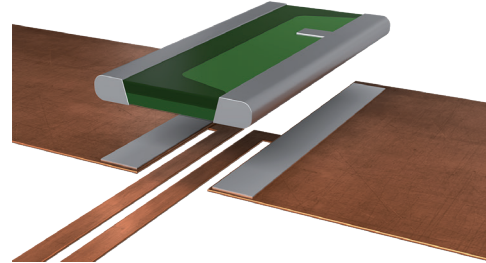


CLK (0612)

ISA-PLAN® PRECISION RESISTOR



FEATURES

- Low resistance values from 1 mOhm
- 3 W power rating at 70 °C
- Constant current up to 30 A (1 mOhm)
- Excellent long-term stability
- High pulse power rating
- Mounting: Reflow- and IR-soldering
- AEC-Q200 qualified



APPLICATIONS

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

Technical data

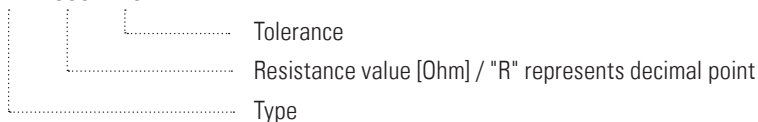
Resistance values*	mOhm	1 / 2**/ 3 / 5	10
Tolerance*	%	1 / 5	
Temperature coefficient (20-60 °C)	ppm/K	<50	<20
Applicable temperature range	°C	-65 to +170	
Power rating P_{140 °C}	W	1	0.75
Power rating P_{70 °C}	W	3	2.5
Internal heat resistance (R_{thi})	K/W	<30	<40
Dielectric withstanding voltage (AC/DC)	V	200	
Inductance	nH	<1	
Stability (at rated power) deviation after 2000 h	%	<0.5 ($T_K = 110\text{ °C}$)	
T_K = Terminal temperature		<0.7 ($T_K = 140\text{ °C}$)	

* see all standard values and tolerances on page 3

** under development

Ordering code

CLK - R003 - 1.0

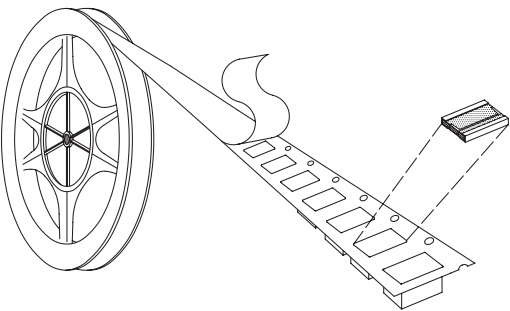


Recommended solder profile

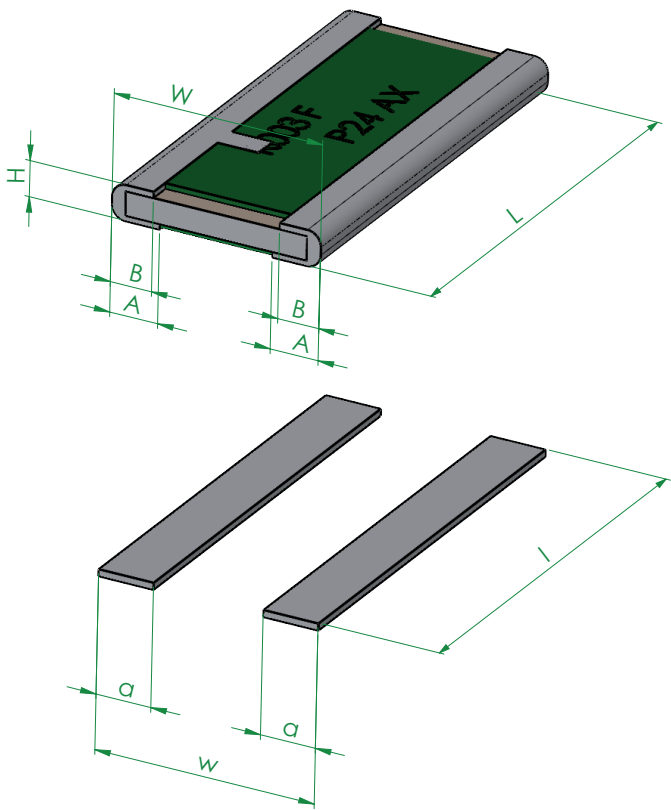
Reflow-, IR-soldering				
Temperature	°C	260	255	217
Time	sec	peak	40	90

Tape and reel information

Specification		DIN EN 60286-3
Tape width	mm	8
Reel size	inch	13
Parts per reel	pcs	10000
Packaging weight	g	454
Tape material		plastic



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



type	L	W	H	A	B
CLK	3.05 ± 0.2	1.52 ± 0.1	0.35 +0.2/-0.1	0.35 ± 0.2	0.35 ± 0.15

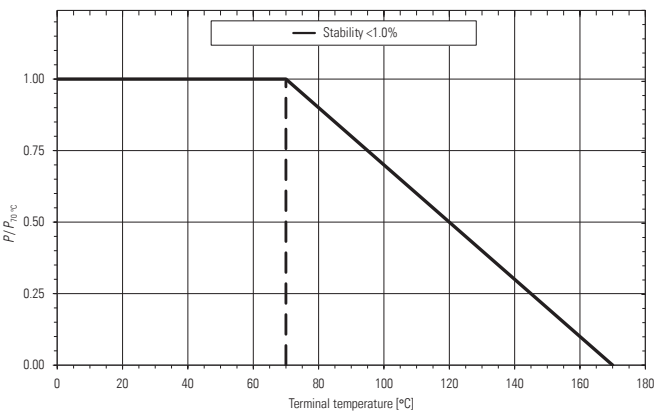
solder pad type	l	w	a
CLK	3.05	1.6	0.4

Available standard resistance values and tolerances*

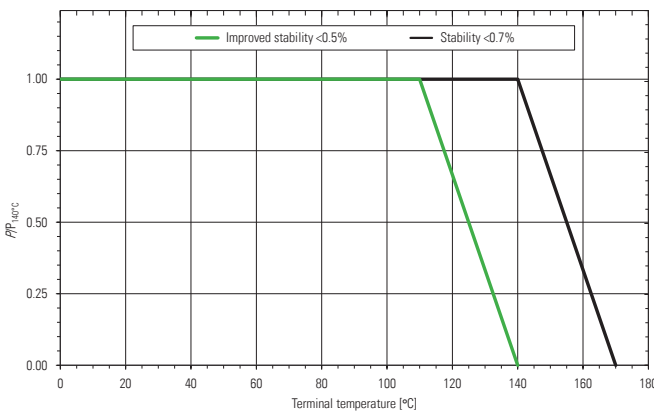
Resistance values	Tolerance	
	1.0	5.0
R001		✓
R002	✓	✓
R003	✓	✓
R005	✓	✓
R010	✓	✓

* Further values and tolerances on request
✓ = available

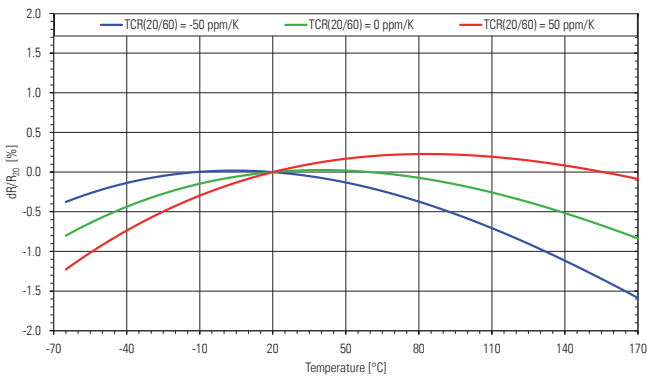
Power derating curve at 70 °C



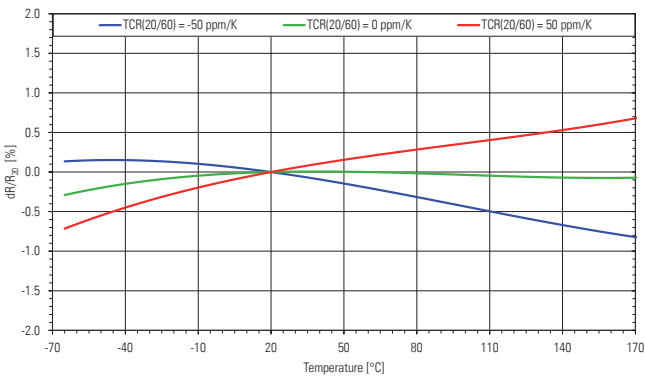
Power derating curve at 140 °C



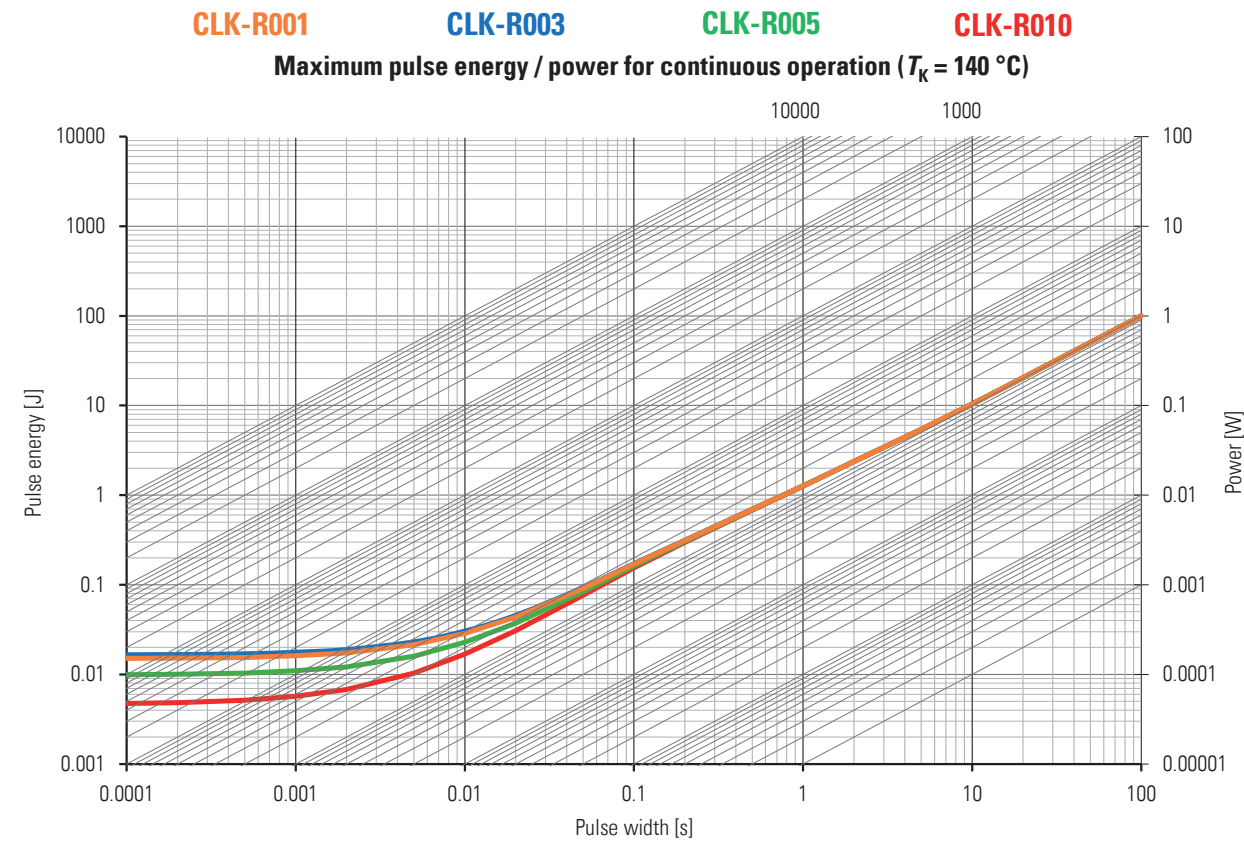
Temperature dependence of the electrical resistance of NOVENTIN® resistors



Temperature dependence of the electrical resistance of ZERANIN® resistors with 1 mΩ



Maximum pulse energy respectively pulse power for permanent operation



Specification

Parameters	Test conditions	Specified values
Temperature Cycling	2000 cycles (-55 °C to +150 °C)	±0.7 %
Low Temperature Storage and Operation	-65 °C for 250 h	±0.1 %
Resistance to Soldering Heat	3x reflow soldering (condition K), time above 217°C, 60s – 150s	±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, $T_K = 140\text{ °C}$ max at rated power	±0.7 %
High Temperature Exposure	2000 h / 170 °C	±0.7 %
Bias Humidity	+85 °C, 85 r.F., 1000 h	±0.7 %

Disclaimer // All products, product specifications and data are subject to change without notice. The product specifications do not expand or otherwise modify Isabellenhütte's terms and conditions of sale, including but not limited to, the warranty expressed therein. Isabellenhütte makes no warranty, representation or guarantee other than as set forth in its terms and conditions of sale. Information provided in datasheets and/or specifications may vary from actual results in different applications. Any statements made by Isabellenhütte regarding the suitability of products for certain types of applications are based on its knowledge of typical requirements that are often placed on its products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in the application intended. No license, express or implied, or otherwise, to any intellectual property rights is granted by this document. Any and all liability arising out of the application or use of any product shall be as set forth in Isabellenhütte's terms and conditions of sale.