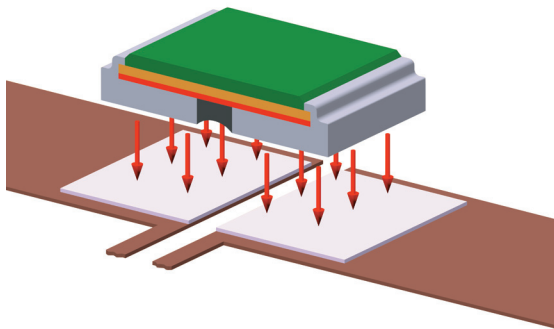




ISA-PLAN® // PRECISION RESISTORS



SMP // Size 2010



Features

- 3 W power rating at 70 °C
- Constant current up to 24 A (5 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	0.005 to 1 *
Tolerance	%	0.5 / 1 *
Temperature coefficient (20-60 °C)	ppm/K	<50
Applicable temperature range	°C	-65 to +170
Power rating P_{110°C}	W	2
Power rating P_{70°C}	W	3
Internal heat resistance (R _{thi})	K/W	<30
Dielectric withstanding voltage	V AC/DC	200
Inductance	nH	<3
Stability (at rated power) deviation after 2000h		<0.5% (T _k = 80 °C)
T _k = Terminal temperature		<1.0% (T _k = 110 °C)

* For detailed information see table on page 3

Ordering code

SMP - R005 - 1.0

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



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Recommended solder profile

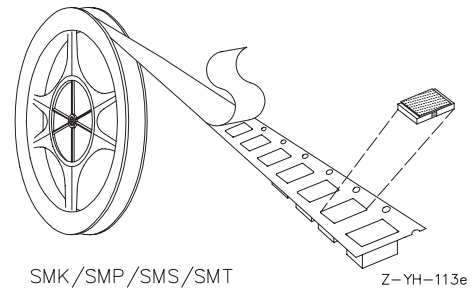
Reflow- and IR-soldering

Temperature	°C	260	255	217
Time	sec	peak	40	90

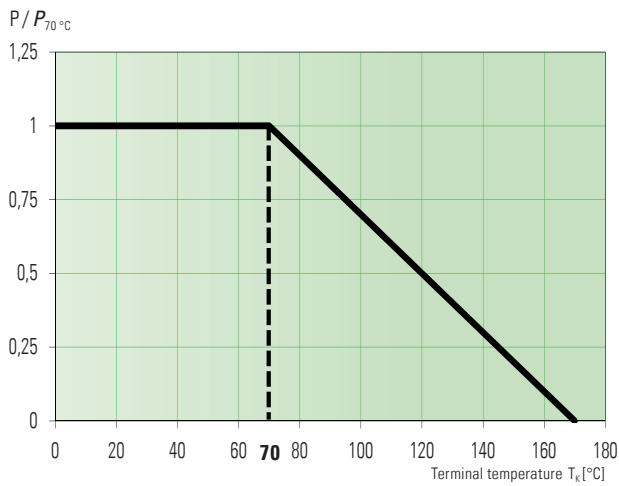
Slight deformations during soldering do not affect technical properties of the component.

Tape and reel information

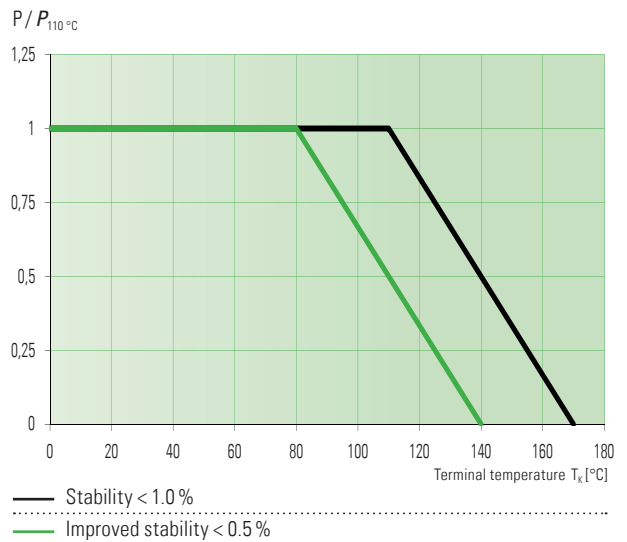
Specification	DIN EN 60286-3		
Tape width	mm	12	
Reel size	inch	13	
Parts per reel	pcs	10,000	
Packaging weight	g	453	



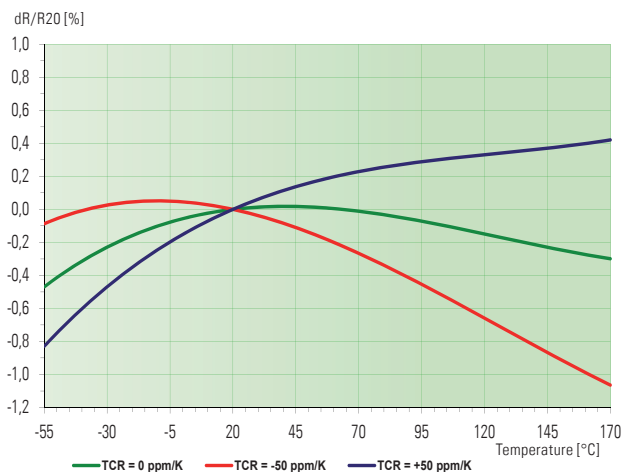
Power derating curve at 70 °C



Power derating curve



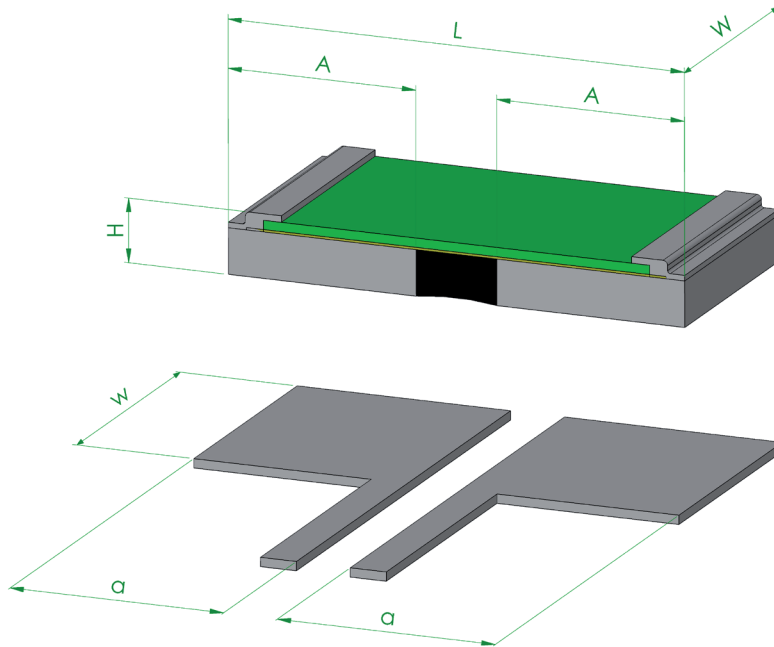
Temperature dependence of the electrical resistance of SMP resistors





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



type:	L	W	A	H
SMP	5.08 ± 0.1	2.54 ± 0.1	(2.14)	0.7 ± 0.2

solder pad type:	l	w	a
SMP	5.4	2.8	2.4

Available resistance values and tolerances*

Resistance values	Tolerance	
	0.5	1.0
R005		✓
R010		✓
R018		✓
R020	✓	✓
R022		✓
R025		✓
R027		✓
R033	✓	✓
R039		✓
R047		✓
R050		✓
R068		✓

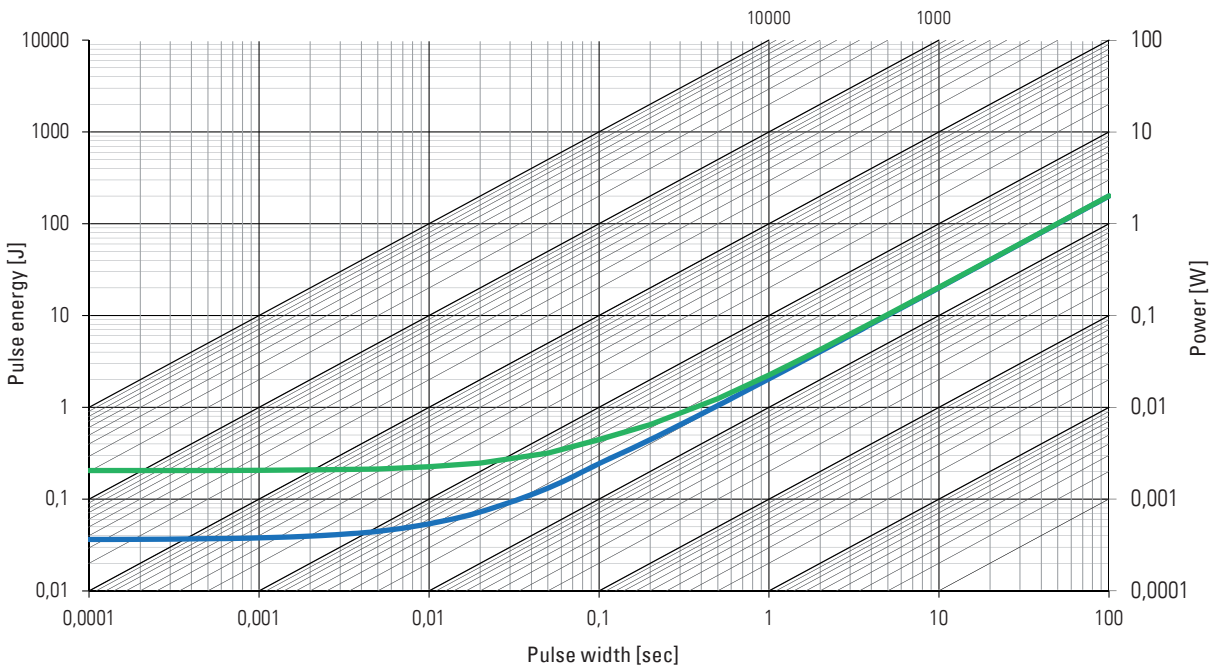
Resistance values	Tolerance	
	0.5	1.0
R082		✓
R100		✓
R150		✓
R160		✓
R180		✓
R200	✓	✓
R330		✓
R390		✓
R470		✓
R500		✓
1R00	✓	✓

* Further values and tolerances on request
 ✓ = available



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Maximum pulse energy respectively pulse power for permanent operation



— This curve is only valid for the resistance value R005
 — This curve is only valid for the resistance value 1R00

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%
Moisture Resistance	MIL-STD-202 method 106	±0.2%
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%

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