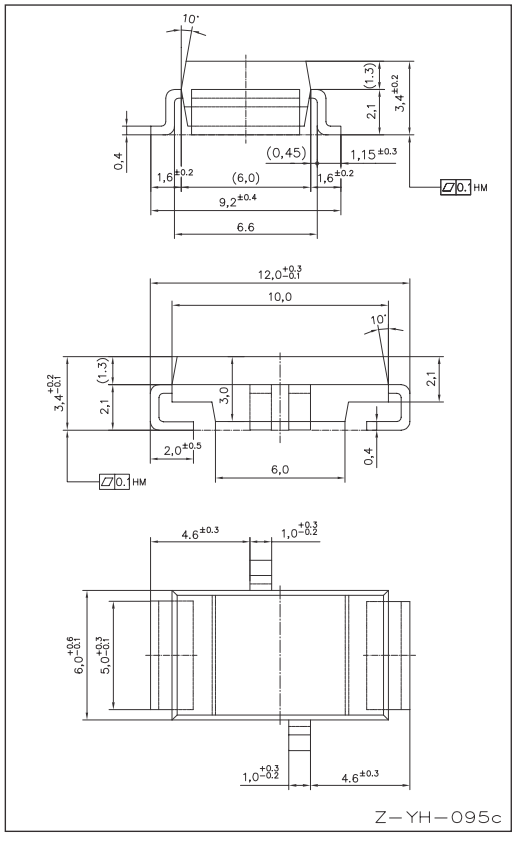
ISA-PLAN® - SMD precision resistors

TECHNICAL DATA	
Resistance values	1 mOhm - 1 Ohm
Tolerance	0.5 %, 1 %, 5 %
Temperature coefficient	< ±30 ppm/K (20 °C - 60 °C)
Applicable temperature range	-55 °C to +140 °C
Load capacity	5 W
Internal heat resistance (R_{thi})	< 15 K/W
Dielectric withstanding voltage	1000 V AC/DC
Inductance	< 10 nH
Stability (Nominal load) deviation T_K= Terminal temperature	< 0.5 % after 2000 h (T_K = 65 °C)

FEATURES

- 5 W permanent power at 65 °C
- Continuous current load up to 70 A (1 mOhm)
- Standard pad size (Size 4723)
- High pulse power rating
- Mounting: Reflow-, IR- and wave-soldering

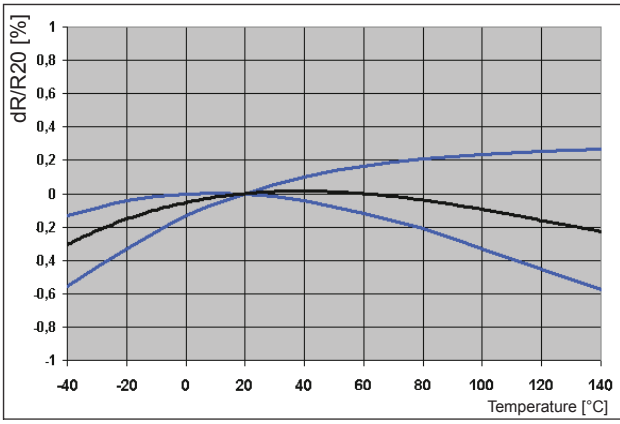
Size 4723



APPLICATION

- Current sensor for power hybrid applications
- Control systems for the automotive market
- Power modules
- Switch mode power supplies

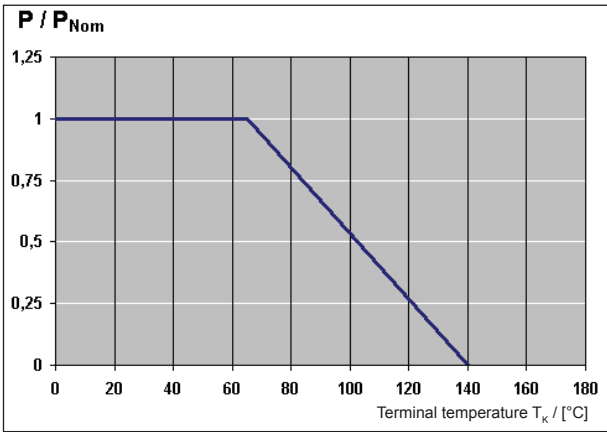
TCR, power derating and long term stability



Temperature dependence of the electrical resistance of MANGANIN®-resistors

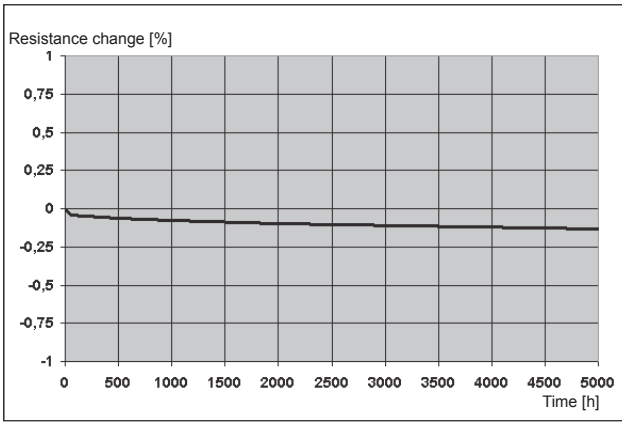
Limiting curve

Typical temperature dependence of a SMV resistor



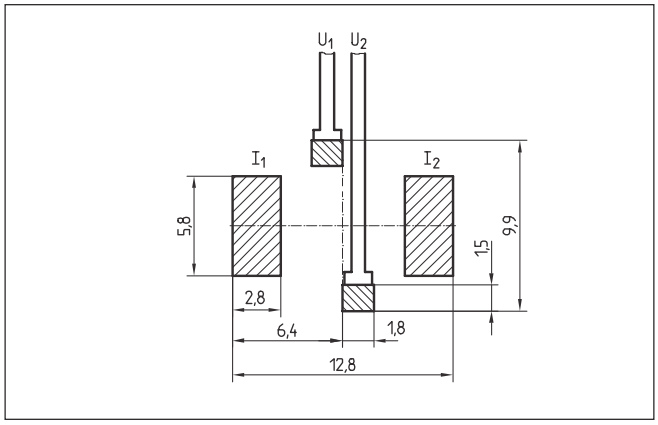
Power derating curve

Stability < 0.5 %



Typical long term stability of MANGANIN®-resistors at 140 °C

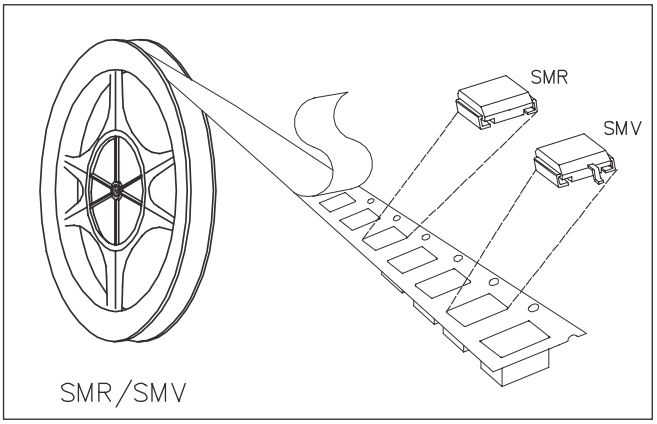
Proposal for pcb-layout (Reflow-soldering)



Recommended solder profile			
Reflow-, IR- and wave-soldering			
Temperature [°C]	260	255	217
Time [s]	peak	40	90
RoHS 2002/95/EC compliance since 01.01.2005. For more information please visit our website: www.isabellenhuette.de			

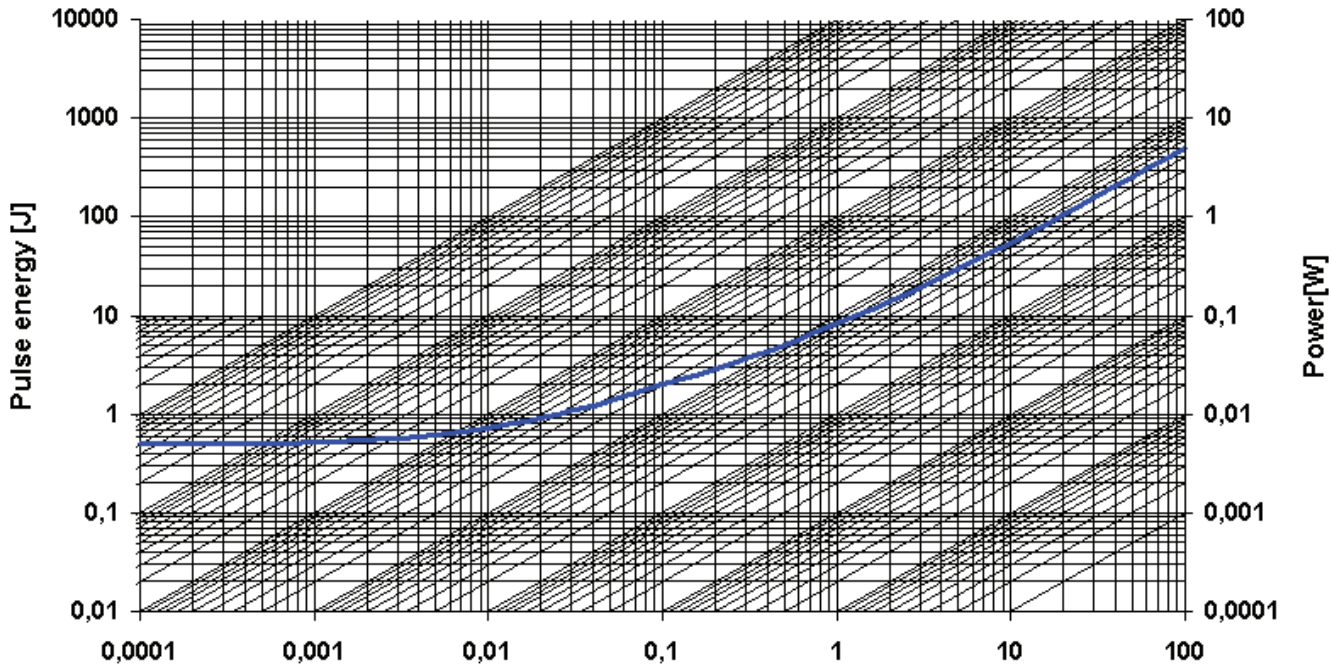
TAPE & REEL INFORMATION	
Specification	DIN EN 60286-3
Tape width	24 mm
Parts per reel	1,500 pcs.

ORDERING CODE		
SMV-R001-1.0		
Type	Resistance value	Tolerance
SMV	1 mOhm	1.0 %



Warranty
All information regarding the suitability, workability and applicability of our products, all technical advice and other information are provided to the best of our knowledge and belief, but shall not discharge the buyer from his own examinations and tests.

Maximum pulse energy respectively pulse power for continuous operation



This curve is only valid for the resistance value R010. The shape of the curve in the range below 0.1 sec will be different for other resistance values. Therefore a separate qualification should be made for pulse power close to the above curve.

Specifications			
Parameters	**Test Conditions**	**Specification**	**Typical data**
Maximum Temperature for full power operation	80 °C	80 °C	80 °C
Working Temperature	-55 to 140 °C	-55 to 140 °C	-55 to 140 °C
Thermal Shock	MIL-STD-202 method 107-B1	0.1 %	0.05 %
Overload	MIL-R-26E (5 times rated power, 5 sec)	0.2 %	0.1 %
Solderability	MIL-STD-202 method 208	> 95 % coverage	
Resistance to Solvents	MIL-STD-202 method 215A, 2.1a, 2.1d	no damage	
Low Temperature Storage and Operation	MIL-STD-26E	0.1 %	0.05 %
Resistance to Soldering Heat	MIL-STD-202 method 210	0.1 %	0.05 %
Moisture Resistance	MIL-STD-202 method 106	0.1 %	0.1 %
Shock	MIL-STD-202 method 213-A	0.2 %	0.2 %
Vibration, High Frequency	MIL-STD-202 method 204-B	0.2 %	0.2 %
Life	MIL-STD-26E	0.2 %	0.2 %
Storage Life at Elevated Temperature	MIL-STD-202 method 108-F	0.3 %	0.3 %
High Temperature Exposure	140 °C, 2000 h	0.2%	0.2 %
Current Noise	MIL-STD-202 method 308	0.01 %	0.01 %
Voltage Coefficient (%/V)	MIL-STD-202 method 309	linearity error less than 120dB	
Resistance Temperature Characteristic	MIL-STD-202 method 304 (20-60°C)	<30 ppm/K	<30 ppm/K
Thermal EMF	0 - 100 °C	3 µV/K max.	2 µV/K
Frequency Characteristic	inductivity	< 10 nH	< 7 nH

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