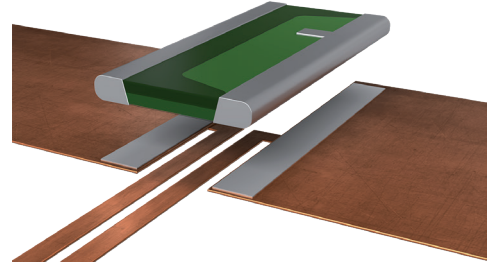




## CLK (0612)

### ISA-PLAN® PRECISION RESISTOR



#### FEATURES

- Low resistance values from 1 mOhm
- 1 W power rating at 140 °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

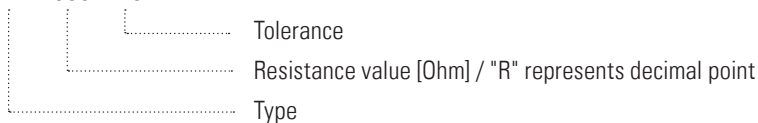
Resistance values*	<b>mOhm</b>	1 / 3 / 5 / 10**
Tolerance*	<b>%</b>	1 / 5
Temperature coefficient (20-60 °C)	<b>ppm/K</b>	<50
Applicable temperature range	<b>°C</b>	-65 to +170
Power rating <b>P<sub>140°C</sub></b>	<b>W</b>	1
Power rating <b>P<sub>70°C</sub></b>	<b>W</b>	3
Internal heat resistance (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

\* see all standard values and tolerances on page 3

\*\* under development

#### Ordering code

CLK - R003 - 1.0



#### Information

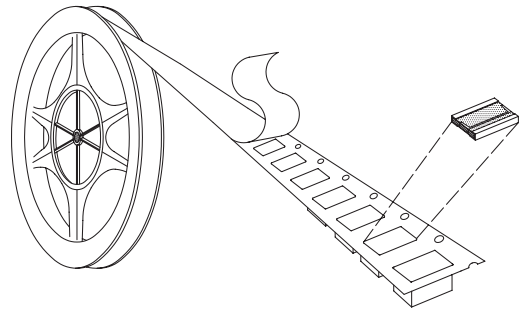
	<b>R010</b>
Samples	available in December 2024
AEC-Q200 qualification	available in December 2024

**Recommended solder profile**

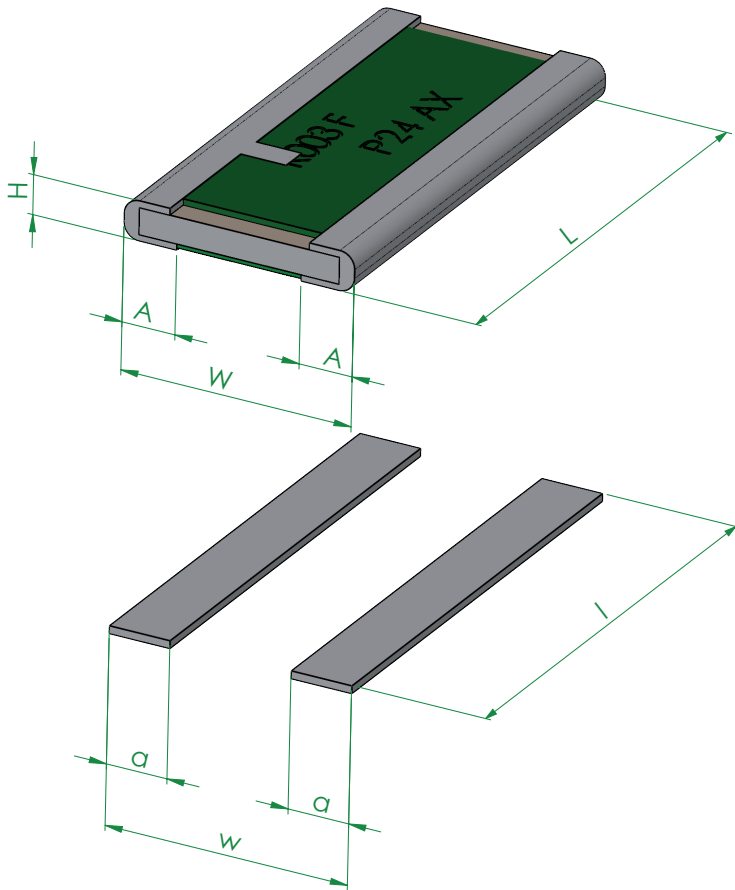
Reflow-, IR-soldering				
Temperature	°C	260	255	217
Time	sec	peak	40	90

**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
CLK	3.05 ± 0.3	1.52 ± 0.2	0.35 +0.2/-0.1	0.35 ± 0.2

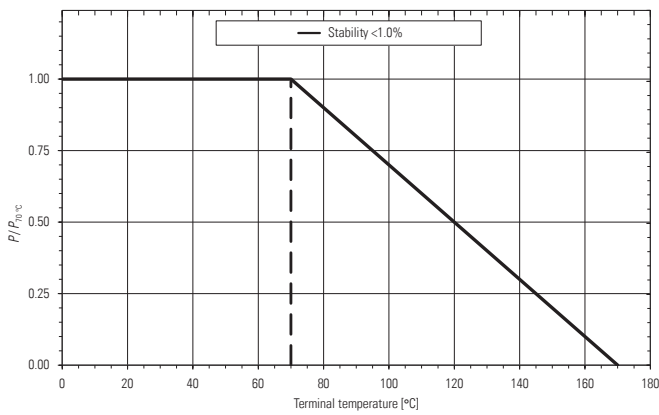
solder pad type	l	w	a
CLK	3.05	1.6	0.4

Available standard resistance values and tolerances\*

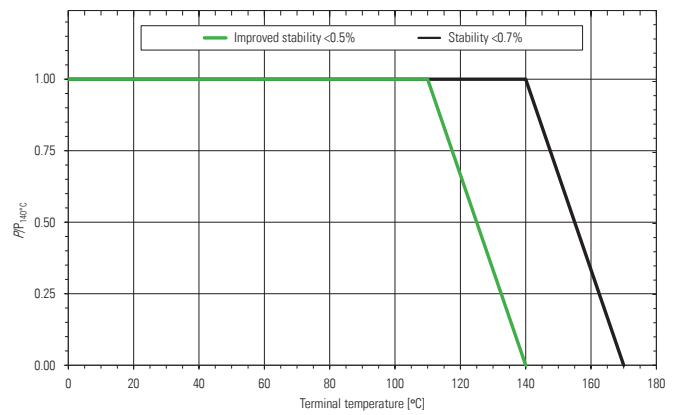
Resistance values	Tolerance	
	1.0	5.0
R001		✓
R003	✓	✓
R005	✓	✓
R010	✓	✓

\* Further values and tolerances on request  
 ✓ = available

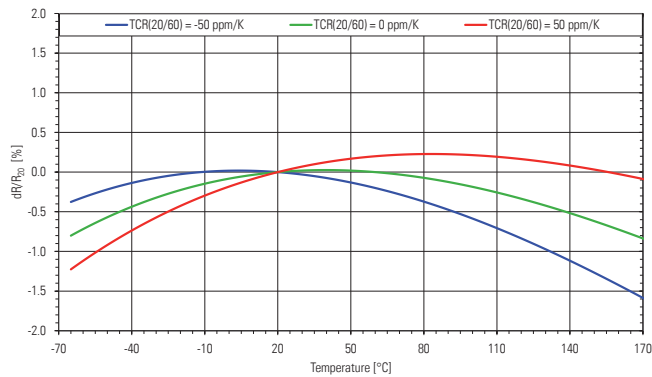
Power derating curve at 70 °C



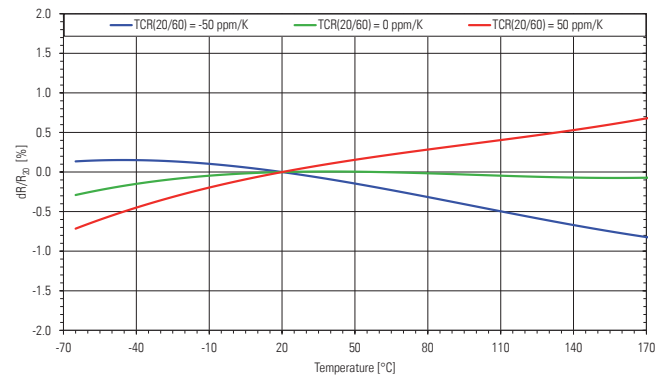
Power derating curve at 140 °C



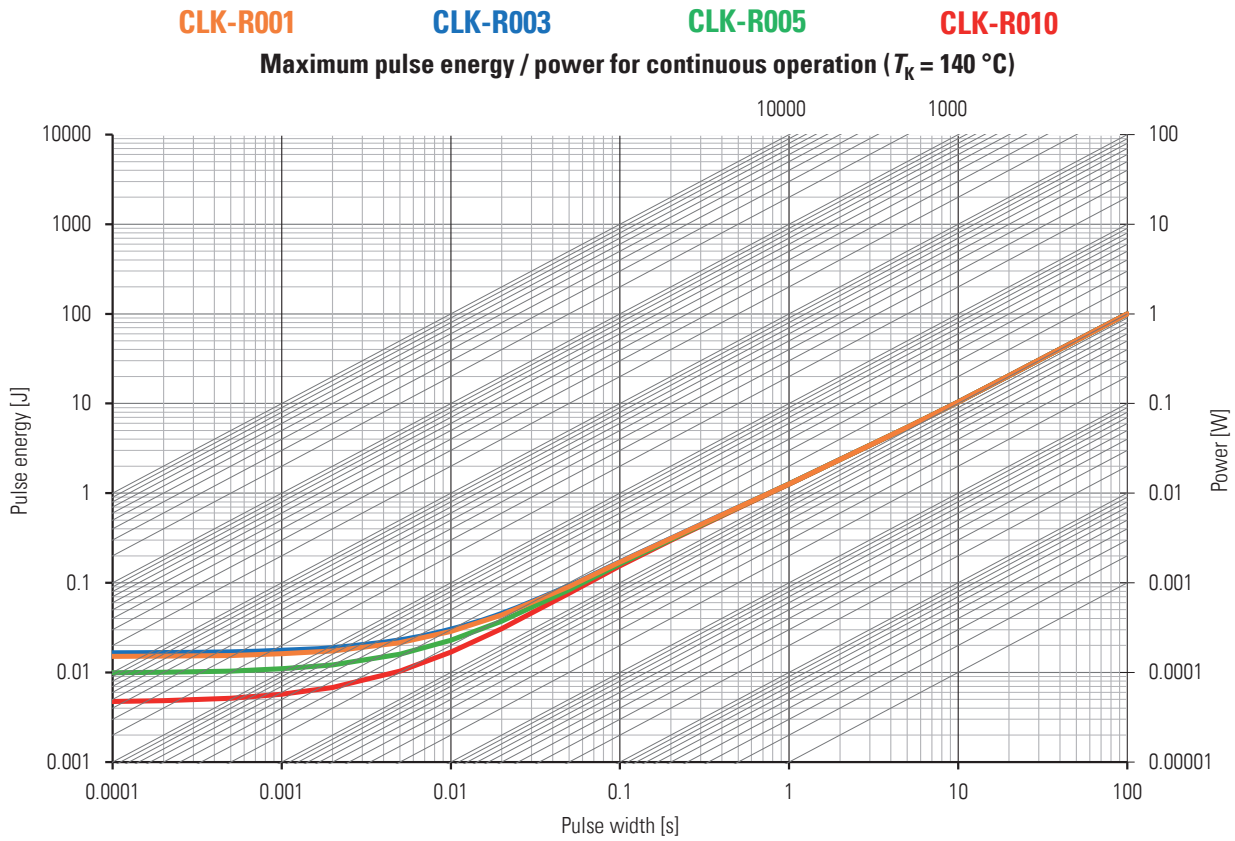
Temperature dependence of the electrical resistance of NOVENTIN® resistors



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, $T_k = 140$ °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 %

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