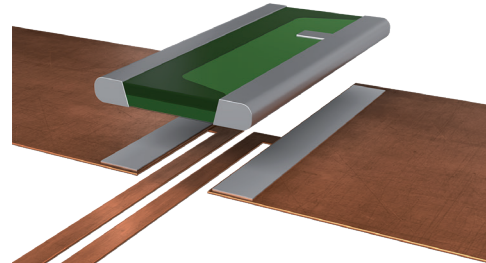


CLP (1020)

ISA-PLAN® PRECISION RESISTOR



FEATURES

- 2 W power rating at 130 °C
- Constant current up to 31 A (2 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

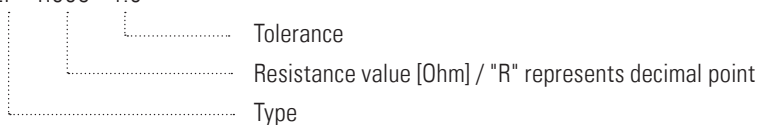
Technical data

Resistance values *	mOhm	2 / 3 / 5	6	10
Tolerance	%	1 / 5	1 / 5	1 / 5
Temperature coefficient (20-60 °C)	ppm/K	<50	<30	<20
Applicable temperature range	°C	-65 to +170	-65 to +170	-65 to +170
Power rating P_{130°C}	W	2	1.5	1
Power rating P_{70°C}	W	5	4	3
Internal heat resistance (R_{thi})	K/W	<20	<25	<30
Dielectric withstanding voltage (AC/DC)	V	200	200	200
Inductance	nH	<1	<1	<1
Stability (at rated power) deviation after 2000 h	%		<0.5 ($T_K = 100\text{ °C}$)	
T_K = Terminal temperature			<0.7 ($T_K = 130\text{ °C}$)	

* see all standard values and tolerances on page 3

Ordering code

CLP - R003 - 1.0

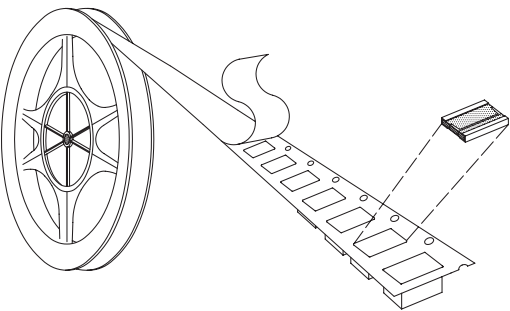


Recommended solder profile

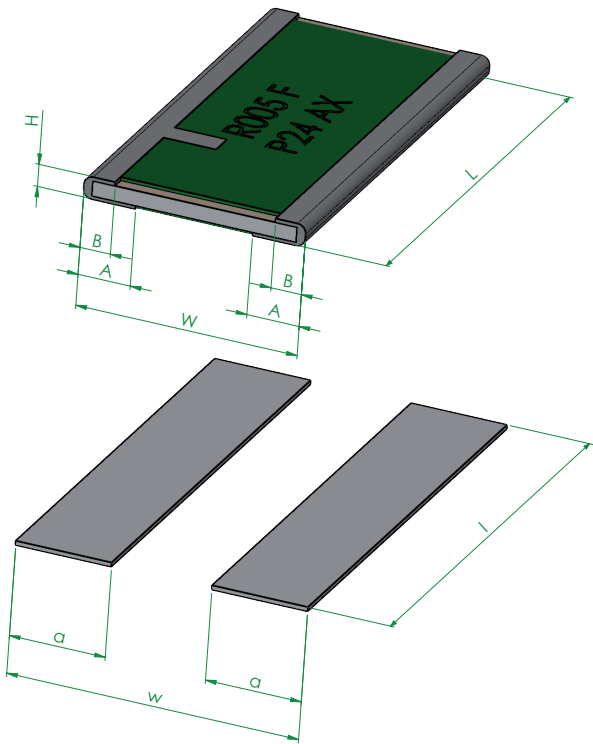
Reflow-, IR-soldering				
Temperature	°C	260	255	217
Time	sec	peak	40	90

Tape and reel information

Specification		DIN EN 60286-3		
Tape width	mm	12		
Reel size	inch	13		
Parts per reel	pcs	10000		
Packaging weight	g	481		
Tape material		plastic		



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



type	L	W	H	A	B
CLP	5.08 ± 0.2	2.54 ± 0.1	0.35 +0.2/-0.1	0.6 ± 0.2	0.3 ± 0.15
CLP-R003	5.08 ± 0.2	2.54 ± 0.1	0.35 +0.2/-0.02	0.6 ± 0.2	0.3 ± 0.15

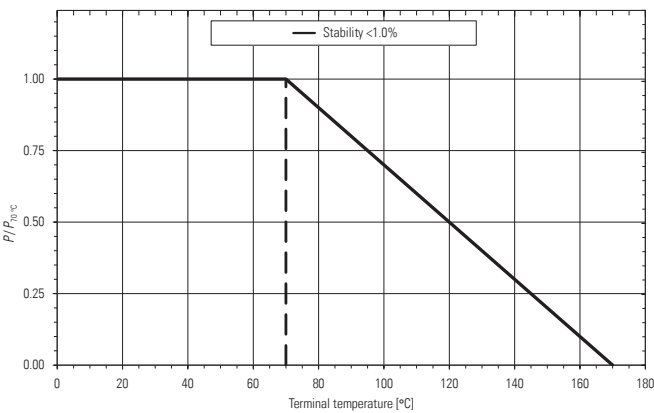
solder pad type	l	w	a
CLP	5.5	3.35	1.1

Available standard resistance values and tolerances*

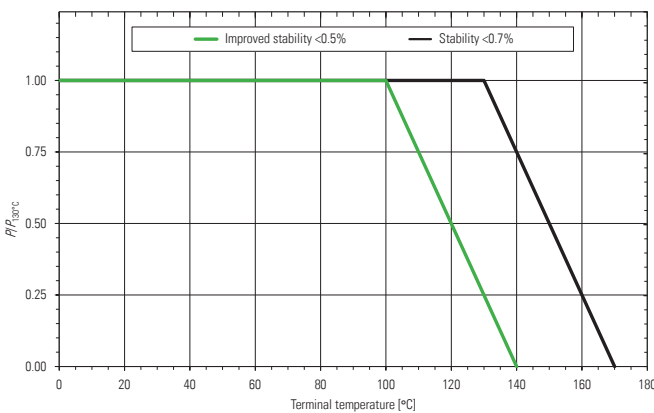
Resistance values	Tolerance	
	1.0	5.0
R002	✓	✓
R003	✓	✓
R005	✓	✓
R006	✓	✓
R010	✓	✓

* Further values and tolerances on request
✓ = available

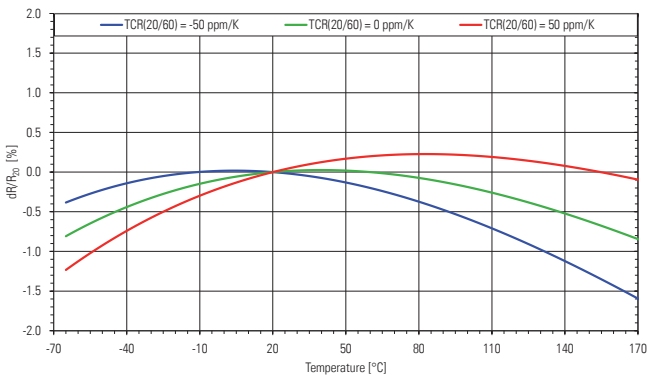
Power derating curve at 70 °C



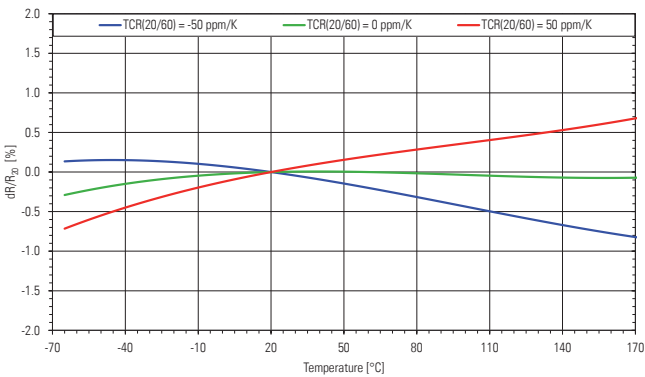
Power derating curve at 130 °C



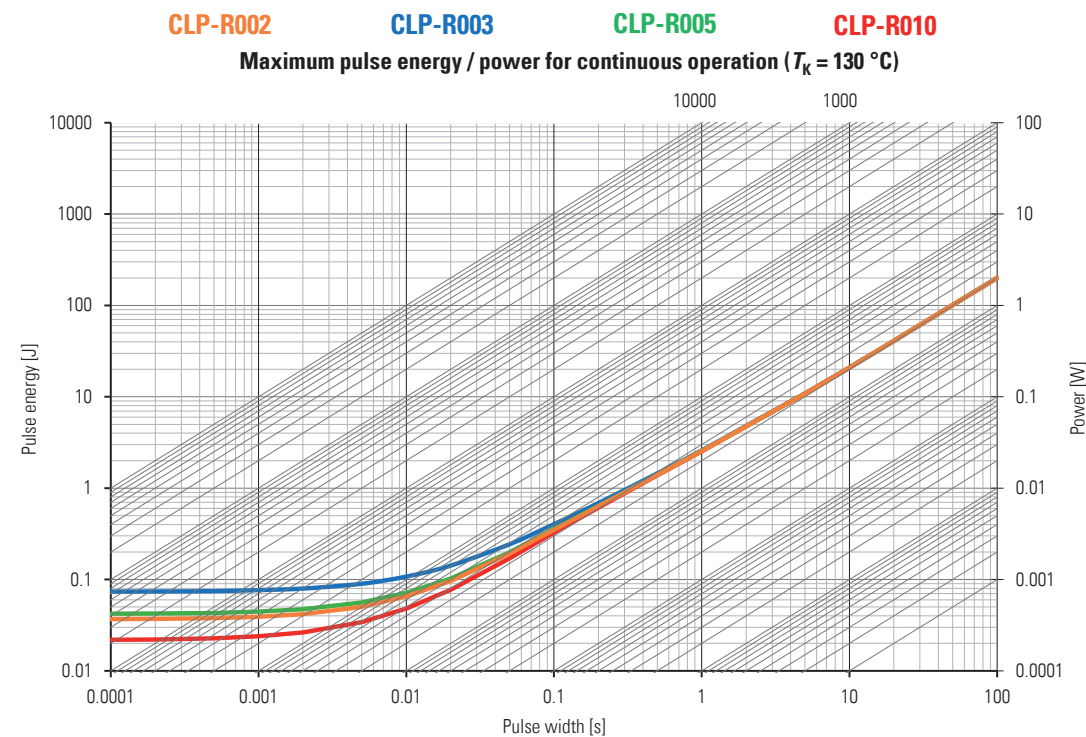
Temperature dependence of the electrical resistance of NOVENTIN® resistors



Temperature dependence of the electrical resistance of ZERANIN® resistors with 2 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, $T_K = 130\text{ °C}$ 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 %

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