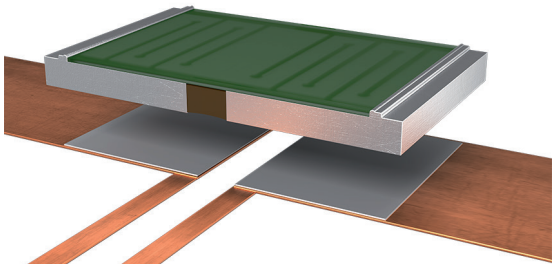
ISABELLENHÜTTE

SMK (1206)

ISA-PLAN® PRECISION RESISTOR



FEATURES

- 1 W power rating at 110 °C
- Constant current up to 11 A (8 mOhm)
- Excellent long-term stability
- High pulse power rating
- Mounting: Reflow-, and IR-soldering
- AEC-Q200 qualified
- Available as Jumper, see “SMK-R000” data sheet

RoHS

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	**mOhm**	8 to 500
Tolerance	**%**	1* / 5
Temperature coefficient (20-60 °C)	**ppm/K**	R <15 mΩ : <100 R ≥15 mΩ : <50
Applicable temperature range	**°C**	-65 to +170
Power rating $P_{110\,°C}$	**W**	1
Power rating $P_{70\,°C}$	**W**	1.5
Internal heat resistance (R_{thi})	**K/W**	<60
Dielectric withstanding voltage (AC/DC)	**V**	200
Inductance	**nH**	<3
Stability (at rated power) deviation after 2000h T_K = Terminal temperature	**%**	<0.5 (T_K = 80 °C) <1.0 (T_K = 110 °C)

* from 10 mOhm

Ordering code

SMK - R010 - 5.0

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

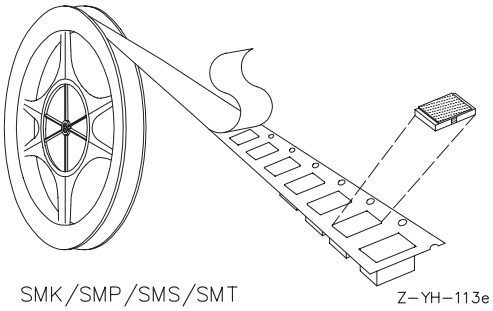
Recommended solder profile

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

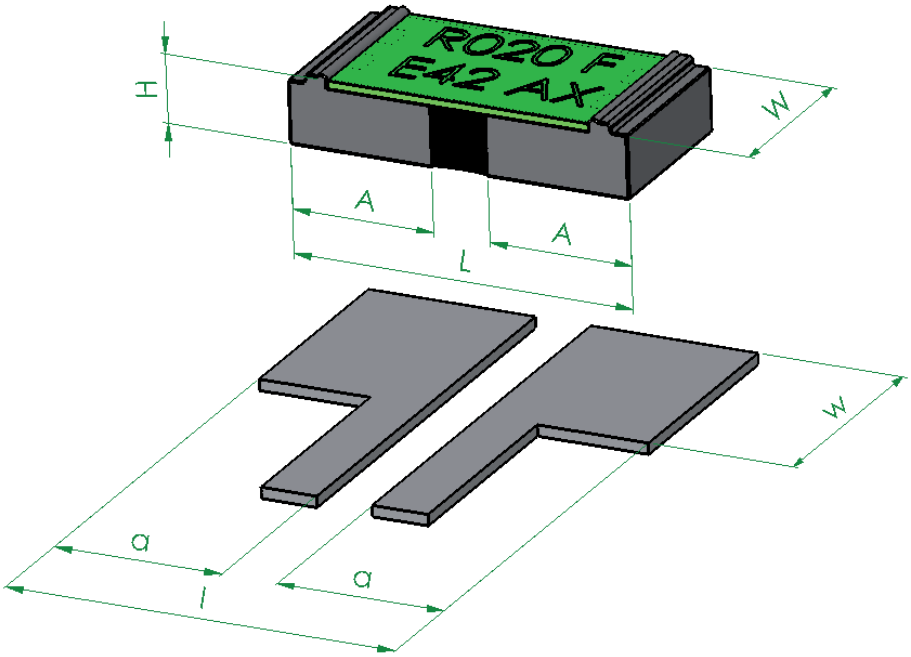
Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	8
Reel size	**inch**	13
Parts per reel	**pcs**	12500
Packaging weight	**g**	452

With differing pcb-layout geometry it is possible that the measured resistance value can vary. Slight deformations during soldering do not affect technical properties of the component.



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



type:	L	W	A	H
SMK	3.05 ± 0.1	1.52 ± 0.1	(1.275)	0.5±0.2

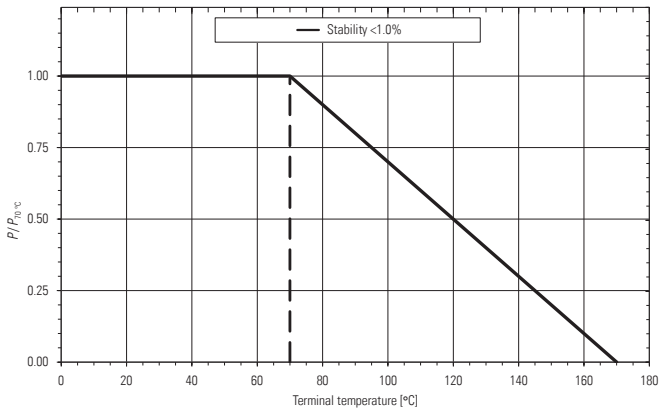
solder pad type:	l	w	a
SMK	3.5	2.0	1.5

Available standard resistance values and tolerances*

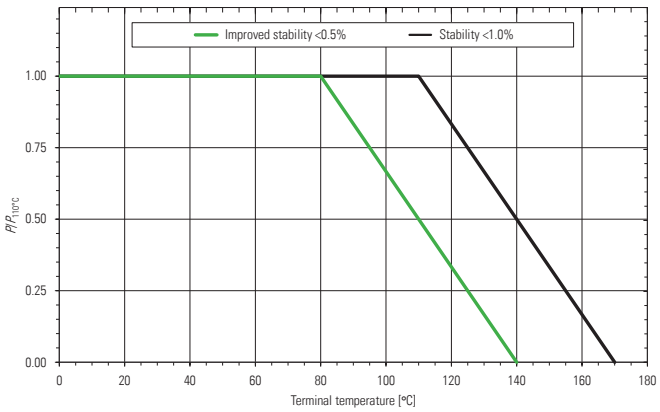
Resistance values	Tolerance	
	1.0	5.0
R008		✓
R010	✓	✓
R020	✓	✓
R025	✓	
R033	✓	
R050	✓	✓
R100	✓	
R170	✓	
R200	✓	
R220	✓	
R500	✓	

* Further values and tolerances on request
✓ = available

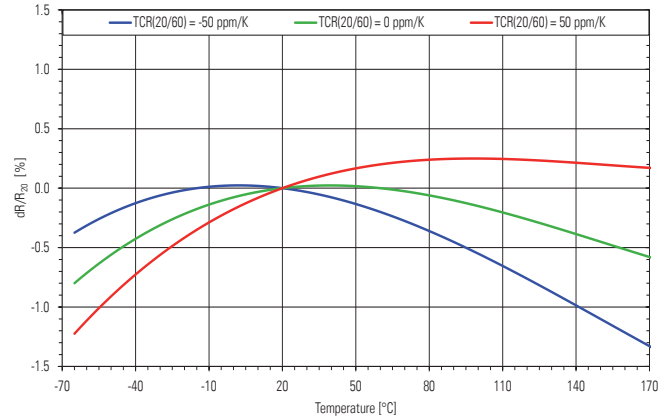
Power derating curve at 70 °C



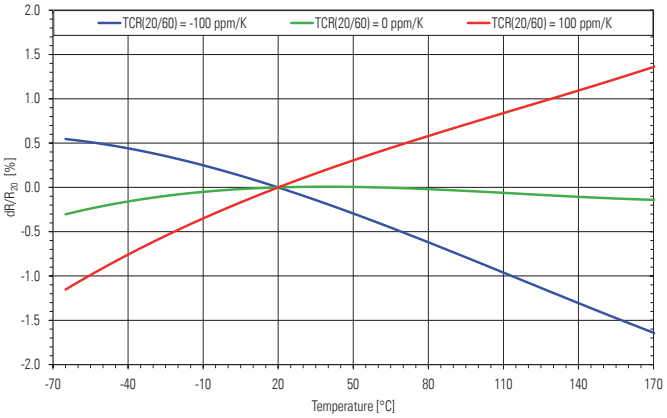
Power derating curve at 110 °C



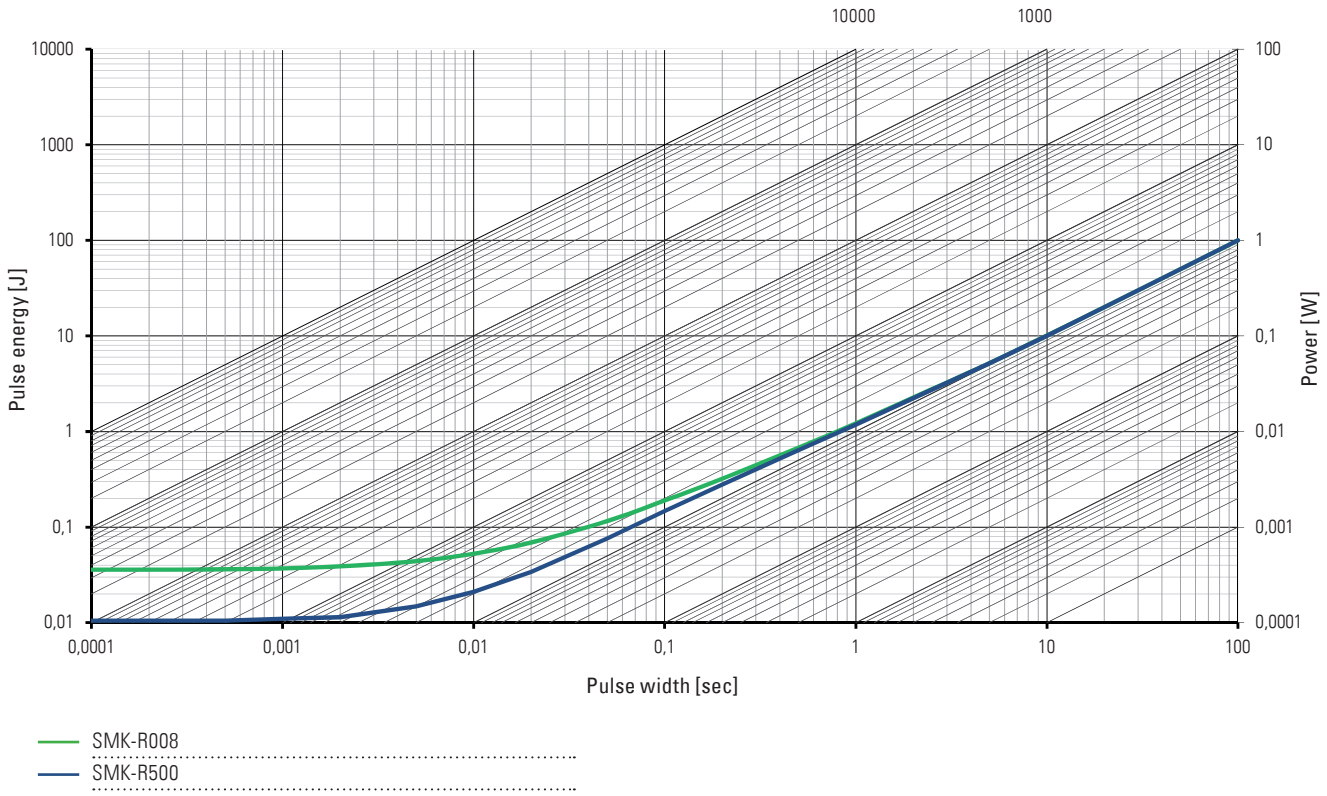
Temperature dependence of the electrical resistance of MANGANIN® resistors



Temperature dependence of the electrical resistance of ZERANIN® resistors



Maximum pulse energy respectively pulse power for permanent operation (T_K=110 °C)



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	±0.3 %
Mechanical Shock	100 g, 6 ms half sine	±0.1 %
Vibration, High Frequency	10 g, 10-2000 Hz, 24 h each axis	±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 %

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.

ISABELLENHÜTTE