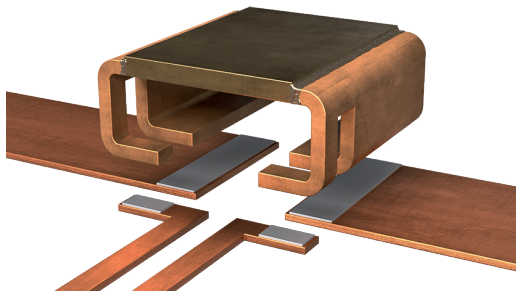




ISA-WELD® // PRECISION RESISTORS

BVB // Size 2725



Features

- Power rating up to 12 W ¹
- 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 ¹

| | | |
|---|--------------|---|
| Resistance values | mOhm | 0.2 to 5 |
| Tolerance | % | 1 / 5 |
| Temperature coefficient (20-60 °C) | ppm/K | from 20 |
| Applicable temperature range | °C | -65 to +170 |
| Power rating P_{100°C} | W | up to 5 |
| Power rating P_{70°C} | W | up to 12 |
| Internal heat resistance (R _{thi}) | K/W | from 4 |
| Inductance | nH | <3 |
| Stability (Nominal load) deviation after 2000h, T _K = Terminal temperature | | <0.5% (T _K = 100 °C) <1.0% (T _K = 140 °C) in covered condition |

¹ 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 |



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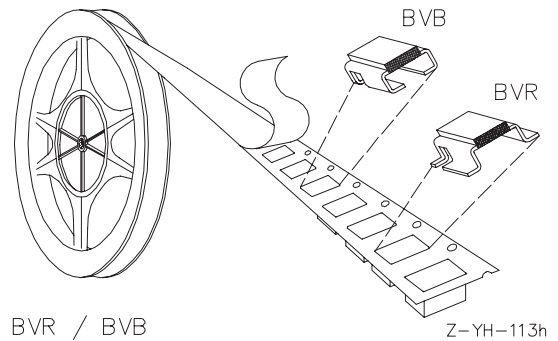
Recommended solder profile

Reflow-, IR-soldering

| | | | | |
|-------------|-----|------|-----|-----|
| Temperature | °C | 260 | 255 | 217 |
| Time | sec | peak | 40 | 90 |

Tape and reel information

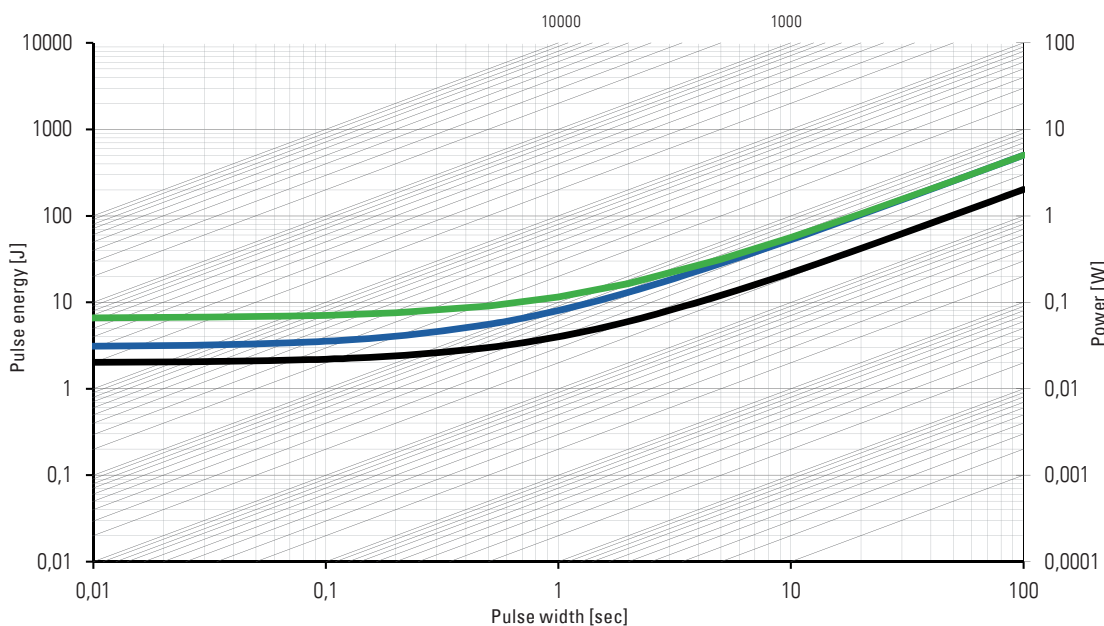
| | | | |
|------------------|----------------|------|--|
| Specification | DIN EN 60286-3 | | |
| Tape width | mm | 16 | |
| Reel size | inch | 13 | |
| Parts per reel | pcs | 1400 | |
| Packaging weight | g | 439 | |



| Type | Value [mΩ] | R _{thi} [K/W] | TCR [ppm/K] | P _{100°C} [W] | P _{70°C} [W] |
|-------------|------------|------------------------|-------------|------------------------|-----------------------|
| BVB-Z-R0002 | 0.2 | 4 | <20 | 5 | 12 |
| BVB-Z-R0003 | 0.3 | 5 | <20 | 5 | 11 |
| BVB-Z-R0005 | 0.5 | 8 | <20 | 5 | 9 |
| BVB-M-R0007 | 0.7 | 12 | <20 | 4 | 7 |
| 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



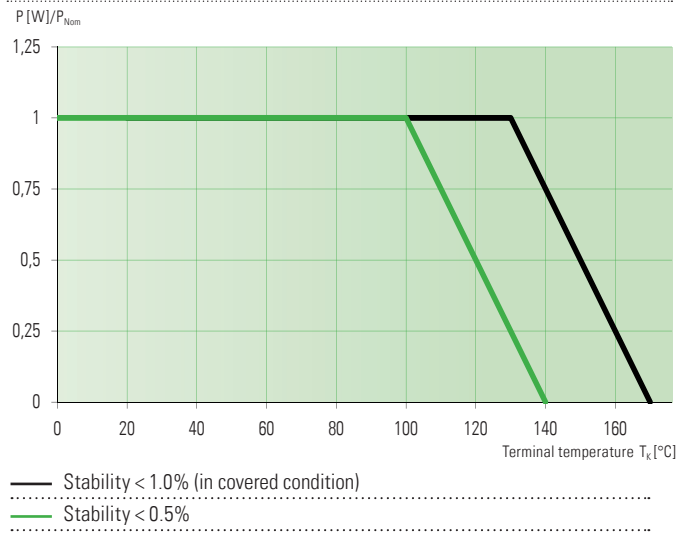
- This curve is valid for the resistance value R0002 only
- This curve is valid for the resistance value R0005 only
- This curve is valid for the resistance value R005 only



BVB // Size 2725

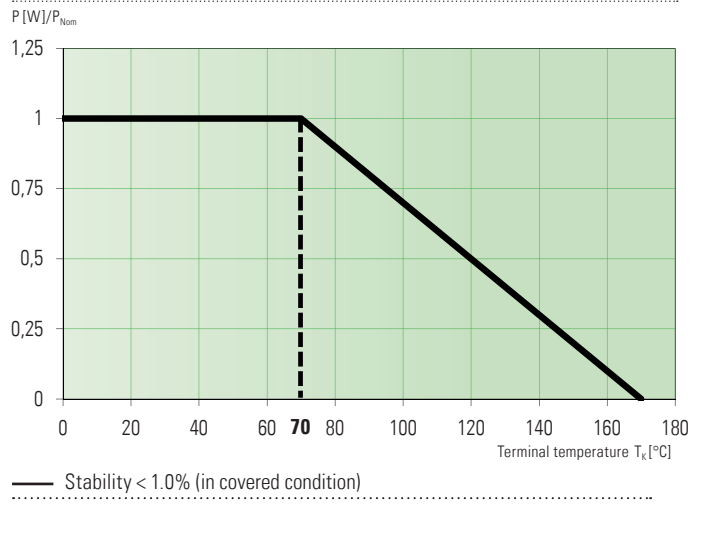
Power derating curve at 100 °C

Example: BVB-Z-R0005

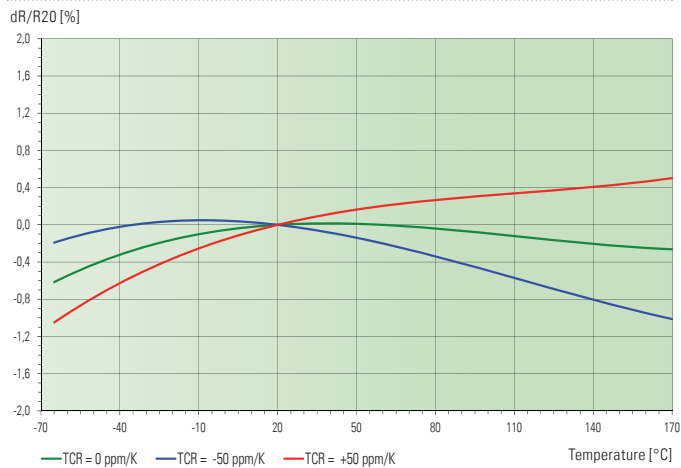


Power derating curve at 70 °C

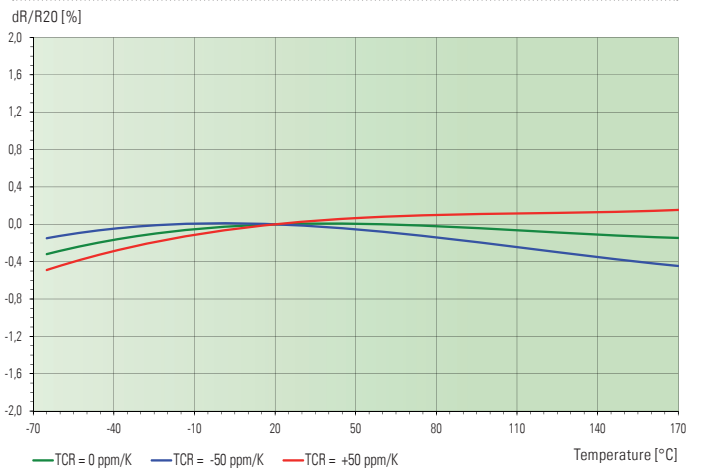
Example: BVB-I-R002



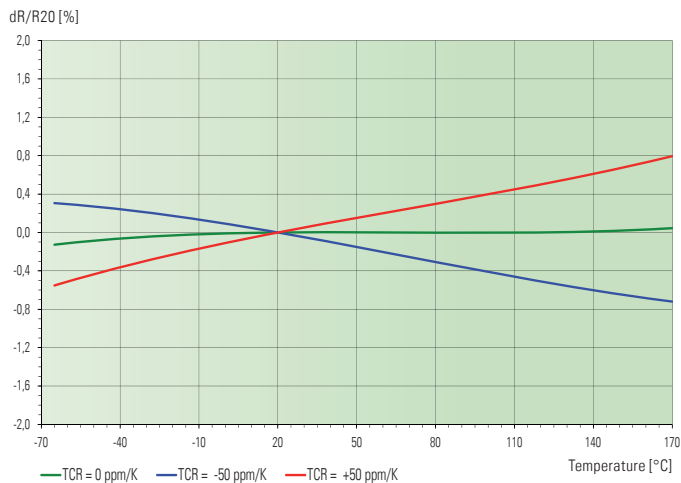
Temperature dependence of the electrical resistance of MANGANIN® resistors



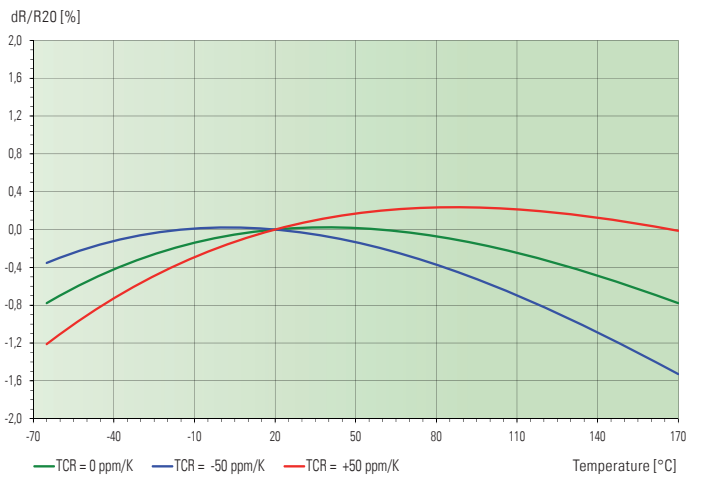
Temperature dependence of the electrical resistance of ZERANIN® resistors



Temperature dependence of the electrical resistance of ISOHM® resistors



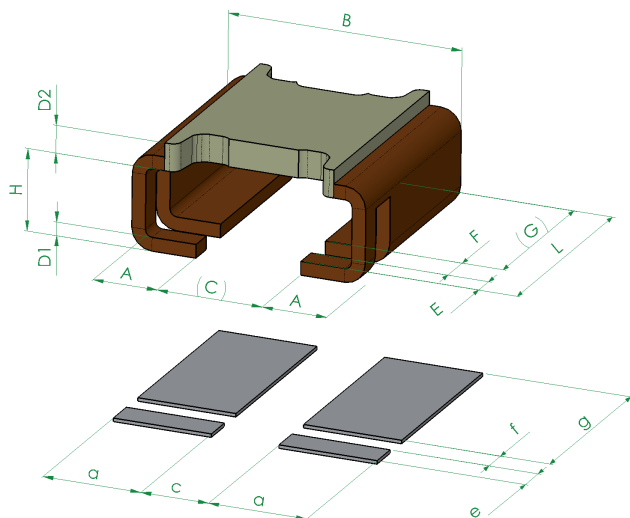
Temperature dependence of the electrical resistance of NOVENTIN® resistors





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-R0003 | 1.9 ±0.2 | 6.9 ±0.2 | 3.1 | 0.4 ±0.1 | 0.81 ±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-R0007 | 1.9 ±0.2 | 6.9 ±0.2 | 3.1 | 0.4 ±0.1 | 0.44 ±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 _k max at nominal load | ±1.0%, T _k = 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

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