



ISA-WELD® - Präzisionswiderstände / precision resistors

TECHNISCHE DATEN / TECHNICAL DATA		
Widerstandswerte	Resistance values	2, 3, 5, 10 mOhm
Toleranz	Tolerance	1 %**, 2 %, 5 %
Temperaturkoeffizient(MANGANIN®)	Temperature coefficient (tcr)	< 50 ppm/K (20 °C to 60 °C)
Temperaturkoeffizient(NiCr8020)	Temperature coefficient (tcr)	< 100 ppm/K (20 °C to 60 °C)
Temperaturbereich	Applicable temperature range	-55 °C to +170 °C
Belastbarkeit	Load capacity	2 W
Innerer Wärmewiderstand (R _{thi})	Internal heat resistance (R _{thi})	20K/W (R002) - 70 K/W (R010)
Induktivität	Inductance	< 10 nH
Stabilität (Nennlast) Abweichung T _k = Kontaktstellentemperatur	Stability (nominal load) deviation T _k = Terminal temperature	< 1.0 % nach/after 2000 h (T _k = 95 °C) < 2.0 % nach/after 2000 h (T _k = 125 °C)

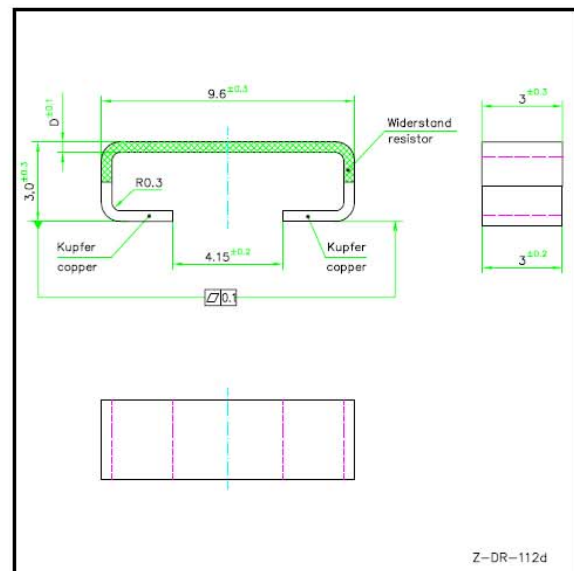
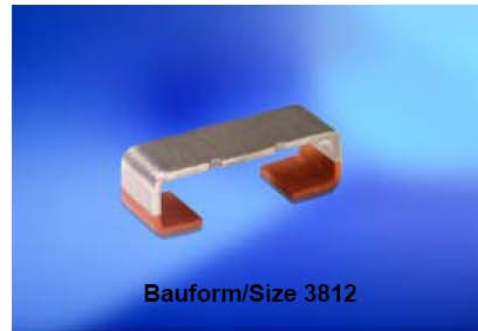
* geplant / under development
 ** geplant 11.2007/ under development 11.2007

MERKMALE / FEATURES

- 2 Watt Dauerleistung bei 125°C
- 2 Watt permanent power at 125°C
- Dauerströme bis 32 A (2 mOhm)
- Constant current up to 32 Amps (2 mOhm)
- Kupferanschlüsse
- Copper connectors
- Sehr gute Langzeitstabilität
- Excellent long term stability
- Ideal geeignet für DCB Keramik/ IMS Substrat
- Ideal suited for mounting on DBC/IMS substrate
- Geeignet für Löttemperaturen bis 350 °C / 30 sek
- oder 250 °C / 10 min
- Max. solder temperature up to 350 °C / 30 sec
- or 250 °C / 10 min
- Bauteilmontage: Reflow löten
- Mounting: reflow soldering

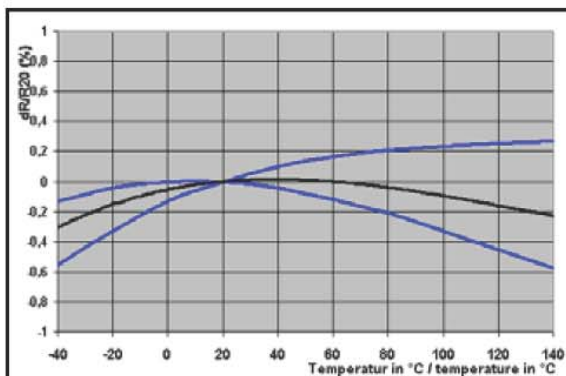
APPLIKATIONEN / APPLICATION

- Messwiderstand für Leistungshybride
- Current sensor for power hybrid applications
- Frequenzumrichter
- Frequency converters
- Leistungsmodul
- Power modules
- Hochstromanwendungen in der Automobiltechnik
- High current applications for the automotive market

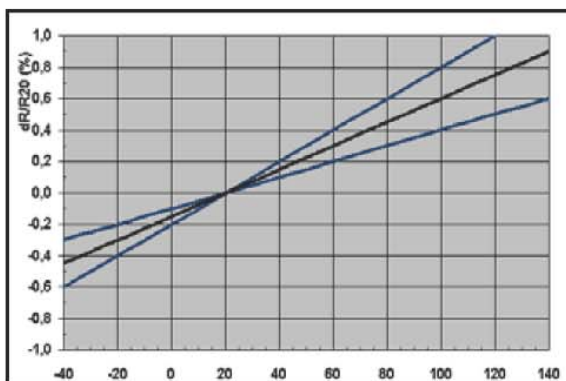


Typ	Wert	Material	Dicke
Type	Value	Material	Thickness
BRS-N-R010	10 mOhm	NICKEL-CHROM 8020	0.40 mm
BRS-Z-R002	2 mOhm	ZERANIN30®	0.50 mm
BRS-M-R003	3 mOhm	MANGANIN®	0.50 mm
BRS-M-R005	5 mOhm	MANGANIN®	0.30 mm

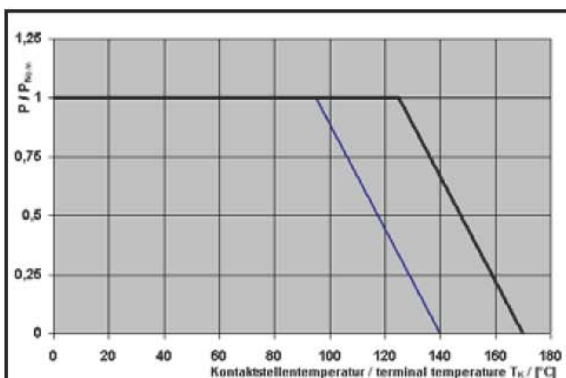
TK, Lastminderung und Langzeitstabilität / TCR, power derating and long term stability



Temperaturabhängigkeit des elektrischen Widerstandes von MANGANIN®-Widerständen
Temperature dependence of the electrical resistance of MANGANIN®-resistors

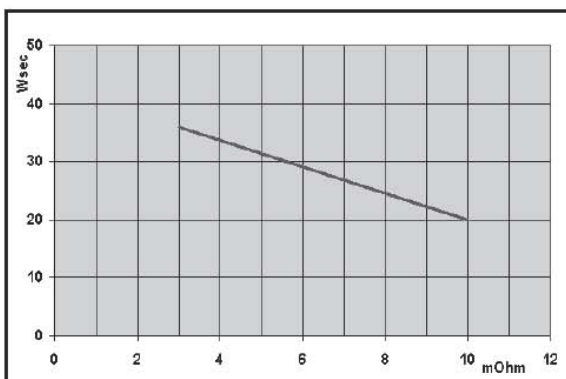


Typische Temperaturabhängigkeit des elektrischen Widerstandes von NiCr8020-Widerständen
Typical temperature dependence of the electrical resistance of NiCr8020-resistors



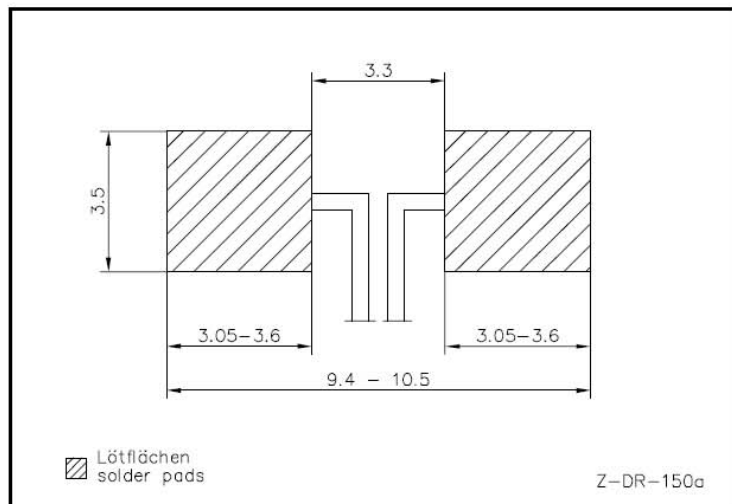
Lastminderungskurve
Power derating curve

- Stabilität / Stability < 1 %
- Stabilität / Stability < 2 %



Einzelpulsbelastbarkeit für Pulse < 10 ms
Single pulse surge curve < 10 ms

Vorschlag für Leiterplatten Layout (Reflowlöten)
Proposal for pcb-layout (reflow soldering)



Lötprofil Vorschlag / Recommended solder profile

Reflow-, IR-löten

Reflow, infrared soldering

Temperatur	260 °C	255 °C	217 °C
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Zeit/Time (s)	peak	40	90
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RoHS 2002/95/EG konform seit Produktstart.
Ausführliche Informationen erhalten Sie auf unserer Homepage:
www.isabellenhuette.de

RoHS 2002/95/EC compliance since product launch.
For more information please visit our website:
www.isabellenhuette.de

GURTIINFORMATIONEN
TAPE & REEL INFORMATION

Norm / Specification	DIN EN 60286-3
Gurtbreite / Tape width	16 mm
Anzahl Bauteile / Parts per reel	2500

BESTELLBEZEICHNUNG / ORDERING CODE

BRS-N-R010-2.0

Typ	Material	Widerstandswert	Toleranz
Type	Material	Resistance value	Tolerance
BRS	NiCr8020	10 mOhm	2 %

Gewährleistung

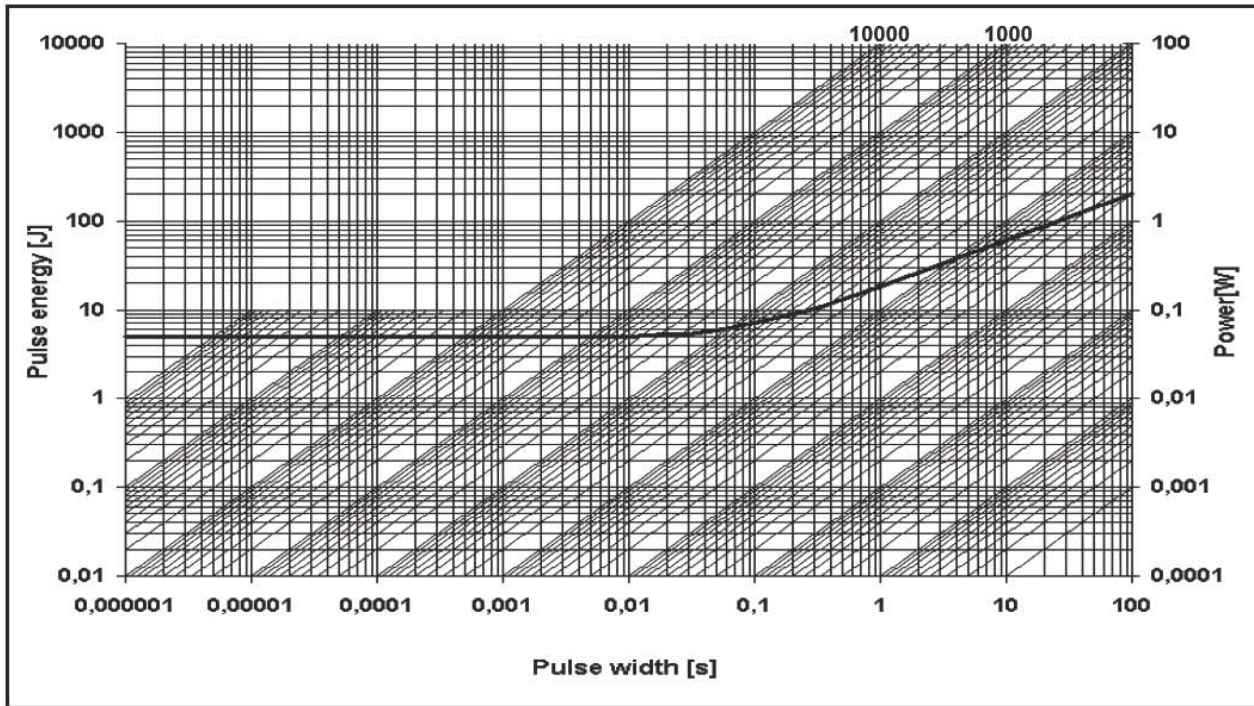
Alle Angaben über Eignung, Verarbeitung und Anwendung unserer Produkte, technische Beratung und sonstige Angaben erfolgen nach bestem Wissen, befreien den Käufer jedoch nicht von eigenen Prüfungen und Versuchen.

Warranty

All information regarding the suitable, workability and applicability of our products, all technical advice and other information are provided to the best of our knowledge and belief, but shall not discharge the buyer from his own examinations and tests.



Grenzkurve für maximale Pulsenergie bzw. Pulsleistung für Dauerbetrieb
Maximum puls energy resp. pulse power for continous operation. Mittlere Belastung
maximal P_{Nenn} / Max. average Power P_{Nominal}



Die dargestellte Kurve gilt für den Widerstandswert R010. Für andere Werte kann die Kurve im Bereich unter 0.1sec ggf. anders verlaufen, so dass in Grenzbereichen eine separate Qualifikation erfolgen sollte.

This curve is only valid for the resistance value R010. The shape of the curve in the range below 0.1 sec will be different for other resistance values. Therefore a separate qualification should be made for pulse power close to the above curve.

MIL. - STANDARD		
Parameters	Test Conditions	Specification
Maximum Temperature for full power operation (2% stability)	125 °C	125 °C
Working Temperature	-55 to 170 °C	-55 to 170 °C
Thermal Shock	MIL-STD-202 method 107E-B1	0.1 %
Overload	MIL-R-26E (5 times rated power, 5 sec)	0.2 %
Solderability	MIL-STD-202 method 208	> 95 % coverage
Resistance to Solvents	MIL-STD-202 method 215A, 2.1a, 2.1d	no damage
Low Temperature Storage and Operation	MIL-STD-26E	0.1 %
Resistance to Soldering Heat	MIL-STD-202 method 210B	0.1 %
Moisture Resistance	MIL-STD-202 method 106	0.1 %
Shock	MIL-STD-202 method 213B-A	0.2 %
Life	MIL-STD-26E	0.2 %
Storage Life at Elevated Temperature	MIL-STD-202 method 108A-F	0.3 %
High Temperature Exposure	140 °C, 2000 h	0.2%
Current Noise	MIL-STD-202 method 308	0.01 %
Voltage Coefficient (%/V)	MIL-STD-202 method 309	linearity error less than 120dB
Resistance Temperature Characteristic	MIL-STD-202 method 304 (20-60°C)	<50 ppm/K/<100 ppm/K
Thermal EMF	0 - 100 °C	4 µV/ K
Frequency Characteristic	inductivity	< 10 nH