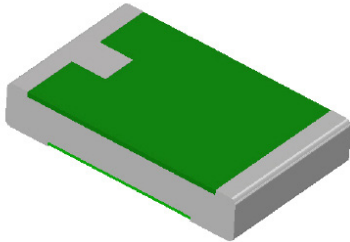


ISA-PLAN® // PRECISION RESISTORS



VMI-1.0 // Size 0805



Features

- 0.75 W power rating at 100 °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
- RoHS 2011/65/EU compliant
- AEC-Q200 qualified



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 ¹	mOhm	10 to 100
Tolerance	%	1.0
Temperature coefficient (20-60 °C) ²	ppm/K	nominal value ±30
Applicable temperature range	°C	-65 to +170
Power rating ³	W	up to 0.75
Internal heat resistance (R _{thi}) ³	K/W	from 90
Dielectric withstanding voltage	V AC/DC	200
Inductance	nH	<1
Stability (at rated power) deviation after 2000h, T _K = Terminal temperature		<0.5 % (T _K =70 °C) <1.0 % (T _K =100 °C)

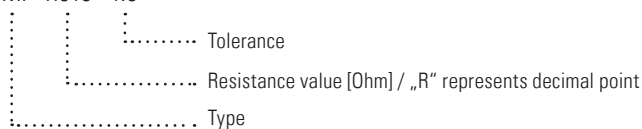
¹ See all standard values and tolerances on page 2.

² See details in table „Components resistance change with temperature“ on page 3.

³ See details in table „Components power rating“ on page 4.

Ordering code

VMI - R010 - 1.0





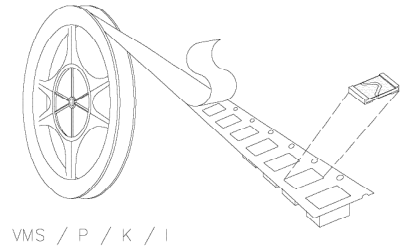
VMI-1.0 // Size 0805

Recommended solder profile (Reflow- and 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	

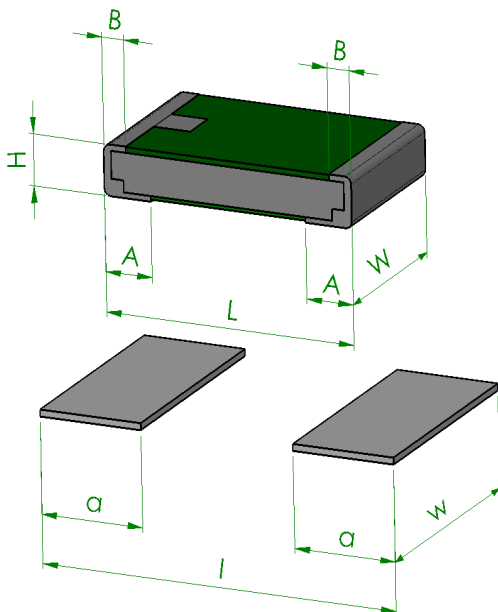


Resistance values Tolerance 1 %

R010	✓
R012	✓
R033	✓
R050	✓
R075	✓
R100	✓

* Further values and tolerances on request
 ✓ = available

Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] // Z-YE-494a



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

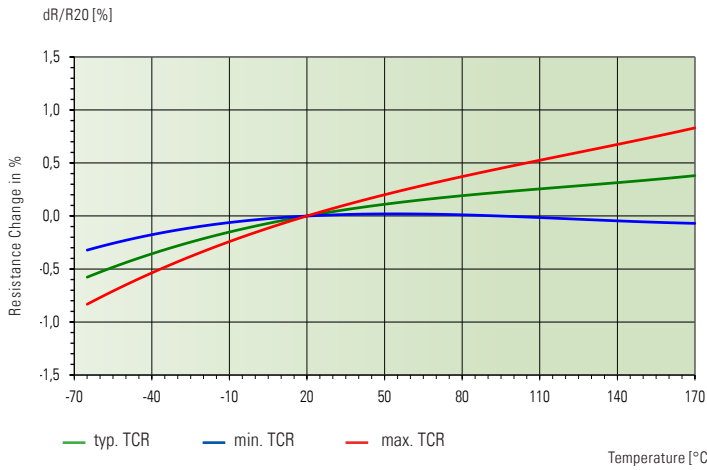
Solder pad type	l	w	a
VMI	2.9	1.8	0.82



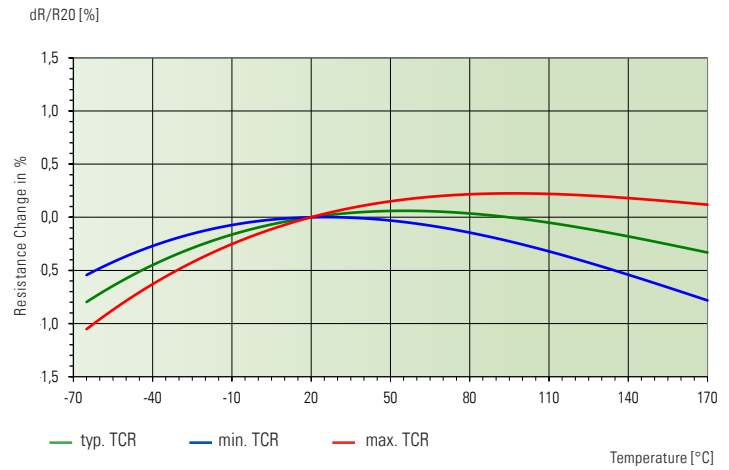
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Temperature dependence of the electrical resistance

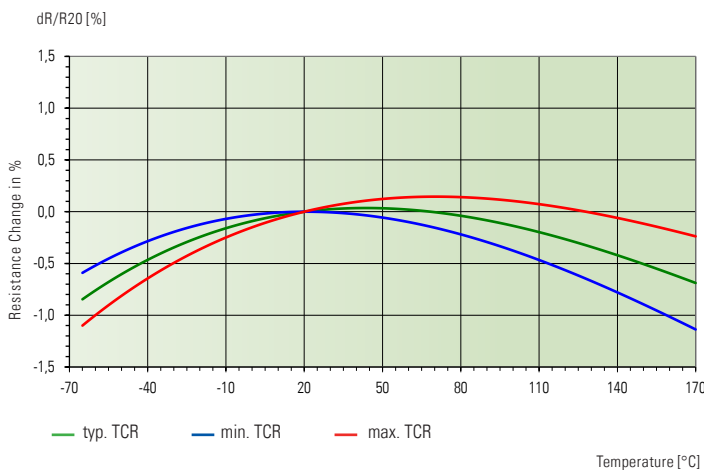
R012 Resistance Change with Temperature (-65 °C ≤ T ≤ 170 °C), Zeranin®



R050 Resistance Change with Temperature (-65 °C ≤ T ≤ 170 °C), Manganin®



R100 Resistance Change with Temperature (-65 °C ≤ T ≤ 170 °C), Noventin®



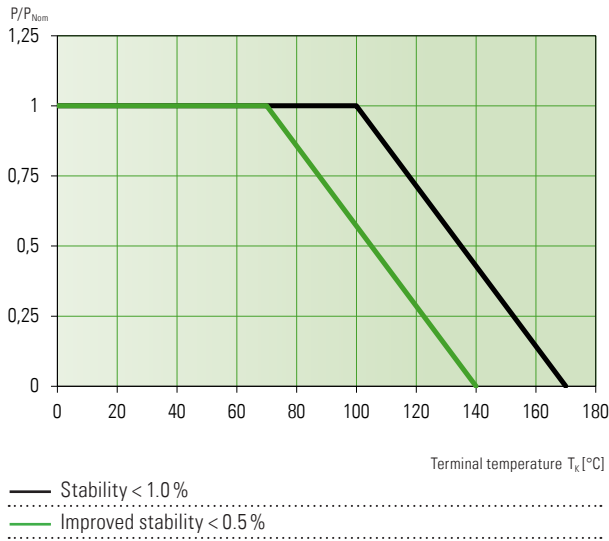
Components resistance change with temperature

Type	TCR (20...60°C) [ppm/K]
VMI-R010	in preparation
VMI-R012	35 ±30
VMI-R033	10 ±30
VMI-R050	15 ±30
VMI-R075	20 ±30
VMI-R100	5 ±30



VMI-1.0 // Size 0805

Power derating curve



Components power rating for stability <1.0%

Type	Value [mOhm]	R_{thi} [K/W]	$P_{70°C}$ [W]	$P_{100°C}$ [W]
VMI-R010	10	<90	1.1	0.75
VMI-R012	12	<95	1.05	0.7
VMI-R033	33	<105	0.95	0.65
VMI-R050	50	<115	0.85	0.6
VMI-R075	75	<135	0.7	0.5
VMI-R100	100	<150	0.65	0.45

Specification

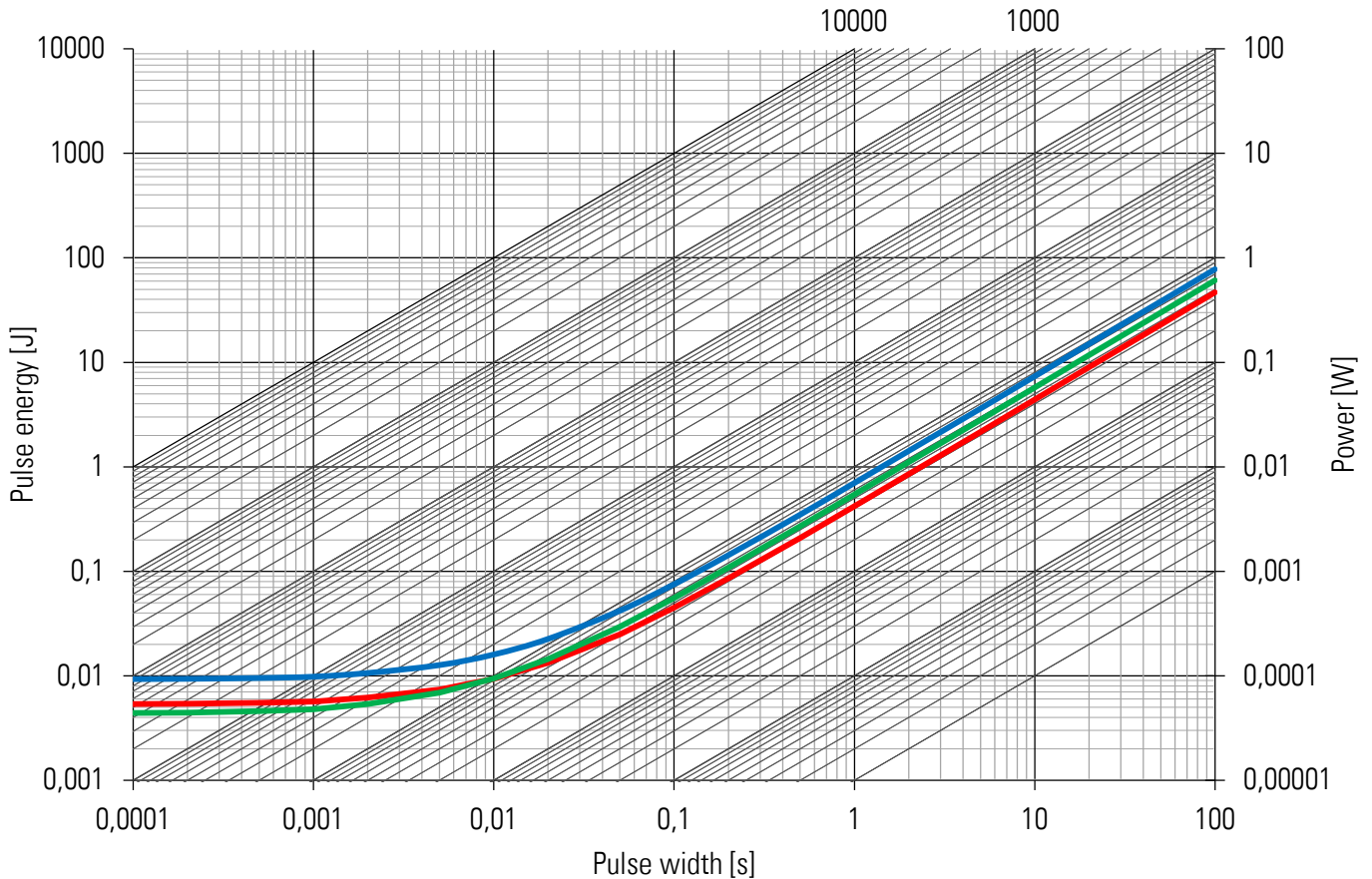
Parameters	Test conditions	Specified values
Temperature Cycling	1000 cycles (-55 °C to +150 °C)	±0.5 %
Low Temperature Storage and Operation	-65 °C for 250 h	±0.1 %
Resistance to Soldering Heat	260 °C for 10 sec / 8h steam aging	±0.3 %
Moisture Resistance	MIL-STD-202 method 106	±0.5 %
Mechanical Shock	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, $T_k = 130$ °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 %



VMI-1.0 // Size 0805

Maximum pulse energy respectively pulse power for permanent operation

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



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