



**THE DATASHEET OF  
SMT-R033-1.0**

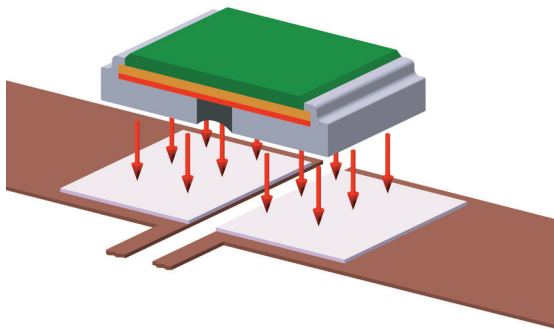




## ISA-PLAN® // PRECISION RESISTORS



### 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

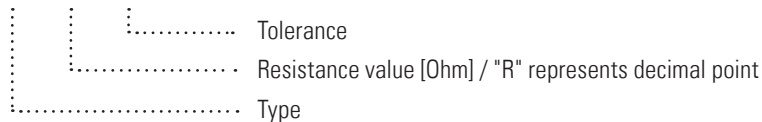
#### Technical data

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

\* For detailed information see table on page 3

#### Ordering code

SMT - R010 - 1.0



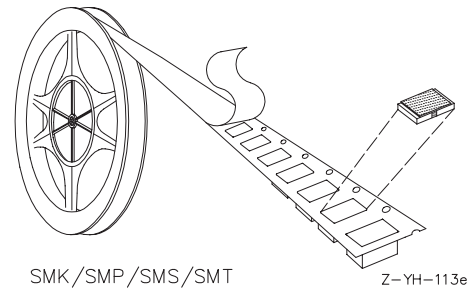


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### Recommended solder profile

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

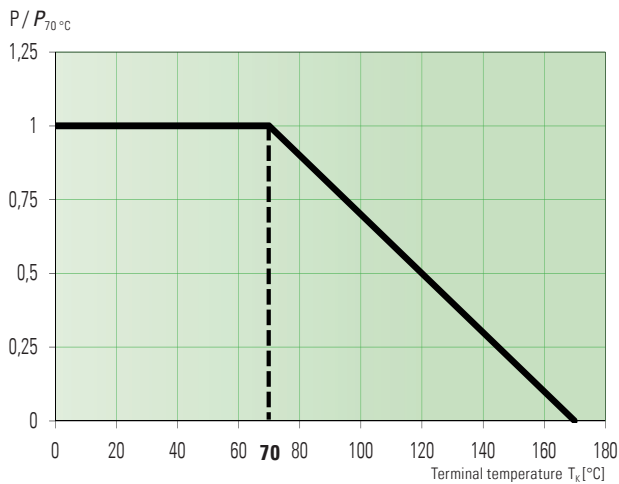
Slight deformations during soldering do not affect technical properties of the component.



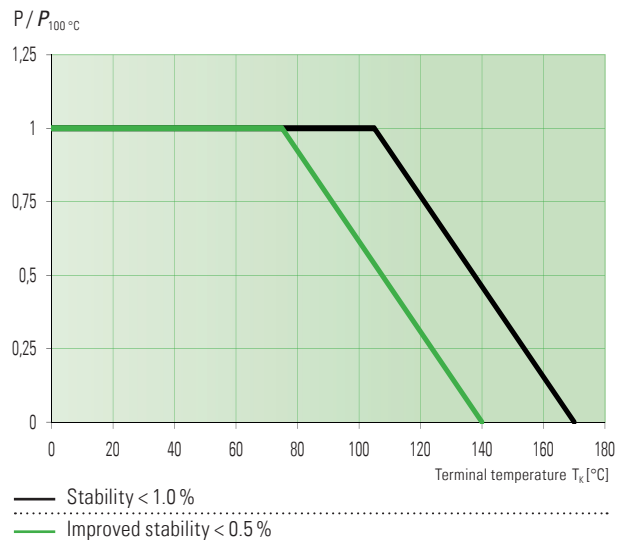
### Tape and reel information

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

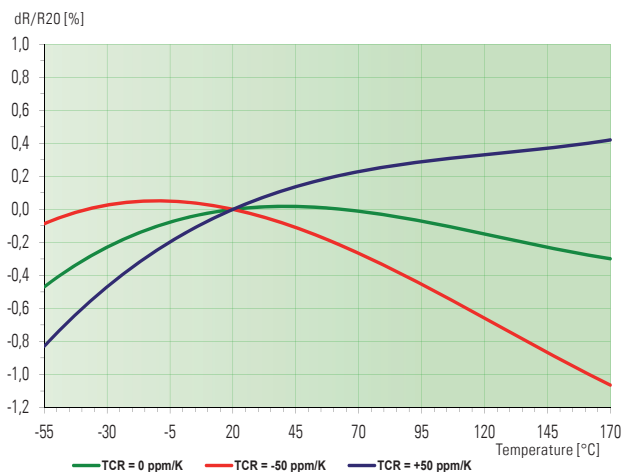
### Power derating curve at 70 °C



### Power derating curve



### Temperature dependence of the electrical resistance of MANGANIN® resistors





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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		✓		

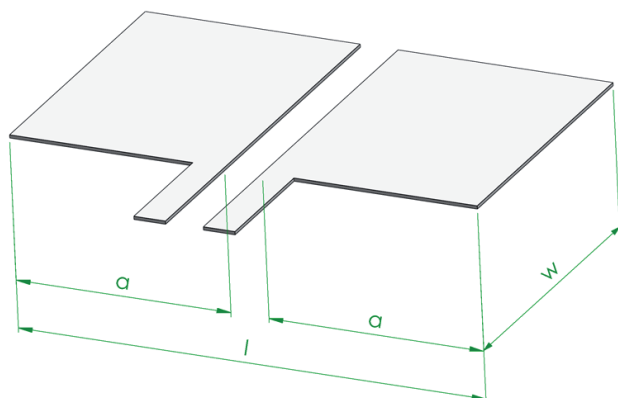
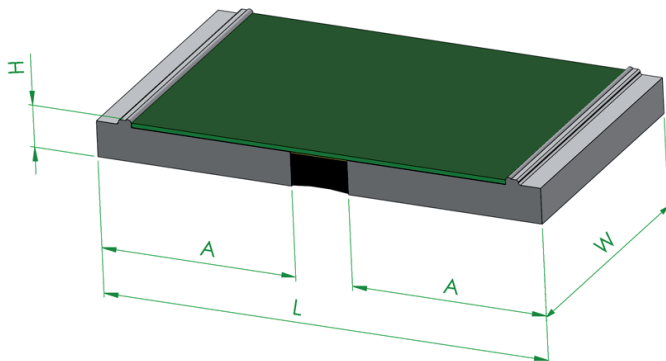
Resistance values	Tolerance			
	0.5	1.0	2.0	5.0
R400	✓			
R470		✓	✓	
R500	✓	✓		
R560		✓		
R680		✓		
R820		✓		
1R00	✓	✓		
2R00		✓		
3R00				✓
4R00		✓		

\* Further values and tolerances on request  
 ✓ = available



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



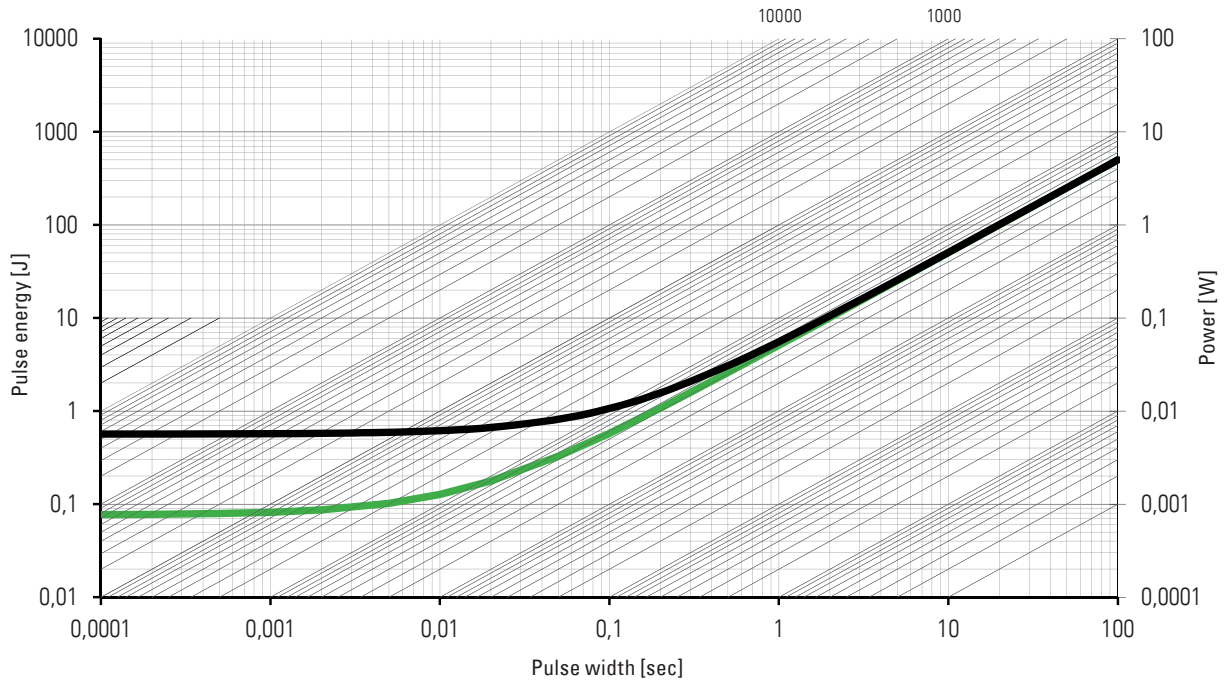
type	L	W	H	A
SMT	7.1 ±0.2	4.2 ±0.2	0.8 ±0.2	3.1

solder pad type:	l	w	a
SMT	7.4	4.6	3.4



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**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 <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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