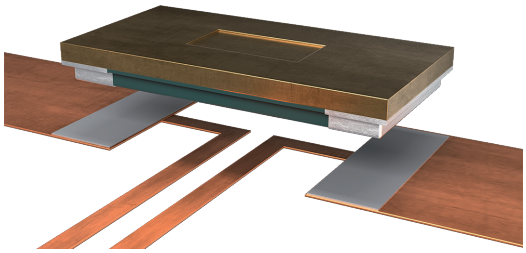
ISABELLENHÜTTE

FMK (1206)

ISA-PLAN® PRECISION RESISTOR



FEATURES

- 3.5 W power rating at 70 °C (2 mOhm)
- Constant current up to 41 A (2 mOhm)
- Excellent long-term stability
- High pulse power rating
- Mounting: Reflow-, and IR-soldering / vacuum soldering recommended
- AEC-Q200 qualified

RoHS

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	**mOhm**	2 / 3 / 4 / 5 / 6
Tolerance	**%**	0.8* / 1 / 5 / 10
Temperature coefficient (20-60 °C)	**ppm/K**	<50
Applicable temperature range	**°C**	-65 to +170
Power rating $P_{110\,°C}$	**W**	up to 2
Power rating $P_{70\,°C}$	**W**	up to 3.5
Dielectric withstanding voltage (AC/DC)	**V**	200
Inductance	**nH**	<1
Stability (at rated power) deviation after 2000h T_K = Terminal temperature	**%**	<0.5 (T_K = 80 °C) <1.0 (T_K = 110 °C)

Type	Value [mΩ]	Rthi [K/W]	TCR [ppm/K]	$P_{70°C}$ [W]	$P_{110°C}$ [W]	Available tolerances			
						0.8*	1 %	5 %	10 %
FMK-M-R002	2	< 26	<50	3.5	2		✓	✓	
FMK-M-R003	3	< 33	<50	3	1.5		✓	✓	
FMK-V-R004	4	< 40	<50	2.5	1.5		✓	✓	✓
FMK-V-R005	5	< 50	<50	2	1	✓	✓	✓	
FMK-V-R006	6	< 58	<50	1.5	1		✓	✓	

Abbrevation type M=MANGANIN®, V=NOVENTIN®

** under development*

Ordering code

FMK - M - R002 - 1.0

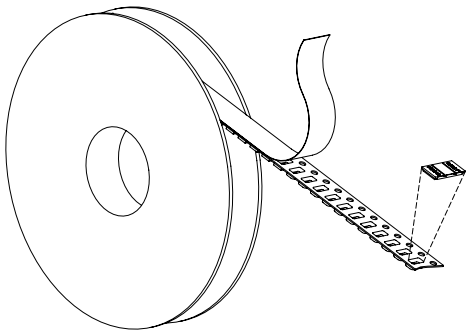
- Tolerance
- Resistance value [Ohm] / „R“ represents decimal point
- Material (MANGANIN®)
- Type

Recommended solder profile

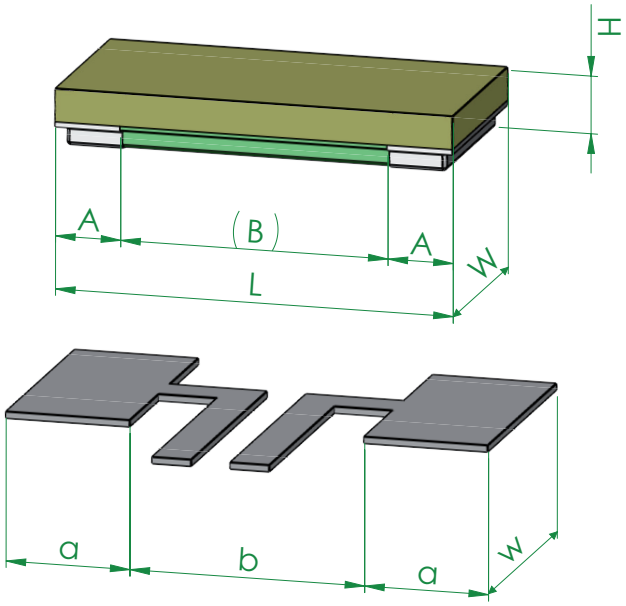
Reflow- and vacuum soldering				
Temperature	**°C**	260	255	217
Time	**sec**	peak	40	90

Tape and reel information

Specification		DIN EN 60286-3
Tape width	**mm**	8
Reel size	**inch**	13
Parts per reel	**pcs**	12500
Packaging weight	**g**	454
Information		Only components with 1% tolerance are trimmed and marked



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

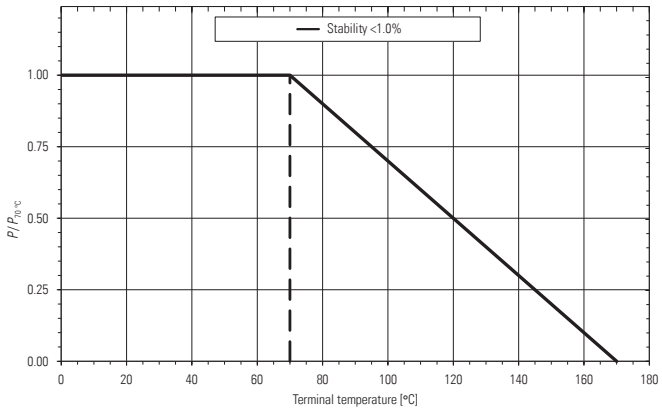


L	W	H	A	B
3.05 ±0.2	1.52 ±0.2	0.4 ±0.2	0.5 ±0.2	(2.05)

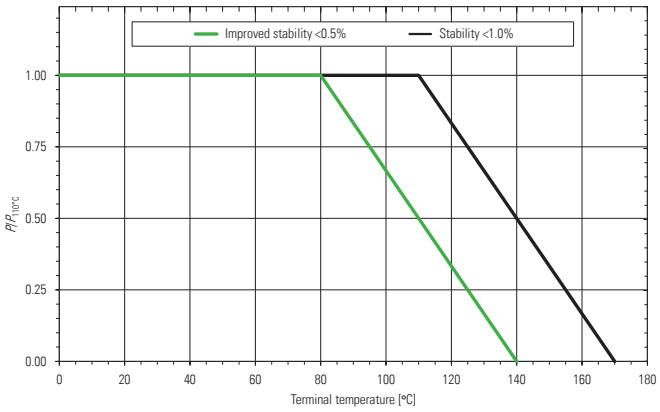
a	b	w
1.00	1.80	1.65

For values <3 mOhm recommend copper layer thickness of 105 µm due to the higher current load.

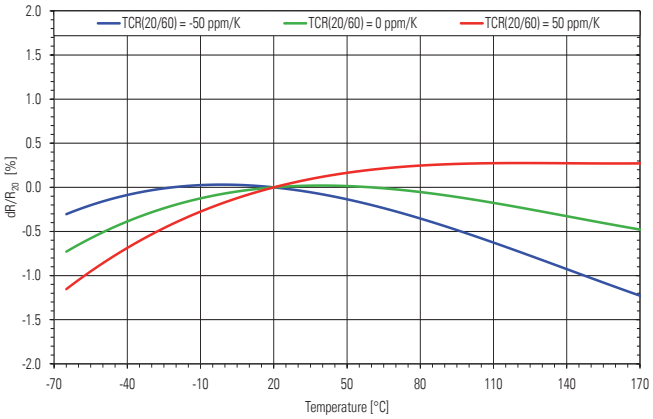
Power derating curve at 70 °C



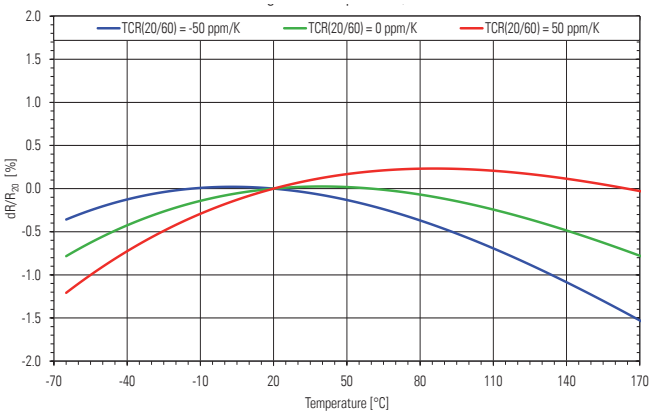
Power derating curve at 110 °C



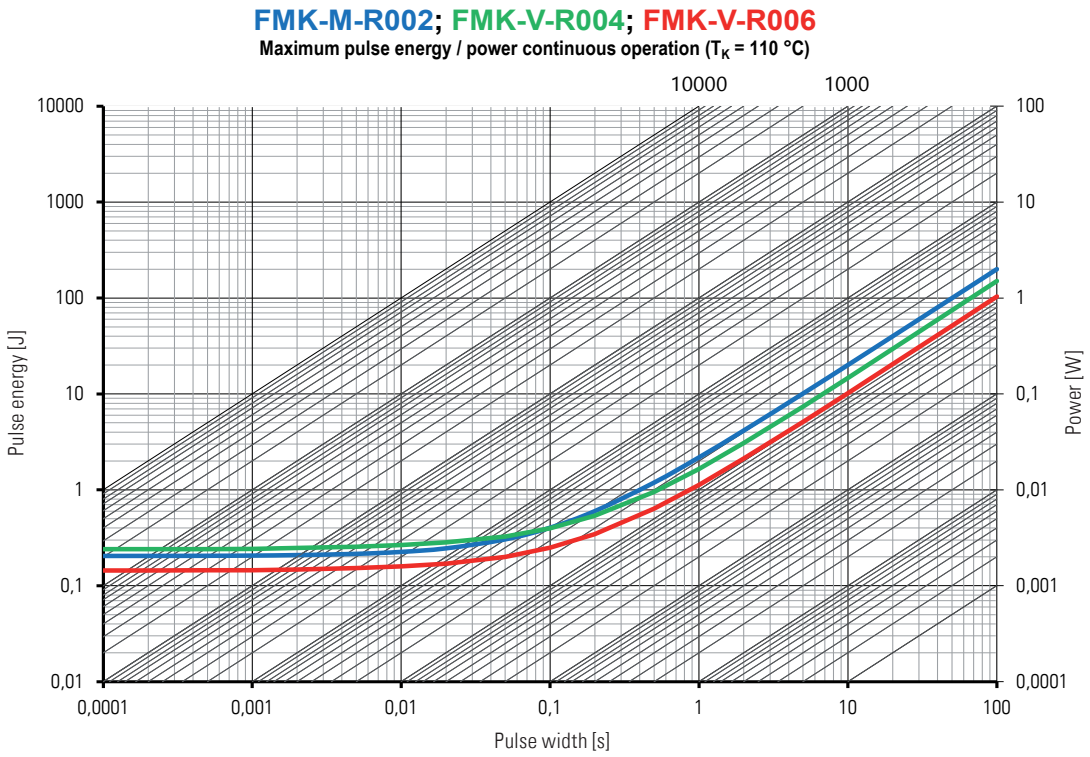
Temperature dependence of the electrical resistance of MANGANIN® resistors



Temperature dependence of the electrical resistance of NOVENTIN® resistors



Maximum pulse energy respectively pulse power for permanent operation (T_K=110 °C)



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 %
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 max at rated power	±1.0 %
High Temperature Exposure	2000 h at 140°C	±0.5 %
	2000 h at 170°C (in covered condition)*	±1.0 %
Bias Humidity	+85°C, 85 r.F., 1000 h, powered	±0.5 %

*for MANGANIN®

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