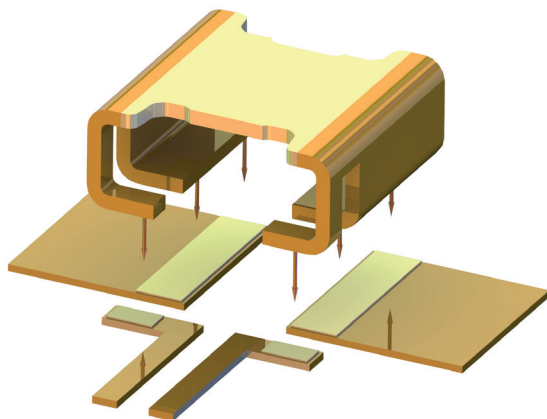




## ISA-WELD® // PRECISION RESISTORS

### BVB // Size 2725



#### Features

- Power rating up to 12 W<sup>1</sup>
- 4-terminal connection
- Excellent long-term stability
- Ideal for mounting on DCB/IMS substrate
- 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 5
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> =140 °C) in covered condition

<sup>1</sup>For detailed information see table on page 2

#### Ordering code

BVB - Z - R0005 - 1.0

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



## BVB // Size 2725

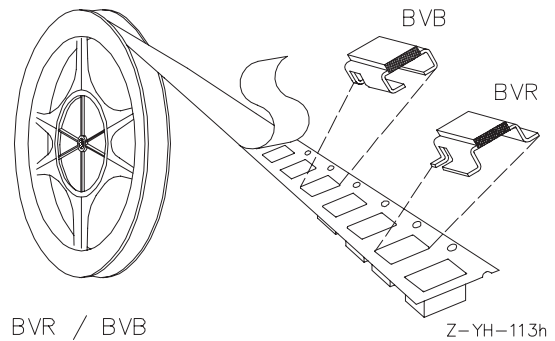
### Recommended solder profile

Reflow-, IR-soldering

Temperature	°C	260	255	217
Time	sec	peak	40	90

### Tape and reel information

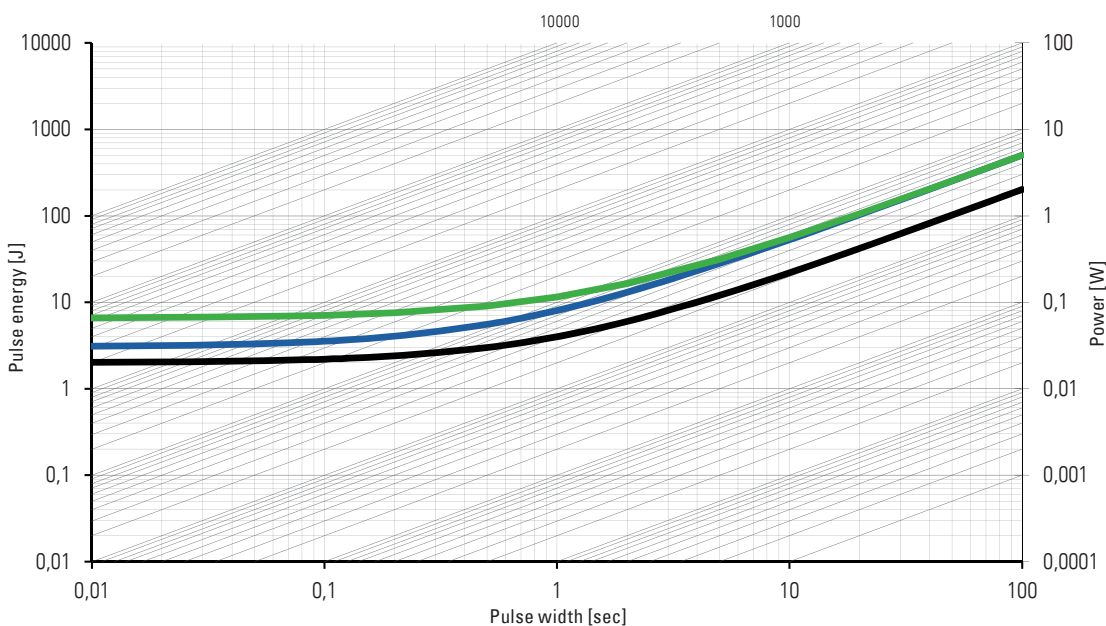
Specification	DIN EN 60286-3		
Tape width	mm	16	
Reel size	inch	13	
Parts per reel	pcs	1400	
Packaging weight	g	439	



Type	Value [mΩ]	R <sub>thi</sub> [K/W]	TCR [ppm/K]	P <sub>100°C</sub> [W]	P <sub>70°C</sub> [W]
BVB-Z-R0002	0.2	4	<20	5	12
BVB-Z-R0005	0.5	8	<20	5	9
BVB-M-R001	1.0	15	<50	4	6
BVB-I-R002	2.0	14	<50	4	6
BVB-V-R002	2.0	17	<50	4	6
BVB-I-R003	3.0	21	<50	3	5
BVB-I-R004	4.0	28	<50	2	4
BVB-I-R005	5.0	33	<50	2	3

Material type I=ISAOHM®, M=MANGANIN®, Z=ZERANIN®, V=NOVENTIN®

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



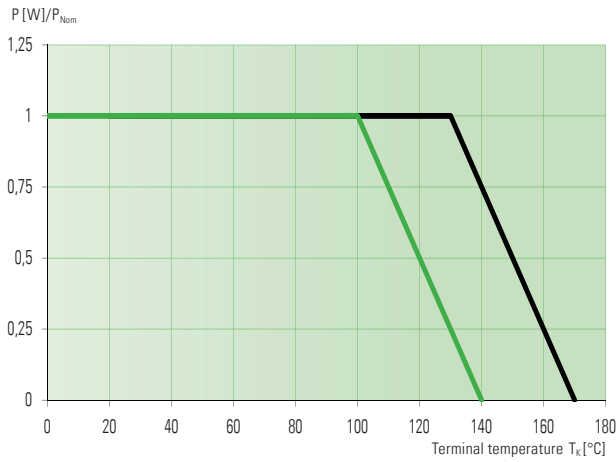
- This curve is valid for the resistance value R0002 only.
- This curve is valid for the resistance value R005 only. For other values the area in between the max. and min curve is valid.
- This curve is valid for the resistance value R0005 only.



**BVB // Size 2725**

**Power derating curve at 100 °C**

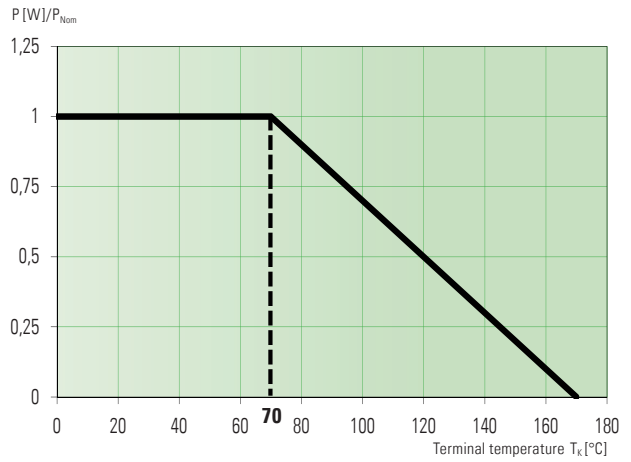
Example: BVB-Z-R0005



— Stability < 1.0% (in covered condition)  
 — Stability < 0.5%

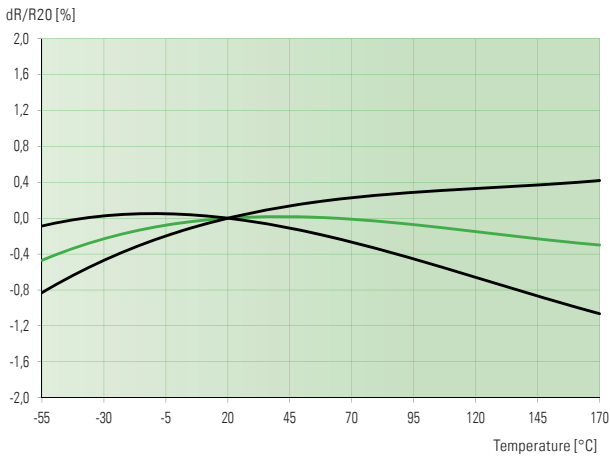
**Power derating curve at 70 °C**

Example: BVB-I-R002



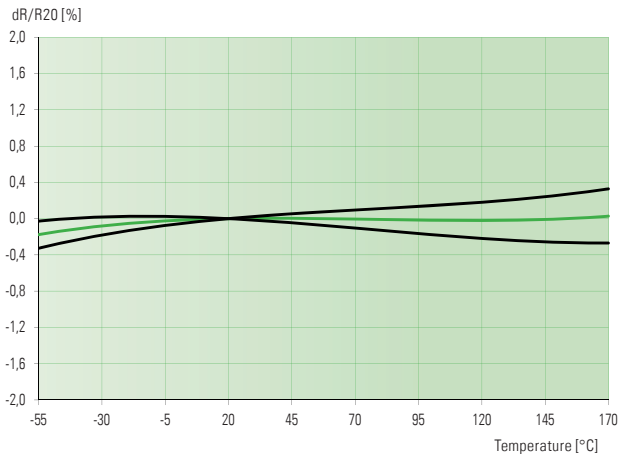
— Stability < 1.0% (in covered condition)

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



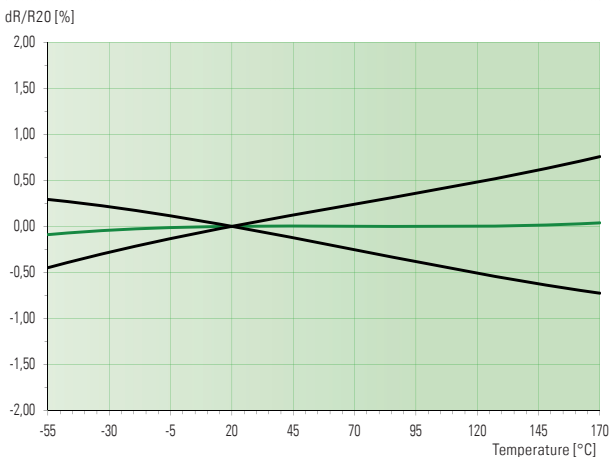
— Limiting curve  
 — Typical temperature dependence of a BVB resistor

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



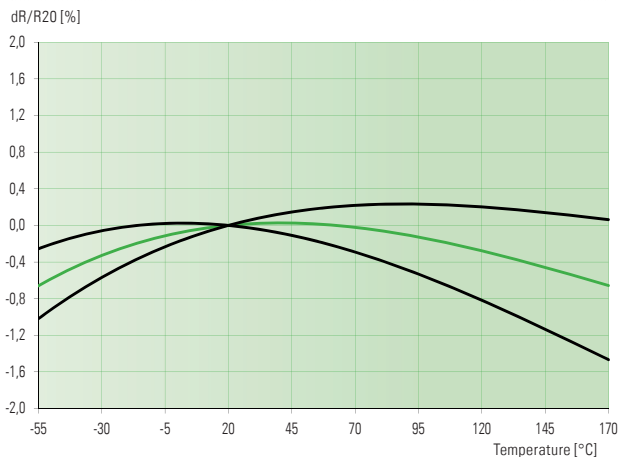
— Limiting curve  
 — Typical temperature dependence of a BVB resistor

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



— Limiting curve  
 — Typical temperature dependence of a BVB resistor

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

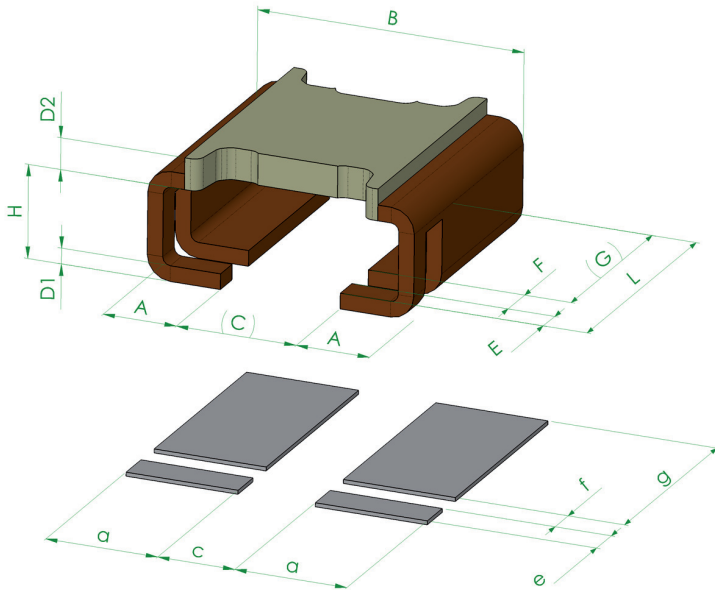


— Limiting curve  
 — Typical temperature dependence of a BVB resistor



**BVB // Size 2725**

**Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Drawing no. Z-YH-180**



type	A	B	C	D1	D2	E	F	G	H	L
BVB-Z-R0002	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	1.2 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-Z-R0005	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.42 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-M-R001	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.35 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-V-R002	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.34 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-I-R002	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.55 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-I-R003	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.36 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-I-R004	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.36 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2
BVB-I-R005	1.9 ±0.2	6.9 ±0.2	3.1	0.4 ±0.1	0.36 ±0.1	0.7 ±0.1	1.0 ±0.1	4.9	2.4 ±0.1	6.6 +0.35 / -0.2

solder pad type:	a	c	e	f	g
BVB	2.9	2.0	0.9	0.8	5.6

**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 nominal load	±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

**Disclaimer** // All products, product specifications and data are subject to change without notice. The product specifications do not expand or otherwise modify Isabellenhütte's terms and conditions of sale, including but not limited to, the warranty expressed therein. Isabellenhütte makes no warranty, representation or guarantee other than as set forth in its terms and conditions of sale. Information provided in datasheets and/or specifications may vary from actual results in different applications. Any statements made by Isabellenhütte regarding the suitability of products for certain types of applications are based on its knowledge of typical requirements that are often placed on its products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in the application intended. No license, express or implied, or otherwise, to any intellectual property rights is granted by this document. Any and all liability arising out of the application or use of any product shall be as set forth in Isabellenhütte's terms and conditions of sale.

