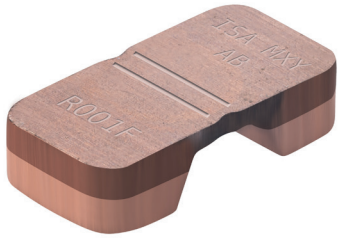
ISABELLENHÜTTE
Innovation by Tradition

# PRECISION RESISTORS

## **WAK //** Size 1206




### Features

- Constant current up to 90 A (0.5 mOhm)
- 4 W power rating up to 150 °C
- Two terminal configuration
- Excellent long-term stability
- High application temperature range -65 to +175 °C
- RoHS 2011/65/EU compliant
- Max. solder temperature up to 350 °C / 30 sec
- AEC-Q200 qualified

RoHS

### Applications

- Current sensor for power hybrid applications
- High current applications for the automotive market
- Frequency converters
- Power modules

**Technical data**

| | | | |
|---|---|---|---|
| Resistance values | **mOhm** | **1** | **0.5** |
| Material | | ZERANIN® | |
| Tolerance | **%** | 1 / 5 | |
| Temperature coefficient (20-60 °C) | **ppm/K** | <100 | <130 |
| Applicable temperature range | **°C** | -65 to +175 | |
| Power rating $P_{150\,°C}$ | **W** | 2 | 4 |
| Power rating $P_{70\,°C}$ | **W** | 6 | 6 |
| Internal heat resistance ($R_{thi}$) | **K/W** | 12 | 6 |
| Inductance | **nH** | <0.5 | |
| Stability (at rated power) deviation after 2000h,<br>$T_K$ = Terminal temperature | | <0.5% ($T_K$=110 °C)<br><1.0% ($T_K$=150 °C) | |

**Ordering code**

WAK - Z - R001 - 1.0

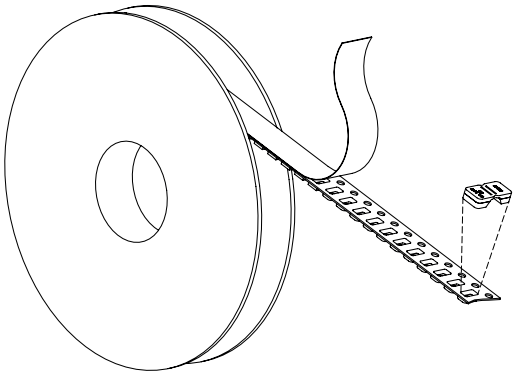
- Tolerance
- Resistance value [Ohm] / „R" represents decimal point
- Material (ZERANIN®)
- Type

# **WAK //** Size 1206

### Recommended solder profile

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

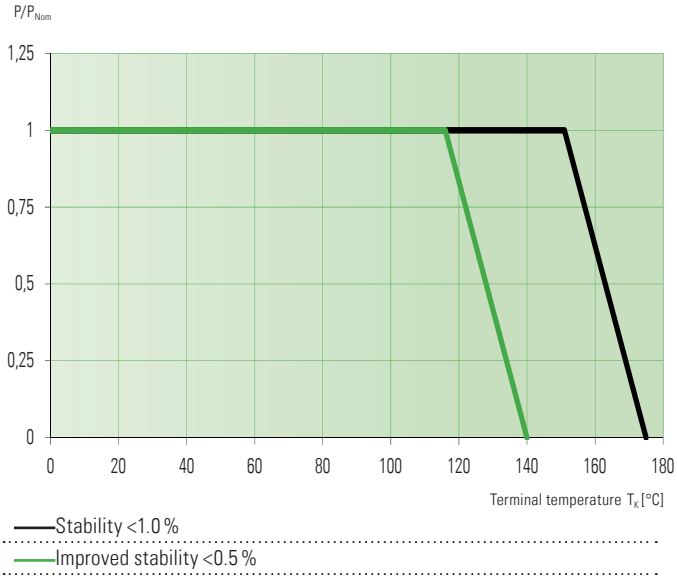
**Note:** we recommend to use 10% less solder paste during screen process, for optimal flow during the soldering process.



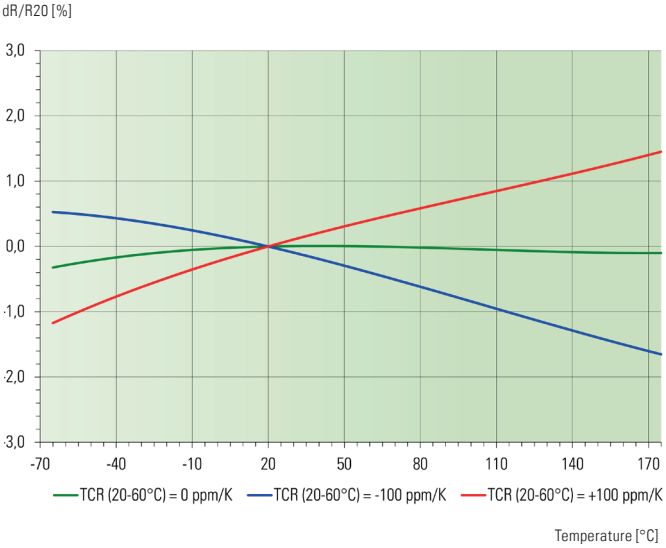
### Tape and reel information

| | | |
|---|---|---|
| Specification | | DIN EN 60286-3 |
| Tape width | **mm** | 12 |
| Parts per reel | **pcs** | 12500 |

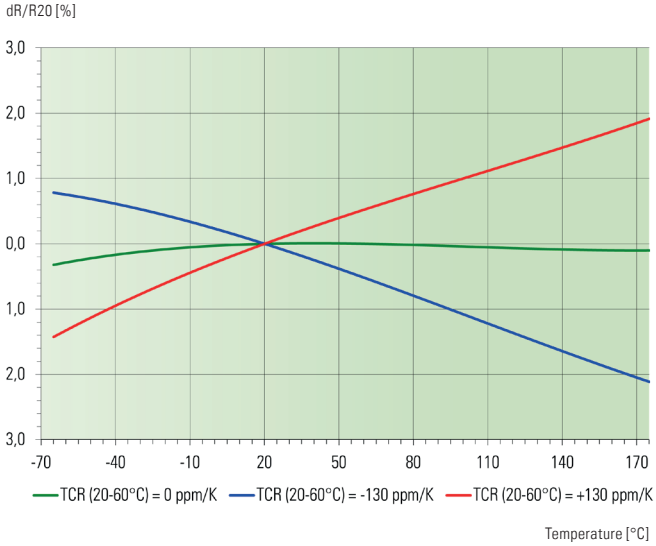
### Power derating curve




### Temperature dependence of the electrical resistance of ZERANIN® for WAK-Z-R001

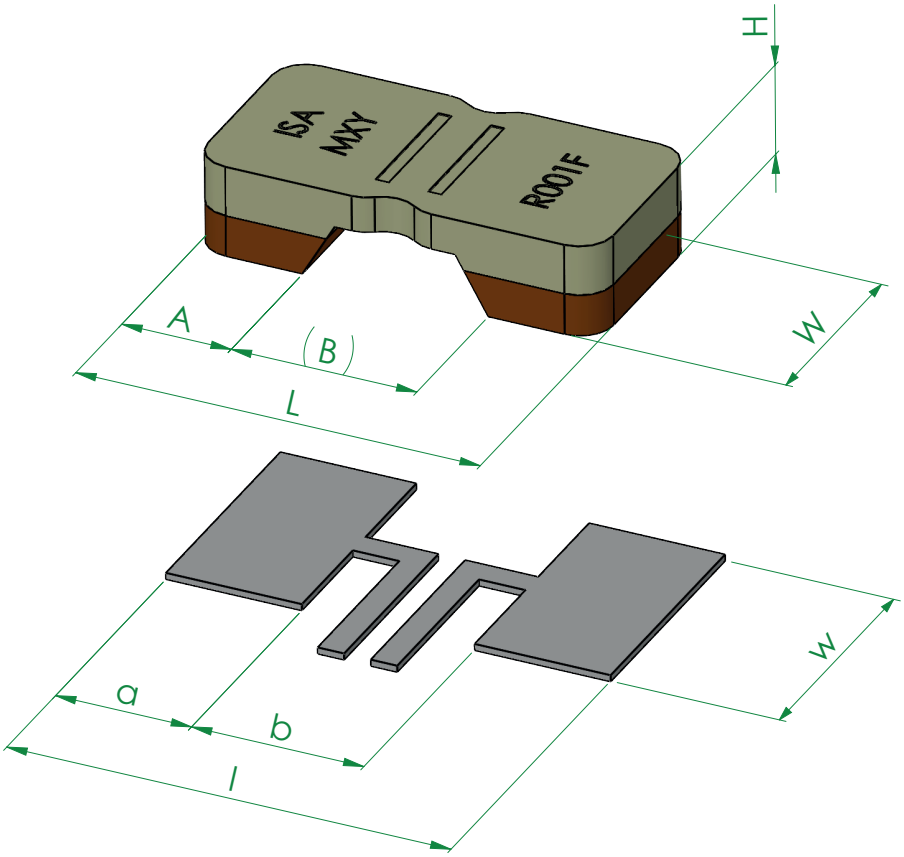



### Temperature dependence of the electrical resistance of ZERANIN® for WAK-Z-R0005



# **WAK //** Size 1206

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

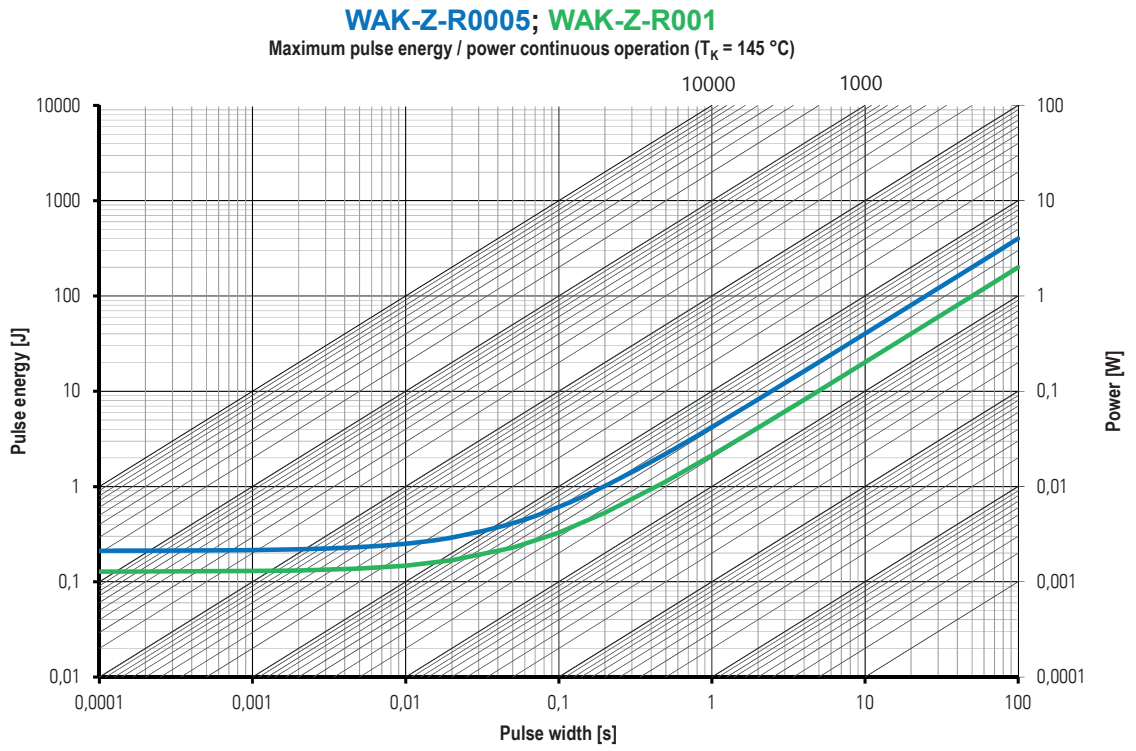



| type: | L | W | H | A | B |
|---|---|---|---|---|---|
| **WAK-Z-R0005-1.0** | 3.05 ±0.2 | 1.52 ±0.2 | 0.833 +0.2/-0.1 | 0.97 ±0.2 | 1.10 ±0.2 |
| **WAK-Z-R001-1.0** | 3.05 ±0.2 | 1.52 ±0.2 | 0.7 +0.2/-0.1 | 0.86 ±0.2 | 1.40 ±0.2 |

| solder pad type: | l | w | a | b |
|---|---|---|---|---|
| **WAK** | 3.35 | 1.82 | 1.025 | 1.3 |

# **WAK //** Size 1206

## Maximum pulse energy respectively pulse power for permanent operation




## Specification

| Parameters | Test conditions | Specified values |
|---|---|---|
| Temperature Cycling | 2000 cycles (-65 °C to +170 °C) | ±1.0 % |
| 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 | ±0.2 % |
| Mechanical Shock | 100 g, 6 ms half sine | ±0.2 % |
| Vibration, High Frequency | 10 g, 10-2000 Hz | ±0.2 % |
| Operational Life | 2000 h, $T_K$ max at rated power | ±1.0 %, $T_K$ = 150 °C (in covered condition) |
| High Temperature Exposure | 2000 h / 175 °C | ±1.0 % (in covered condition) |
| Bias Humidity | +85 °C, 85 r.F., 1000 h | ±0.5 % |