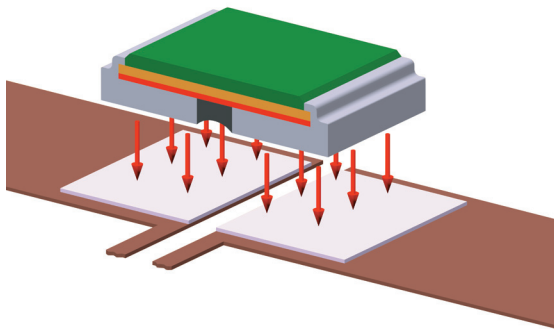




ISA-PLAN® // PRECISION RESISTORS



SMT // Size 2817



Features

- 5 W power rating at 105 °C
- Constant current up to 35 A (4 mOhm)
- Excellent long-term stability
- High pulse power rating
- Mounting: Reflow-, and IR-soldering
- AEC-Q200 qualified
- RoHS 2011/65/EU compliant



Applications

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

Technical data

| | | |
|---|----------------|--|
| Resistance values | Ohm | 0.004 to 4 * |
| Tolerance | % | 0.5 / 1 / 2 / 5 * |
| Temperature coefficient (20-60 °C) | ppm/K | <50 for $\geq 10 \text{ m}\Omega$ <100 for $< 10 \text{ m}\Omega$ |
| Applicable temperature range | °C | -55 to +170 |
| Power rating P_{105 °C} | W | 5 for $< 1 \Omega$ 3 for $\geq 1 \Omega$ |
| Power rating P_{70 °C} | W | 7 for $< 1 \Omega$ 5 for $\geq 1 \Omega$ |
| Internal heat resistance (R _{thi}) | K/W | <13 for $< 1 \Omega$ <22 for $\geq 1 \Omega$ |
| Dielectric withstanding voltage | V AC/DC | 200 |
| Inductance | nH | <3 |
| Stability (at rated power) deviation after 2000h T _K = Terminal temperature | | <0.5% (T _K = 75 °C) <1.0% (T _K = 105 °C) |

* For detailed information see table on page 3

Ordering code

SMT - R010 - 1.0

- Tolerance
- Resistance value [Ohm] / "R" represents decimal point
- Type



SMT // Size 2817

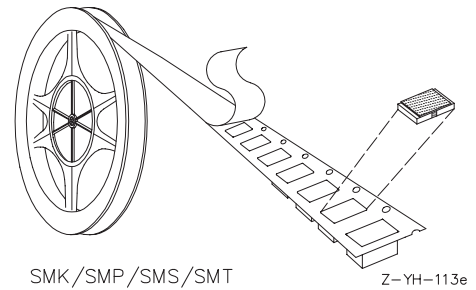
Recommended solder profile

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

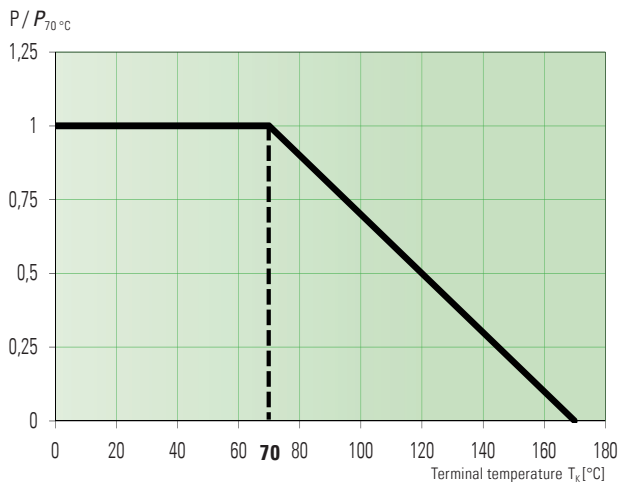
Slight deformations during soldering do not affect technical properties of the component.

Tape and reel information

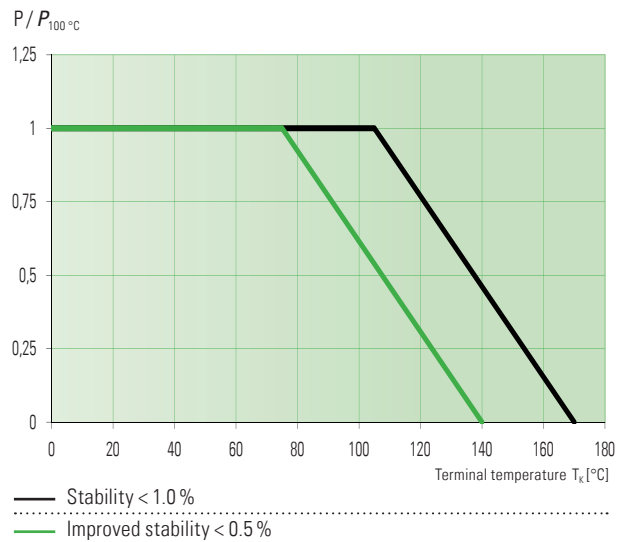
| Specification | | DIN EN 60286-3 | | |
|------------------|------|----------------|--|--|
| Tape width | mm | 12 | | |
| Reel size | inch | 13 | | |
| Parts per reel | pcs | 5000 | | |
| Packaging weight | g | 494 | | |



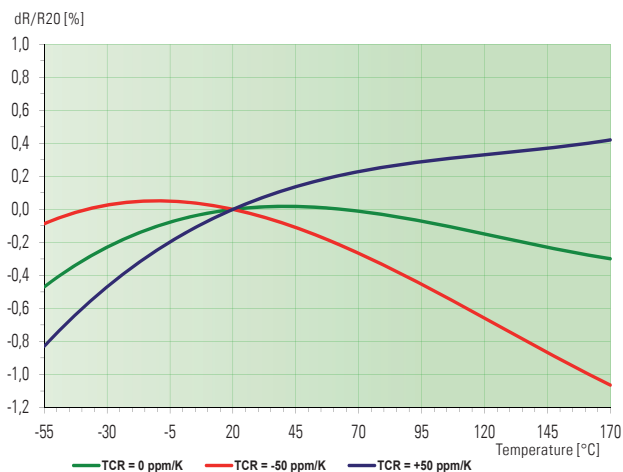
Power derating curve at 70 °C



Power derating curve



Temperature dependence of the electrical resistance of MANGANIN® resistors





SMT // Size 2817

Available standard resistance values and tolerances*

| Resistance values | Tolerance | | | |
|-------------------|-----------|-----|-----|-----|
| | 0.5 | 1.0 | 2.0 | 5.0 |
| R004 | | ✓ | | ✓ |
| R0047 | | | | ✓ |
| R005 | ✓ | ✓ | ✓ | ✓ |
| R0056 | | ✓ | | |
| R0068 | | ✓ | ✓ | ✓ |
| R008 | | ✓ | | ✓ |
| R0091 | | ✓ | | |
| R010 | ✓ | ✓ | ✓ | ✓ |
| R0135 | | ✓ | | |
| R014 | | ✓ | | |
| R015 | | ✓ | | ✓ |
| R018 | | ✓ | | ✓ |
| R020 | | ✓ | | ✓ |
| R022 | | ✓ | | ✓ |
| R025 | ✓ | ✓ | | |
| R027 | | ✓ | | |
| R030 | | ✓ | | |
| R033 | ✓ | ✓ | | |
| R039 | | ✓ | | |
| R040 | | ✓ | | |
| R047 | | ✓ | ✓ | ✓ |
| R050 | ✓ | ✓ | | |
| R056 | | ✓ | | |
| R068 | ✓ | ✓ | ✓ | |
| R082 | | ✓ | | |
| R100 | ✓ | ✓ | ✓ | ✓ |
| R120 | | ✓ | | |
| R150 | | ✓ | | |
| R170 | | ✓ | ✓ | |
| R180 | | ✓ | | |
| R200 | | ✓ | | |
| R220 | | ✓ | | ✓ |
| R250 | | ✓ | | |
| R270 | | ✓ | ✓ | |
| R330 | | ✓ | | |
| R390 | | ✓ | | |

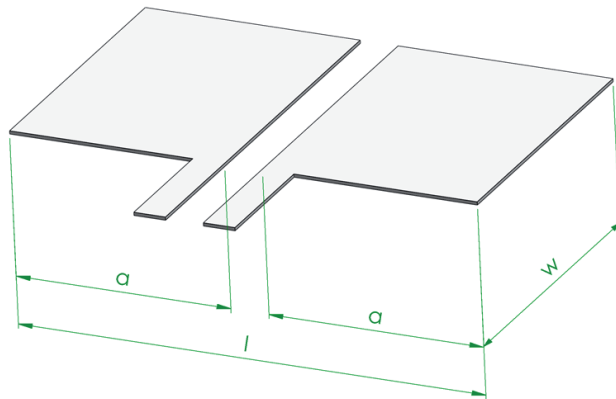
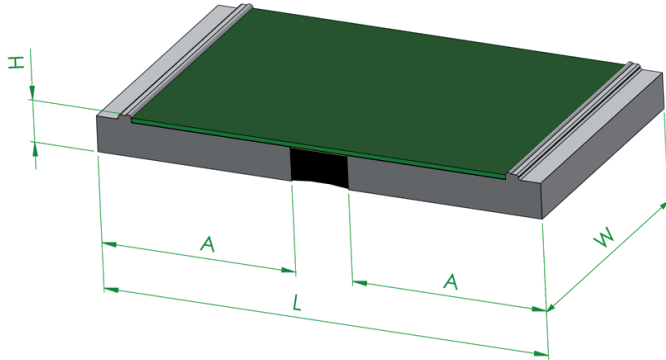
| Resistance values | Tolerance | | | |
|-------------------|-----------|-----|-----|-----|
| | 0.5 | 1.0 | 2.0 | 5.0 |
| R400 | ✓ | | | |
| R470 | | ✓ | ✓ | |
| R500 | ✓ | ✓ | | |
| R560 | | ✓ | | |
| R680 | | ✓ | | |
| R820 | | ✓ | | |
| 1R00 | ✓ | ✓ | | |
| 2R00 | | ✓ | | |
| 3R00 | | | | ✓ |
| 4R00 | | ✓ | | |

* Further values and tolerances on request
 ✓ = available



SMT // Size 2817

Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Z-YE-1019



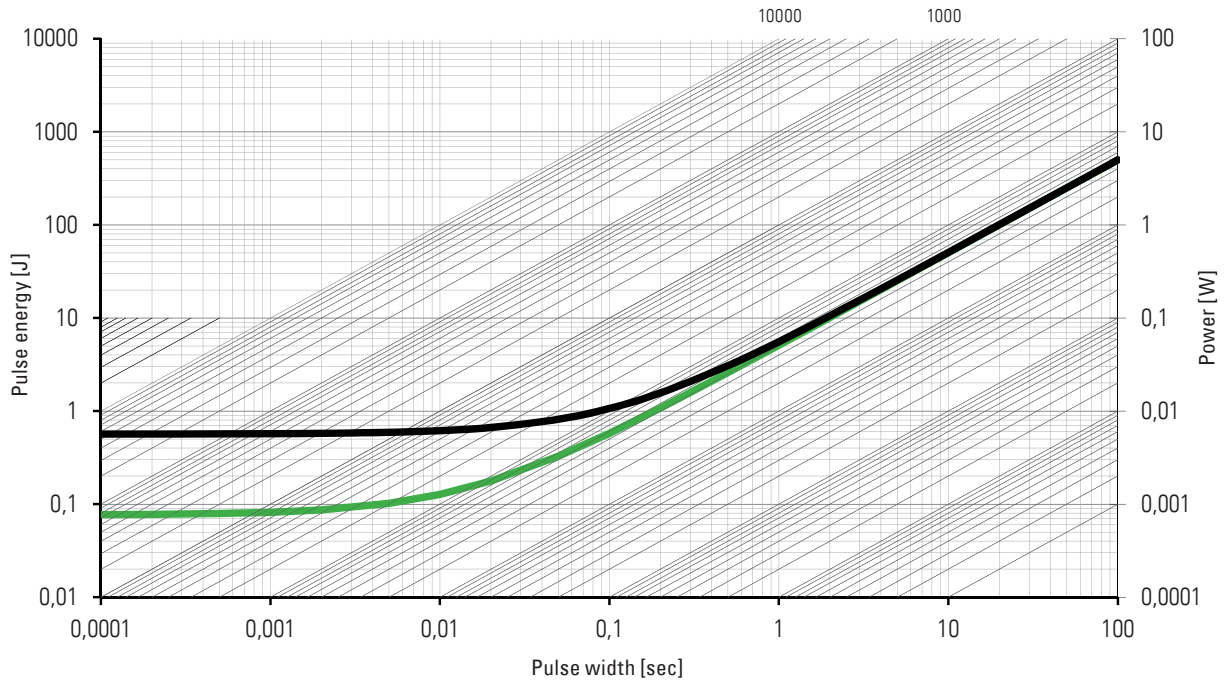
| type | L | W | H | A |
|------|----------|----------|----------|-----|
| SMT | 7.1 ±0.2 | 4.2 ±0.2 | 0.8 ±0.2 | 3.1 |

| solder pad type: | l | w | a |
|------------------|-----|-----|-----|
| SMT | 7.4 | 4.6 | 3.4 |



SMT // Size 2817

Maximum pulse energy respectively pulse power for permanent operation



— This curve is only valid for the resistance value R004
 — This curve is only valid for the resistance value 4R00

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 | ±0.3% |
| Moisture Resistance | MIL-STD-202 method 106 | ±0.1% |
| Mechanical Shock | 100 g, 6 ms half sine | ±0.1% |
| Vibration, High Frequency | 20 g, 10-2000 Hz | ±0.1% |
| Operational Life | 2000 h, T _k max at rated power | ±1.0% |
| High Temperature Exposure | 2000 h / 170 °C | ±1.0% |
| Bias Humidity | +85 °C, 85 r.F., 1000 h | ±0.5% |

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