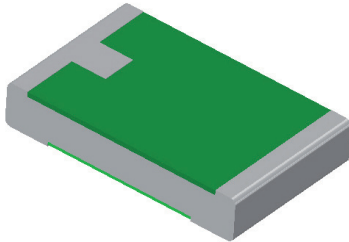




## ISA-PLAN® // PRECISION RESISTORS



### VMI // Size 0805



#### Features

- 0.5 W power rating at 100 °C
- Constant current up to 7 A (10 mOhm)
- Small size (0805)
- High pulse power rating
- Excellent long-term stability
- Mounting: Reflow- and IR-soldering
- RoHS 2011/65/EU compliant
- AEC-Q200 qualified



#### Applications

- Current sensor for power hybrid applications
- Control systems for the automotive market, amongst others for LED-applications
- Power modules
- Frequency converters
- Switch mode power supplies

#### Technical data

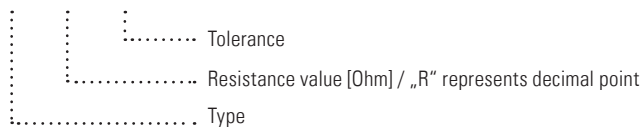
|  |                |  |
|--|----------------|--|
| Resistance values <sup>1</sup>   | <b>mOhm</b>    | 10 to 50   |
| Tolerance <sup>1</sup>   | <b>%</b>       | 1 / 5  |
| Temperature coefficient (20-60 °C)   | <b>ppm/K</b>   | <30 <sup>2</sup>   |
| Applicable temperature range   | <b>°C</b>      | -65 to +170  |
| Power rating   | <b>W</b>       | 0.5  |
| Internal heat resistance (R <sub>thi</sub> )   | <b>K/W</b>     | <80  |
| Dielectric withstanding voltage  | <b>V AC/DC</b> | 200  |
| Inductance   | <b>nH</b>      | <1   |
| Stability (at rated power) deviation after 2000h,<br>T <sub>K</sub> = Terminal temperature |                | <0.5 % (T <sub>K</sub> =100 °C)<br><1.0 % (T <sub>K</sub> =130 °C) |

<sup>1</sup> see all standard values and tolerances on page 2

<sup>2</sup> R010, R012, R020: <50 ppm/K

#### Ordering code

VMI - R010 - 5.0





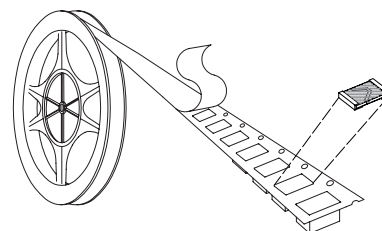
**VMI // Size 0805**

**Recommended solder profile**

| Reflow- and IR-soldering |     |      |     |     |
|--------------------------|-----|------|-----|-----|
| Temperature              | °C  | 260  | 255 | 217 |
| Time                     | sec | peak | 40  | 90  |

**Tape and reel information**

|                        |                |       |  |  |
|------------------------|----------------|-------|--|--|
| Specification          | DIN EN 60286-3 |       |  |  |
| Tape width             | mm             | 8     |  |  |
| Reel size              | inch           | 13    |  |  |
| Parts per reel         | pcs            | 15000 |  |  |
| Packaging weight (net) | g              | 480   |  |  |



VMS / P / K / I

**Available standard resistance values and tolerances\***

| Resistance values | Tolerance 1%          | Tolerance 5% |
|-------------------|-----------------------|--------------|
| R010              | ✓ C-samples available | ✓            |
| R012              | ✓                     | ✓            |
| R020              |                       | ✓            |
| R030              |                       | ✓            |
| R050              | ✓ C-samples available | ✓            |

\* Further values and tolerances on request

✓ = available

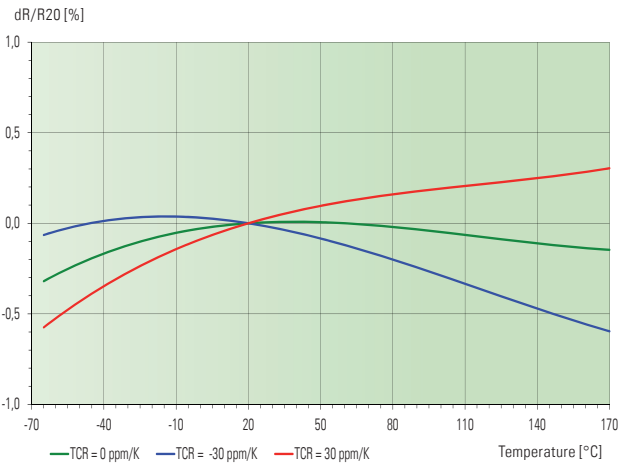
**Specification**

| Parameters                            | Test conditions                           | Specified values                |
|---------------------------------------|---|---------------------------------|
| Temperature Cycling                   | 2000 cycles (-55 °C to +150 °C)           | ±0.5 %                          |
| Temperature Cycling for VMI-R012      | 1000 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        | ±0.3 %                          |
| Moisture Resistance                   | MIL-STD-202 method 106                    | ±0.5 %                          |
| 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 %                          |
| Bias Humidity                         | +85 °C, 85 r.F., 1000 h, powered          | ±0.5 %                          |

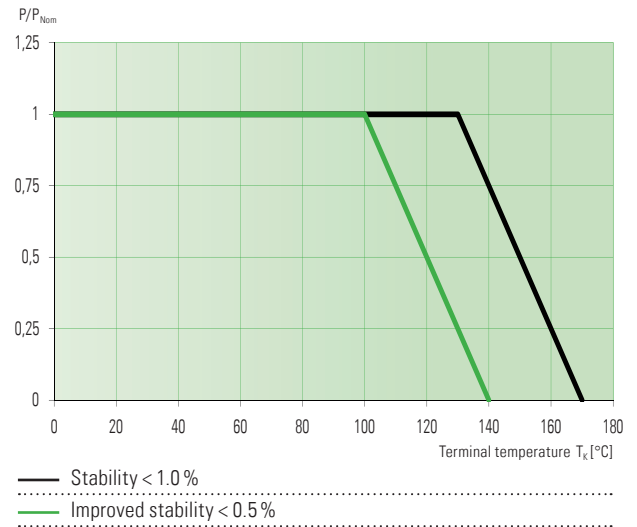


VMI // Size 0805

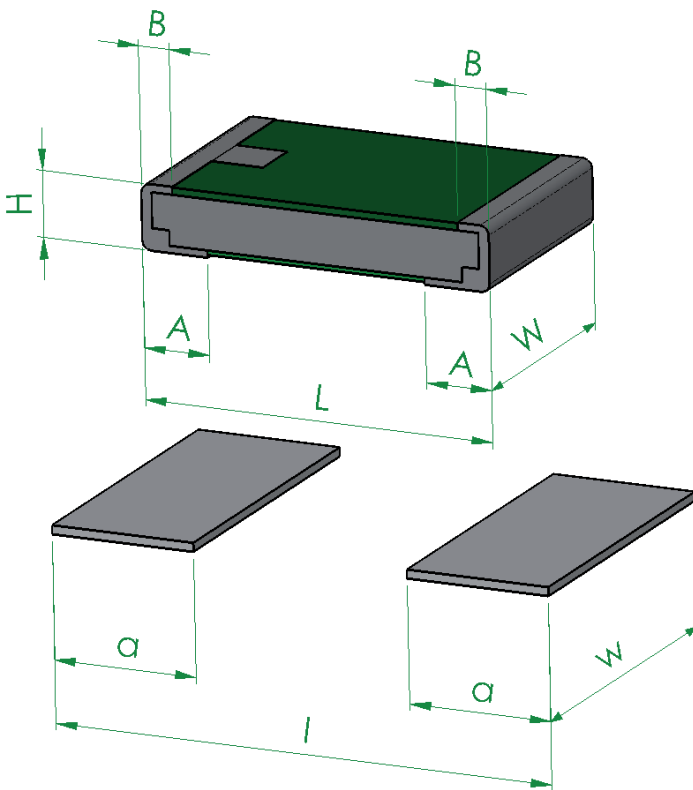
Temperature dependence of the electrical resistance



Power derating curve



Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Z-YE-494a



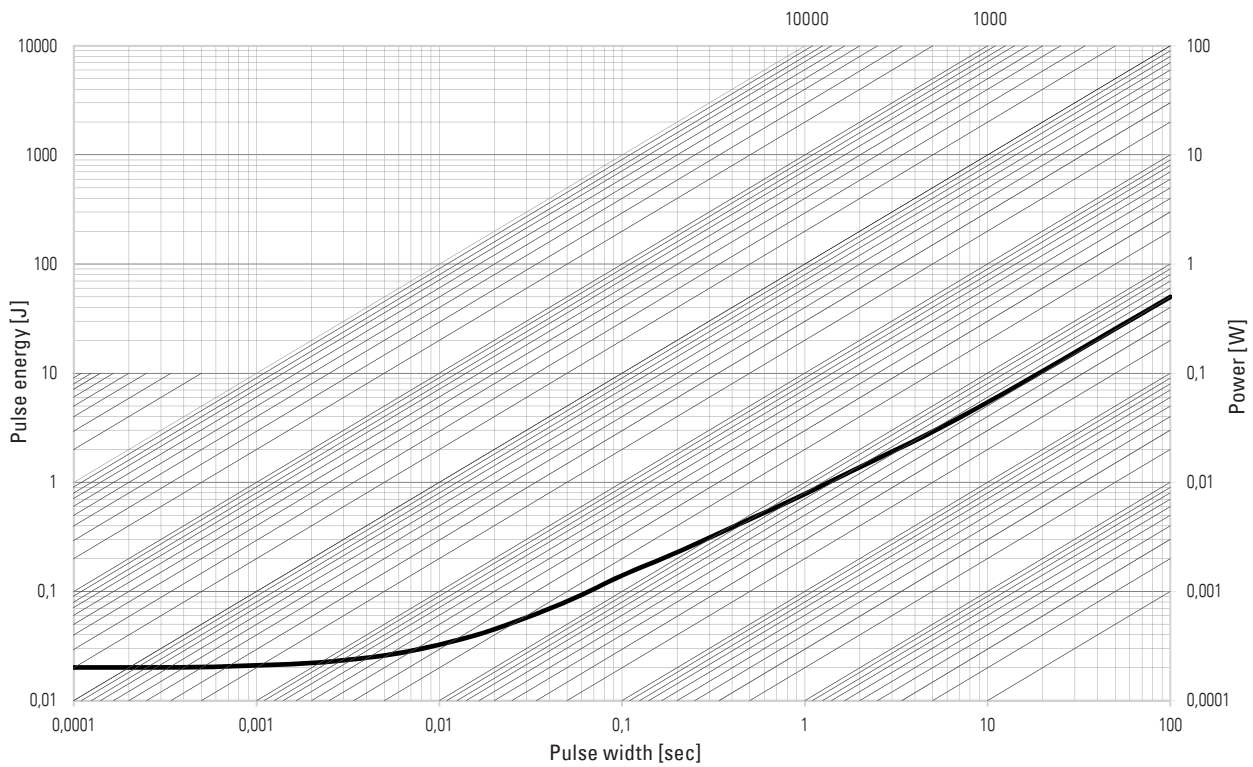
| type: | L          | W          | H         | A         | B               |
|-------|------------|------------|-----------|-----------|-----------------|
| VMI   | 2.03 ±0.15 | 1.27 ±0.15 | 0.4 ±0.15 | 0.38 ±0.1 | 0.18 +0.15/-0.1 |

| solder pad type: | l   | w   | a    |
|------------------|-----|-----|------|
| VMI              | 2.9 | 1.8 | 0.82 |



VMI // Size 0805

Maximum pulse energy respectively pulse power for permanent operation



This curve is only valid for the resistance value R010. The shape of the curve in the range below 0.1 sec will be different for other resistance values. Therefore a separate qualification should be made for pulse power close to the above curve.

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