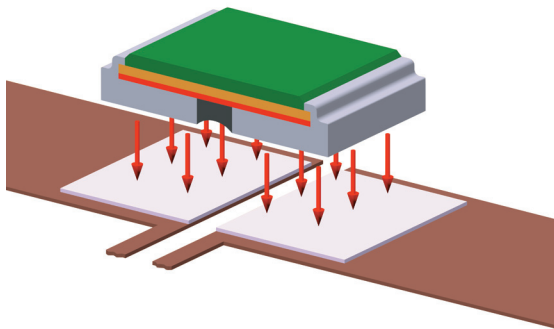




## ISA-PLAN® // PRECISION RESISTORS



### 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

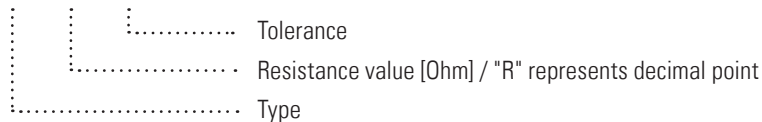
#### Technical data

Resistance values	<b>Ohm</b>	0.005 to 1 *
Tolerance	<b>%</b>	0.5 / 1 *
Temperature coefficient (20-60 °C)	<b>ppm/K</b>	<50
Applicable temperature range	<b>°C</b>	-65 to +170
Power rating <b>P<sub>110°C</sub></b>	<b>W</b>	2
Power rating <b>P<sub>70°C</sub></b>	<b>W</b>	3
Internal heat resistance (R <sub>thi</sub> )	<b>K/W</b>	<30
Dielectric withstanding voltage	<b>V AC/DC</b>	200
Inductance	<b>nH</b>	<3
Stability (at rated power) deviation after 2000h		<0.5% (T <sub>K</sub> = 80 °C)
T <sub>K</sub> = Terminal temperature		<1.0% (T <sub>K</sub> = 110 °C)

\* For detailed information see table on page 3

#### Ordering code

SMP - R005 - 1.0





SMP // Size 2010

**Recommended solder profile**

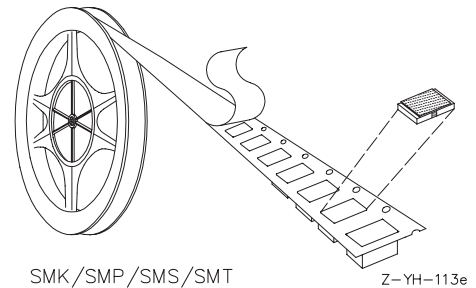
Reflow- and IR-soldering

Temperature	°C	260	255	217
Time	sec	peak	40	90

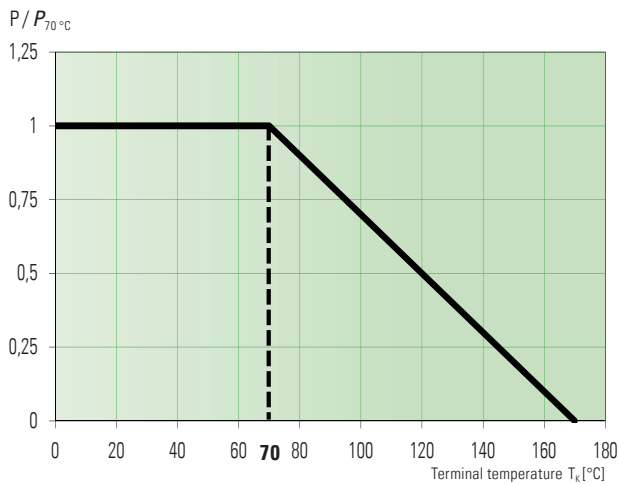
Slight deformations during soldering do not affect technical properties of the component.

**Tape and reel information**

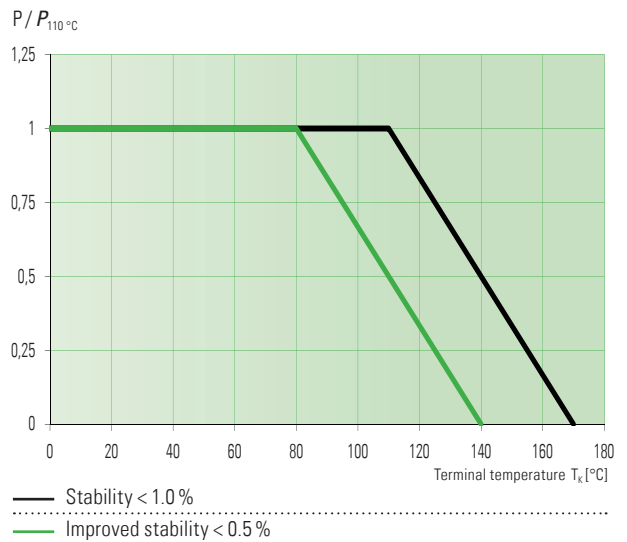
Specification	DIN EN 60286-3		
Tape width	mm	12	
Reel size	inch	13	
Parts per reel	pcs	10,000	
Packaging weight	g	453	



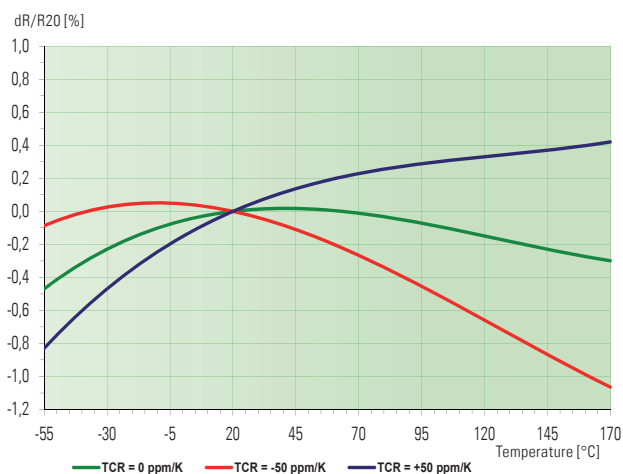
**Power derating curve at 70 °C**



**Power derating curve**



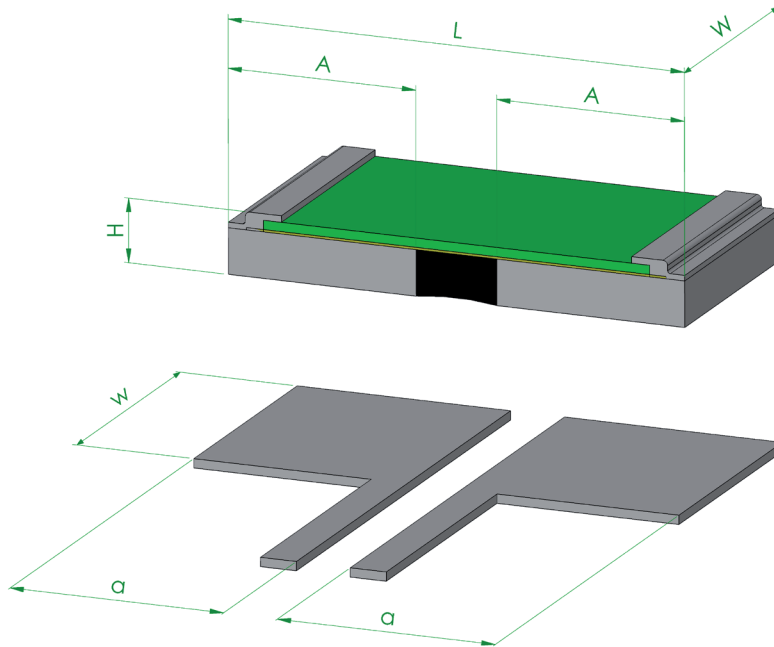
**Temperature dependence of the electrical resistance of SMP resistors**





SMP // Size 2010

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		✓

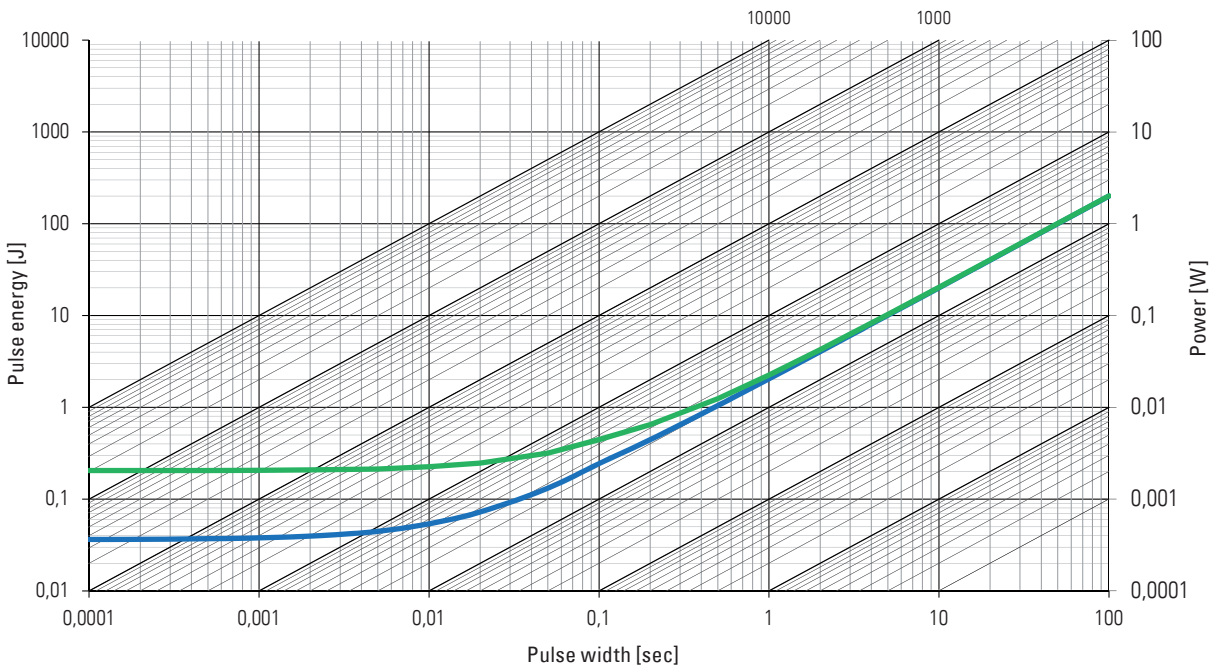
Resistance values	Tolerance	
	0.5	1.0
R082		✓
R100		✓
R150		✓
R160		✓
R180		✓
R200	✓	✓
R330		✓
R390		✓
R470		✓
R500		✓
1R00	✓	✓

\* Further values and tolerances on request  
 ✓ = available



SMP // Size 2010

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 <sub>k</sub> 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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