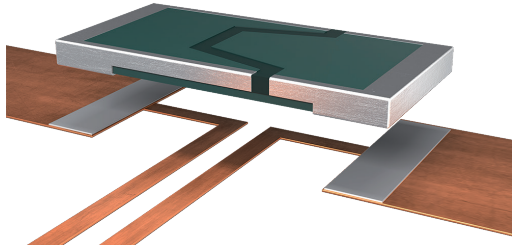




ISA-PLAN® // PRECISION RESISTORS



VMK // Size 1206



Features

- 1 W power rating at 110 °C
- Constant current up to 10 A (10 mOhm)
- Small size (1206)
- High pulse power rating
- Excellent long-term stability
- 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

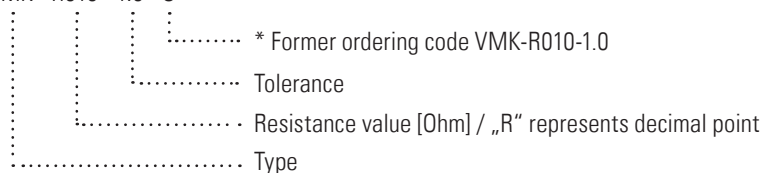
Technical data

Resistance values ¹	mOhm	10 to 470
Tolerance ¹	%	1 / 2 / 5
Temperature coefficient (20-60 °C)	ppm/K	<20
Applicable temperature range	°C	-65 to +170
Power rating P_{110°C}	W	1
Power rating P_{70°C}	W	1.5
Internal heat resistance (<i>R_{thi}</i>)	K/W	<60
Dielectric withstanding voltage	V AC/DC	200
Inductance	nH	<3
Stability (at rated power) deviation after 2000h, <i>T_k</i> = Terminal temperature	%	<0.5 (<i>T_k</i> = 80 °C) <0.7 (<i>T_k</i> = 110 °C)

¹ See all standard values and tolerances on page 2

Ordering code

VMK - R010 - 1.0 - U*





VMK // Size 1206

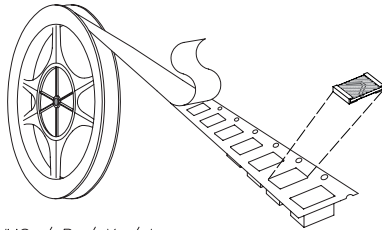
Recommended solder profile

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	12500
Packaging weight net	g	454



VMS / P / K / I

Available standard resistance values and tolerances*

Resistance values	Tolerance 0.5%	Tolerance 1%	Tolerance 2%	Tolerance 5%
R010		✓		✓
R012		✓		
R015		✓		✓
R020		✓		✓
R022		✓		
R025		✓		✓
R030		✓		
R033		✓		
R039		✓		
R047		✓		
R050	✓	✓	✓	
R062		✓		
R068		✓		
R100		✓		✓
R120		✓		
R140		✓		
R150		✓		
R180		✓		
R200		✓		
R220		✓		
R300		✓		
R330		✓		
R470		✓		

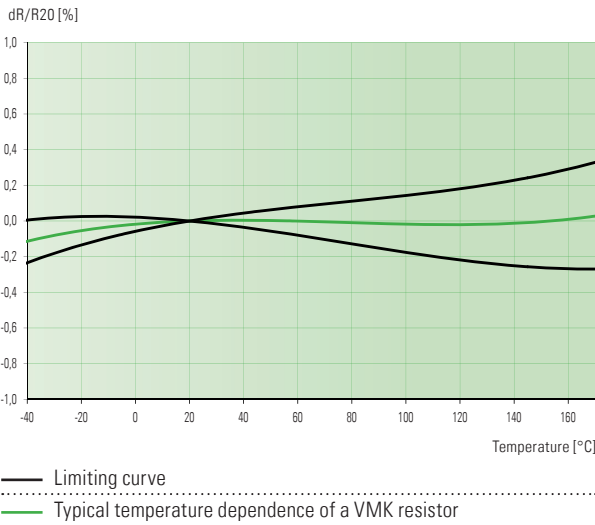
* Further values and tolerances on request

✓ = available

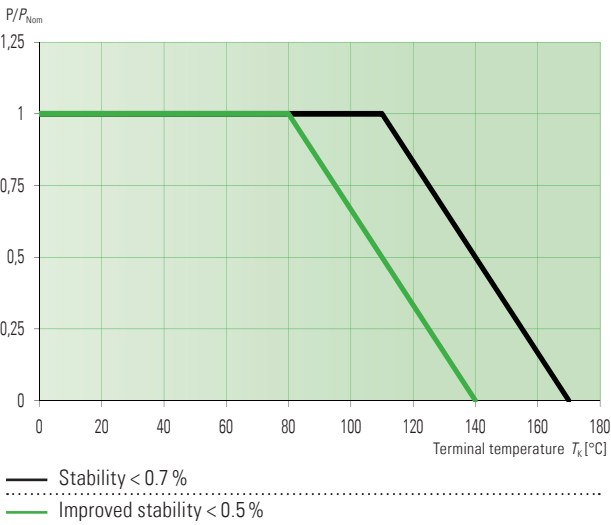


VMK // Size 1206

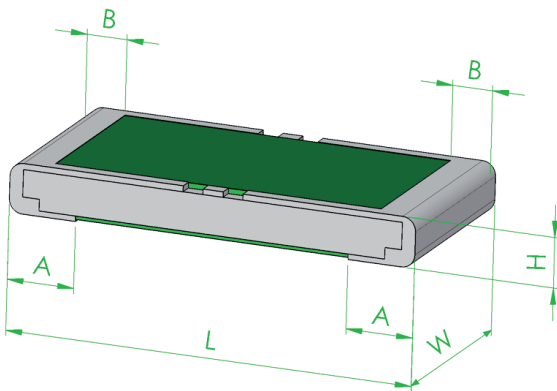
Temperature dependence of the electrical resistance



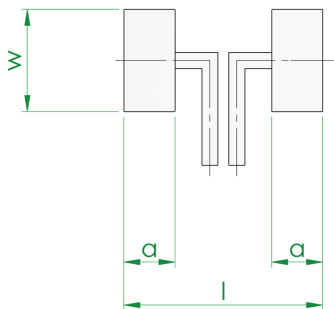
Power derating curve



Mechanical dimensions and pcb-layout proposal (Reflow-soldering) [mm] / Drawing Z-YE-495

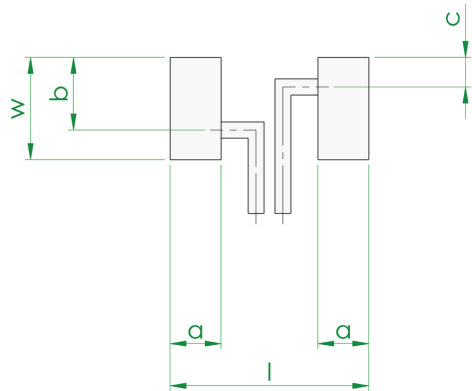


Layout 1



Layout 2

Layout for values >30 mOhm if TC < 20 ppm/K is required



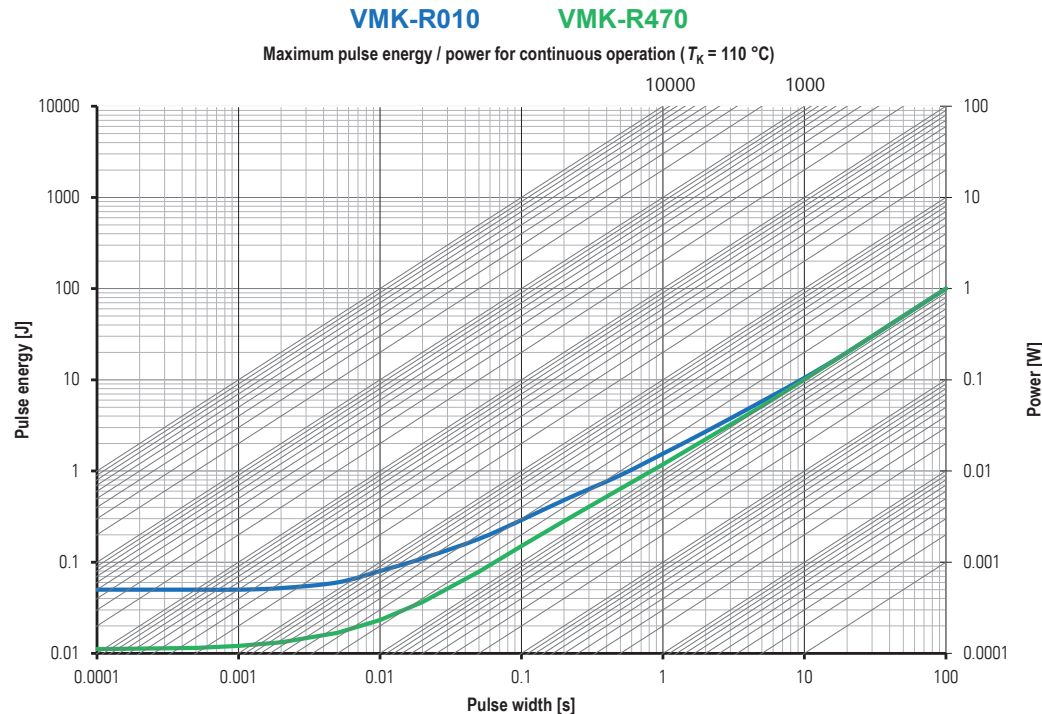
Type	L	W	H	A	B
VMK	3.05 ± 0.2	1.52 ± 0.2	0.4 ± 0.15	0.5 ± 0.15	0.3 ± 0.15

Solder pad type	l	w	a	b	c
VMK	3.7	1.9	0.95	1.35	0.55



VMK // Size 1206

Maximum pulse energy respectively pulse power for permanent operation



Specification

Parameters	Test conditions	Specified values
Temperature Cycling	2000 cycles (-55 °C to +150 °C)	±0.5 %
Low Temperature Storage	-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, $T_K = 110\text{ °C}$ at rated power	±0.7 %
High Temperature Exposure	2000 h / 170 °C	±1.0 %
Bias Humidity	+85 °C, 85 r.F., 1000 h, powered	±0.5 %

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