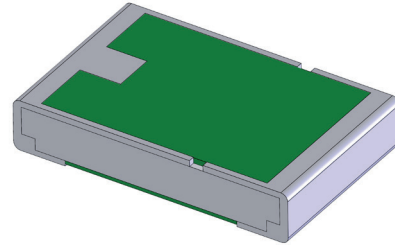


VMI-1.0 (0805)

ISA-PLAN® PRECISION RESISTOR



FEATURES

- 1.1 W power rating at 70 °C
- Constant current up to 8.5 A (10 mOhm)
- Small size (0805)
- High pulse power rating
- Excellent long-term stability
- Mounting: Reflow- and IR-soldering
- AEC-Q200 qualified
- Available as Jumper, see "VMI-R000-U" data sheet



APPLICATIONS

- Current sensor for power hybrid applications
- Control systems for the automotive market, amongst others for LED-applications
- Power modules
- Frequency converters
- Switch mode power supplies

Technical data

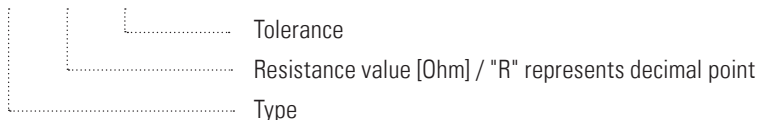
Resistance values*	mOhm	10 to 100
Tolerance	%	1.0
Temperature coefficient (20-60 °C)**	ppm/K	nominal value ±30
Applicable temperature range	°C	-65 to +170
Power rating P_{100°C}**	W	up to 0.75
Power rating P_{70°C}**	W	up to 1.1
Internal heat resistance (R_{th})**	K/W	from 90
Dielectric withstanding voltage	V AC/DC	200
Inductance	nH	<1
Stability (at rated power) deviation after 2000 h T_K = Terminal temperature	%	<0.5 ($T_K = 70 °C$) <1.0 ($T_K = 100 °C$)

* see all standard values and tolerances on page 2.

** see details in table „Electrical specification“ on page 3.

Ordering code

VMI - R010 - 1.0

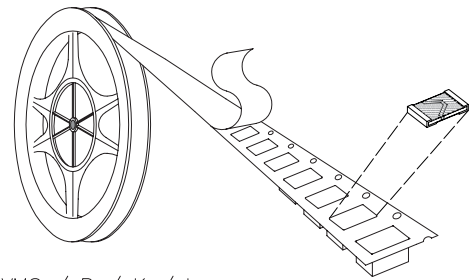


Recommended solder profile

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

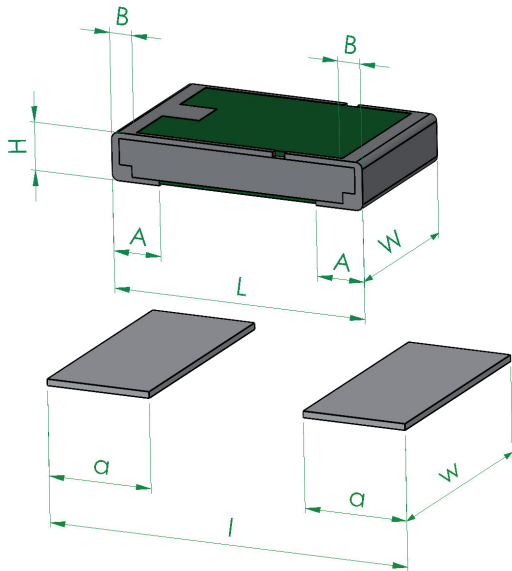
Tape and reel information

Specification	DIN EN 60286-3			
Tape width	mm	8		
Reel size	inch	13		
Parts per reel	pcs	15000		
Packaging weight (net)	g	480		

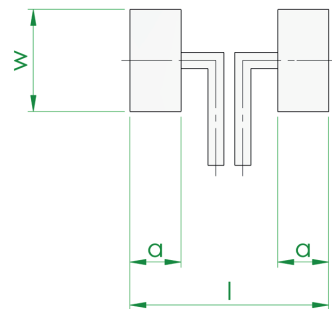


VMS / P / K / I

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

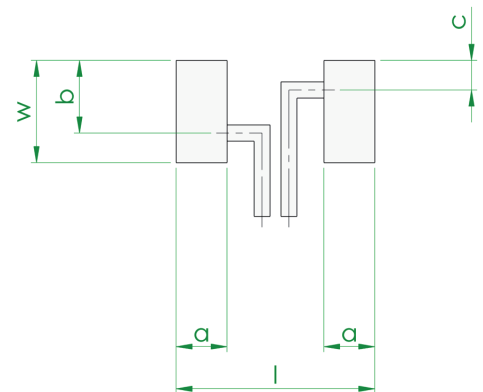


Layout 1



Layout 2

Layout for values >30 mOhm if optimal TC is required



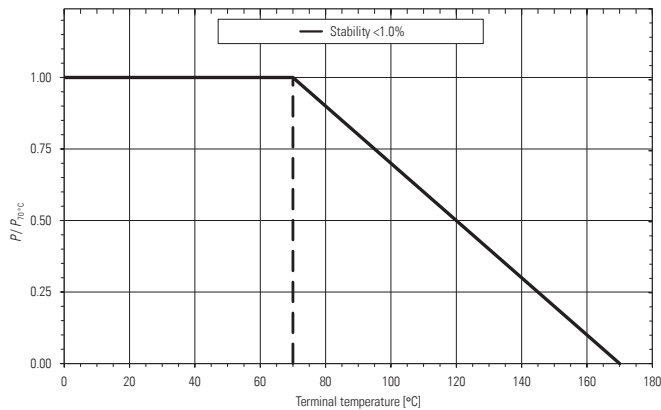
Type	L	W	H	A	B
VMI	2.03 ± 0.15	1.27 ± 0.15	0.4 ± 0.15	0.38 ± 0.2	0.18 + 0.15/-0.1

Solder pad type	l	w	a	b	c
VMI	2.9	1.8	0.82	1.3	0.5

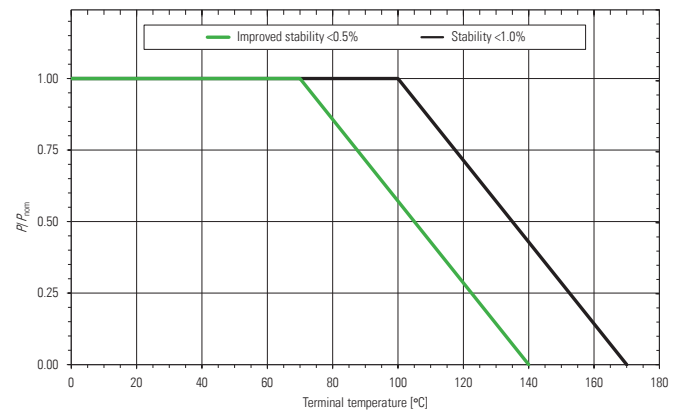
Electrical specification

Type	Material	Value [mΩ]	R_{thi} [K/W]	TCR [ppm/K]	$P_{70^\circ\text{C}}$ [W]	$P_{100^\circ\text{C}}$ [W]
VMI-R010	ZERANIN®	10	<90	25 ± 30	1.1	0.75
VMI-R012	ZERANIN®	12	<95	35 ± 30	1.05	0.7
VMI-R020	MANGANIN®	20	<100	10 ± 30	1.0	0.7
VMI-R033	MANGANIN®	33	<105	10 ± 30	0.95	0.65
VMI-R050	MANGANIN®	50	<115	15 ± 30	0.85	0.6
VMI-R075	NOVENTIN®	75	<135	20 ± 30	0.7	0.5
VMI-R100	NOVENTIN®	100	<150	5 ± 30	0.65	0.45

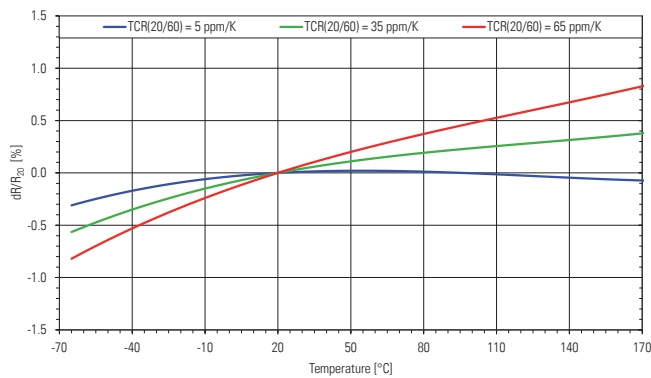
Power derating curve at 70 °C



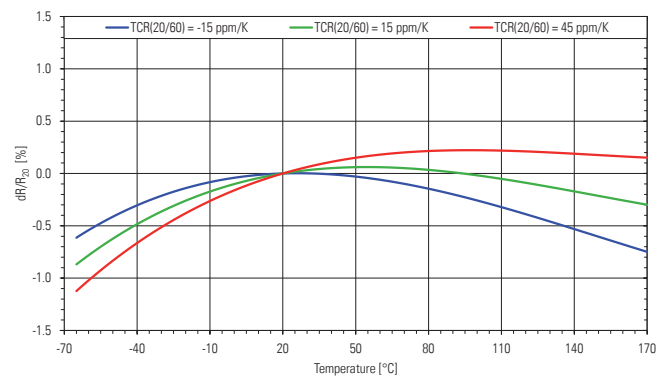
Power derating curve



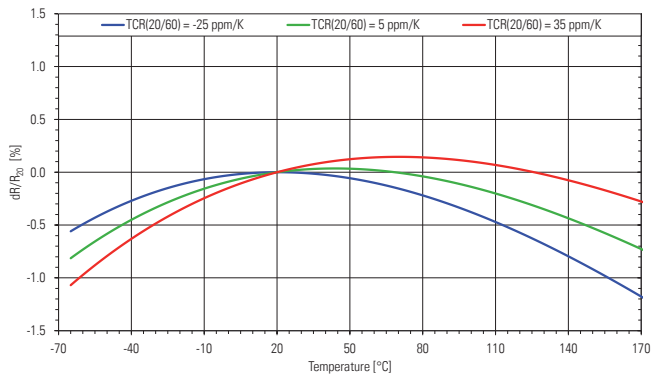
Temperature dependence of the electrical resistance of ZERANIN® resistors



Temperature dependence of the electrical resistance of MANGANIN® resistors

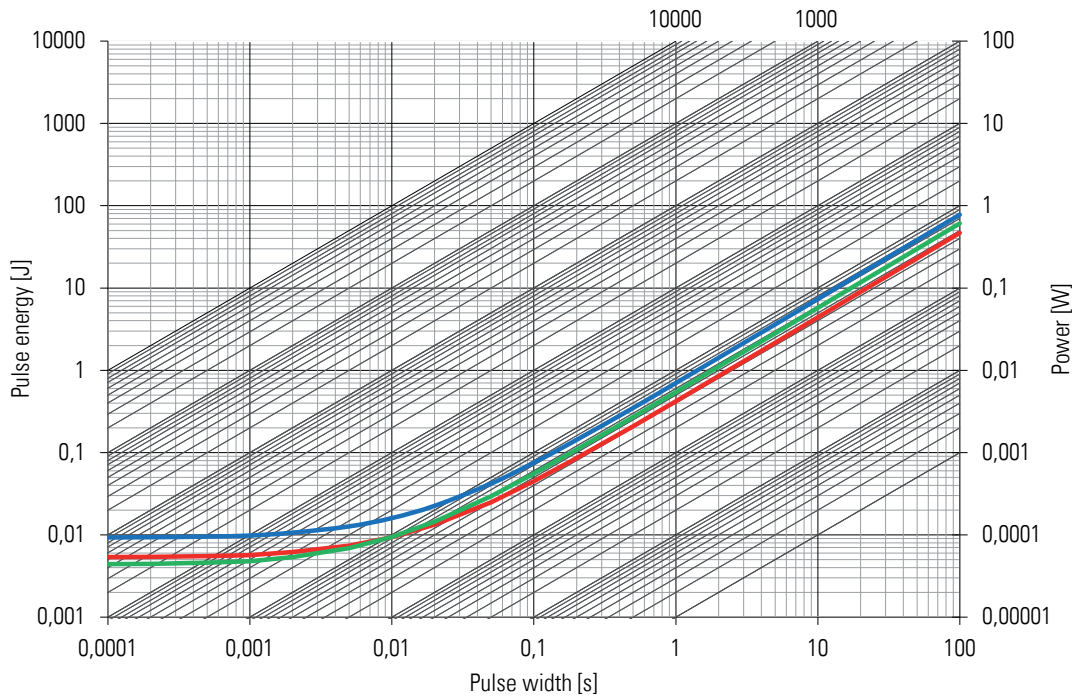


Temperature dependence of the electrical resistance of NOVENTIN® resistors



Maximum pulse energy respectively pulse power for permanent operation

VMI-R010, VMI-R050, VMI-R100
 Maximum pulse energy / power continuous operation ($T_K = 100\text{ °C}$)



Specification

Parameters	Test conditions	Specified values
Temperature Cycling	1000 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	±0.2 %
Vibration, High Frequency	10 g, 10-2000 Hz, 24 h each axis	±0.2 %
Operational Life	2000 h, $T_K = 100\text{ °C}$ max. at rated power	±1.0 %
High Temperature Exposure	2000 h at 170 °C	±1.0 %
Bias Humidity	+85 °C, 85 r.F., 1000 h, powered	±0.5 %

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