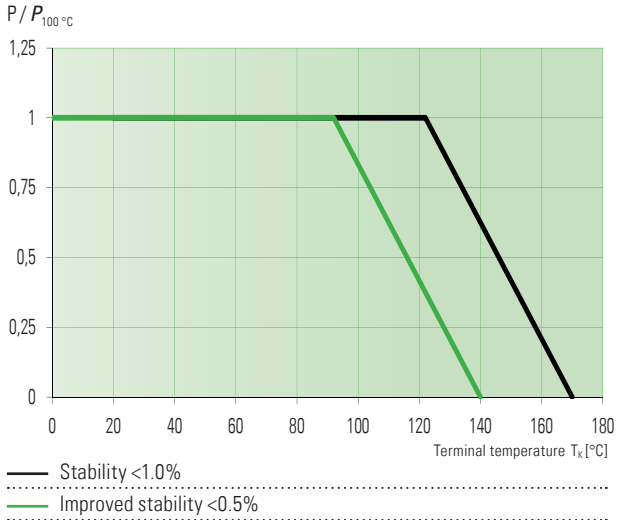
solder pad type:	l	w	a
BVE	16	8.75	5.2



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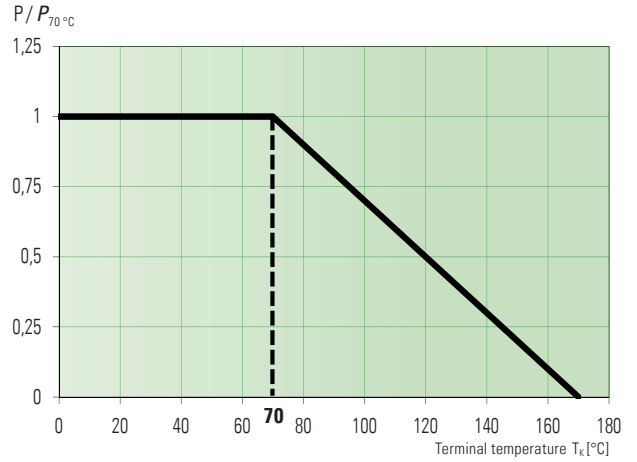
**Power derating curve at 100 °C**

Example: BVE-M-R0005



**Power derating curve at 70 °C**

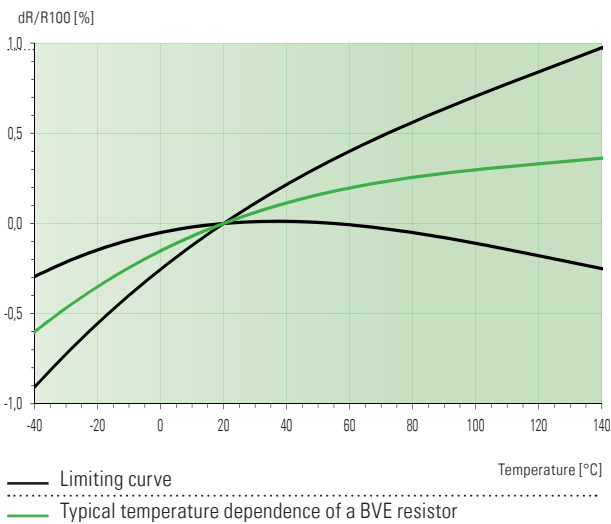
Example: BVE-A-R002



Type	Value [mΩ]	R <sub>thi</sub> [K/W]	TC [ppm/K]	P <sub>100°C</sub> [W]	P <sub>70°C</sub> [W]
BVE-Z-R0001	0.1	2.0	<200	10	15
BVE-M-R0002	0.2	3.0	<100	10	15
BVE-M-R0003	0.3	4.5	<100	7	10
BVE-M-R0005	0.5	8.0	<75	6	8
BVE-A-R0005	0.5	5.0	<75	7	10
BVE-A-R001	1.0	8.0	<50	6	9
BVE-A-R002	2.0	14.5	<50	4	7

Abbreviation type A=Aluchrom, M=MANGANIN®, Z=ZERANIN®30

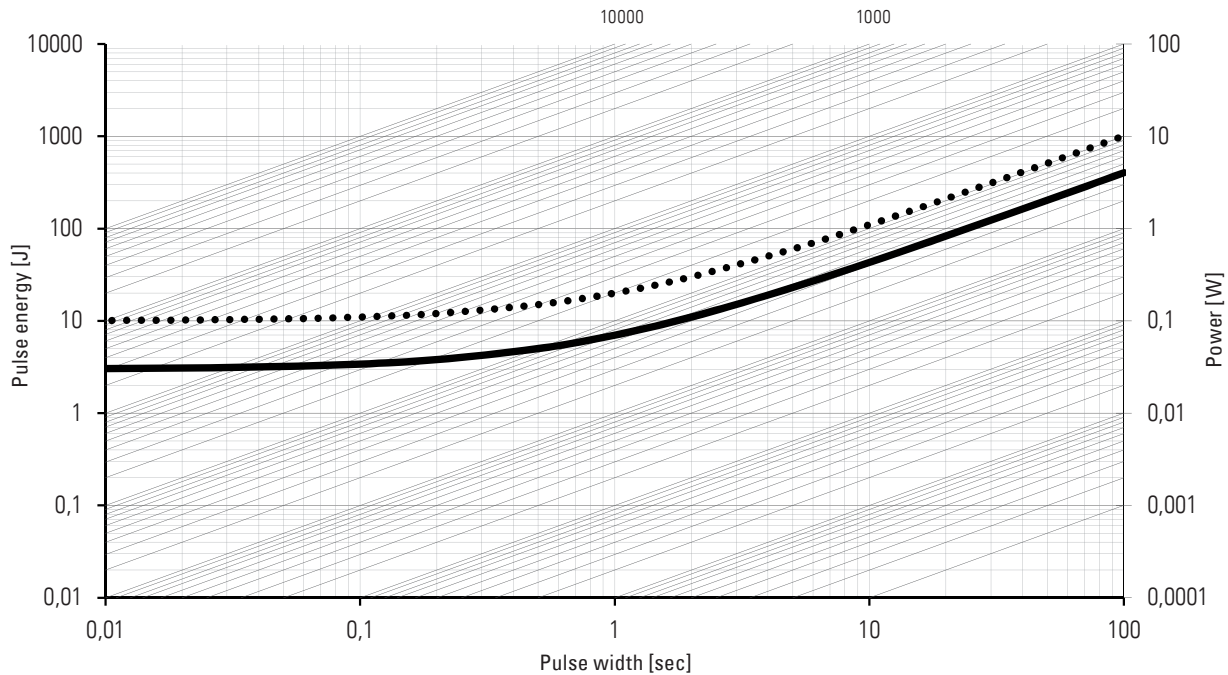
**Temperature dependence of the electrical resistance**





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Maximum pulse energy respectively pulse power for permanent operation



- • • This curve is valid for the resistance value R0001 only.
- This curve is valid for the resistance value R002 only.
- For other values the area inbetween the max. and min curve is valid.

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 24 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	20 g, 10-2000 Hz	±0.2%
Operational Life	2000 h, T <sub>k</sub> max at rated power	±1.0%, T <sub>k</sub> = 120 °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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