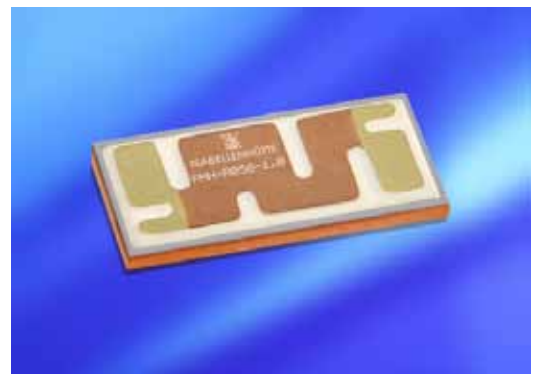


ISA-PLAN® - SMD Präzisionswiderstände / SMD precision resistors

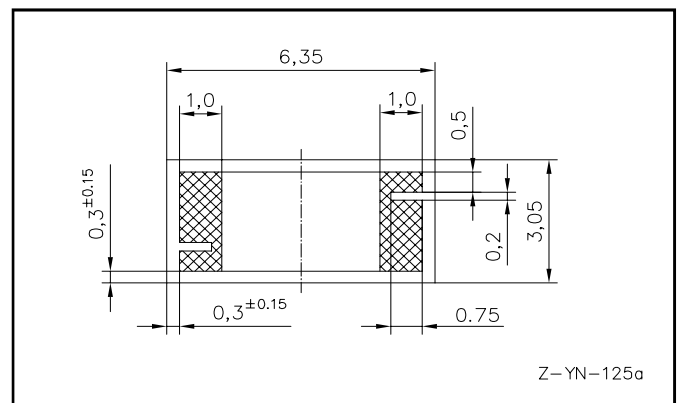
TECHNISCHE DATEN / TECHNICAL DATA		
Widerstandswerte (mOhm)	Resistance values (mOhm)	5, 10, 20, 22, 25, 33, 47, 50, 100, 170, 200, 400
Toleranz	Tolerance	0.5 %, 1 %, 2 %, 5 %
Temperaturkoeffizient(MANGANIN®)	Temperature coefficient (tcr)	< 30 ppm/K (20 °C to 60 °C)
Temperaturbereich	Applicable temperature range	-55 °C to +170 °C
Belastbarkeit	Load capacity	5 W
Innerer Widerstand (R_{thi})	Internal heat resistance (R_{thi})	< 10 K/W
Isolationsspannung	Dielectric withstanding voltage	100 VAC
Induktivität	Inductance	< 3 nH
Stabilität (Nennlast) Abweichung T_K = Kontaktstellentemperatur Stability (nominal load) deviation T_K = Terminal temperature		< 0.5 % nach/after 2000 h (T_K = 90 °C) < 1.0 % nach/after 2000 h (T_K = 120 °C)

MERKMALE / FEATURES

- 5 Watt Dauerleistung
- 5 Watt permanent power
- Dauerströme bis 32 A (5 mOhm)
- Constant current up to 32 Amps (5 mOhm)
- Vier-Leiter Messwiderstand
- Resistor with Kelvin connection
- Vergoldete Bondflächen (0,1µm)
- Au-plated bond pads (0,1µm)
- Bauteilrückseite vergoldet (0,1 µm typ.)
- Reverse side covered with gold flash (0.1 µm typ.)
- Geeignet für Löttemperaturen bis 280 °C / 30 sek oder 250 °C / 5 min (Kupferseite auf Substrat)
- Max. solder temperature up to 280 °C / 30 sec or 250 °C / 5 min
- Bauteilmontage: Reflow Löten und Kleben auf Substrat
- Mounting: reflow soldering and epoxy attachment on substrate



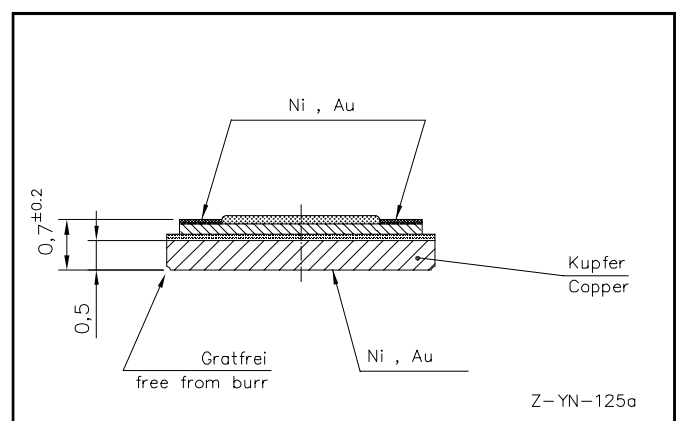
Bauform/Size 2512

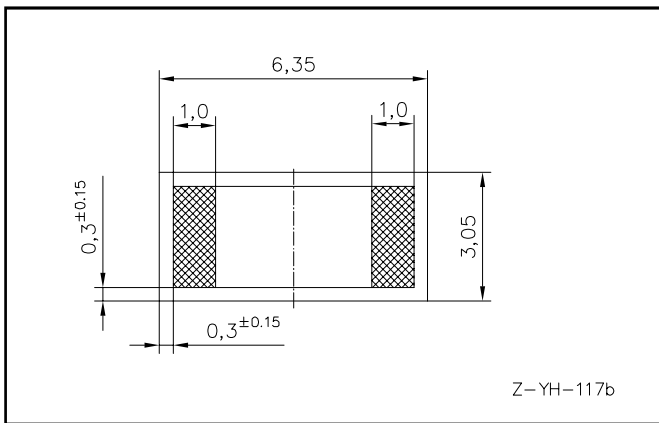


Layout Typ A / Layout type A

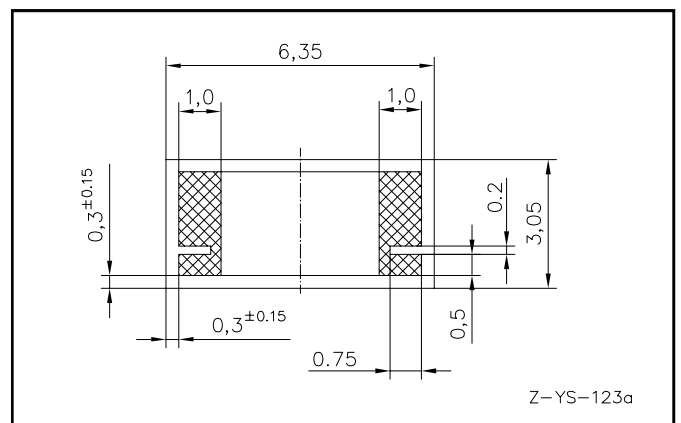
APPLIKATIONEN / APPLICATION

- Messwiderstand für Leistungshybride
- Current sensor for power hybrid applications
- Frequenzumrichter
- Frequency converters
- Leistungsmodule
- Power modules



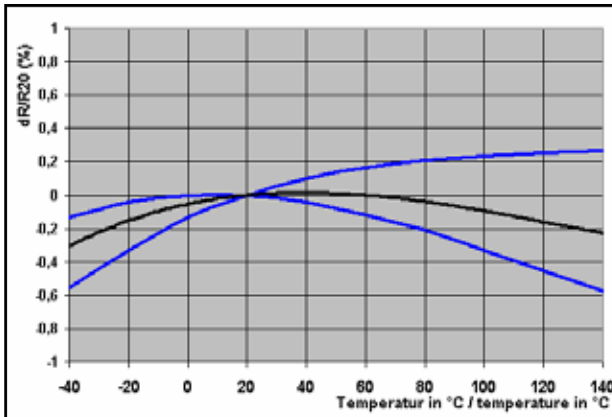


Layout Typ B / Layout type B

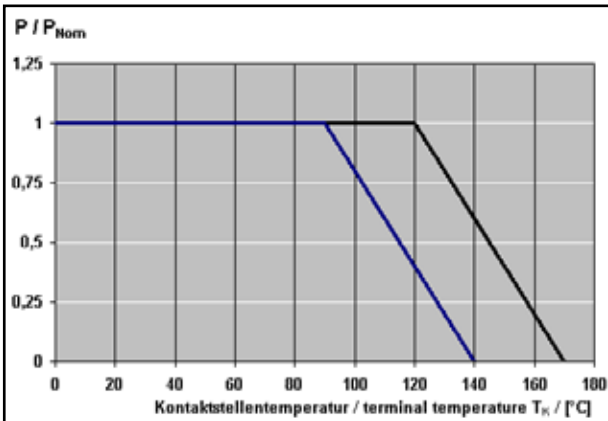


Layout Typ C / Layout type C

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

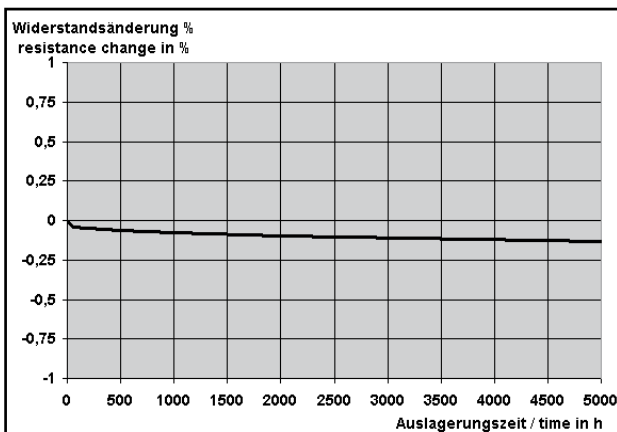


Temperaturabhängigkeit des elektrischen Widerstandes von MANGANIN®-Widerständen
Temperature dependence of the electrical resistance of MANGANIN®-resistors



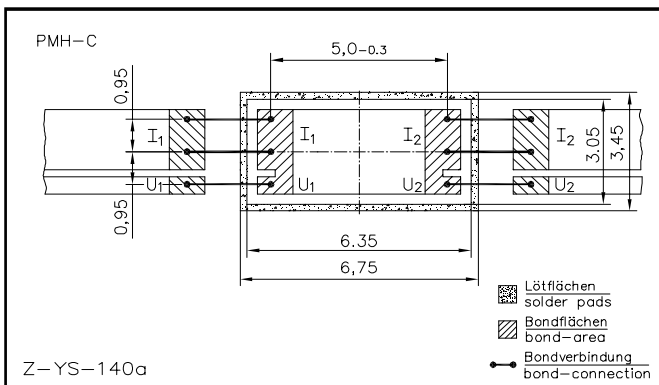
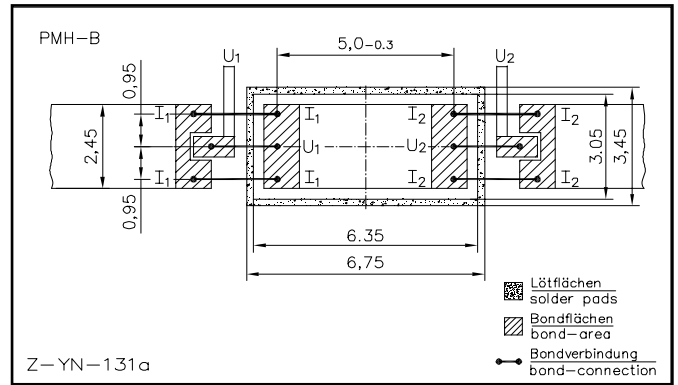
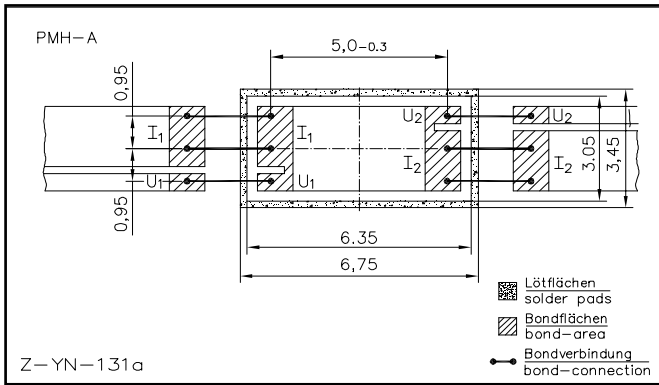
Lastminderungskurve
Power derating curve

- Stabilität/Stability < 1.0 %
- Verbesserte Stabilität/Improved stability < 0.5 %



Langzeitstabilität von MANGANIN®-Widerständen bei 140 °C
Long term stability of MANGANIN®-resistors at 140 °C

Vorschlag für Bondverbindungen / Proposal for bond-connection

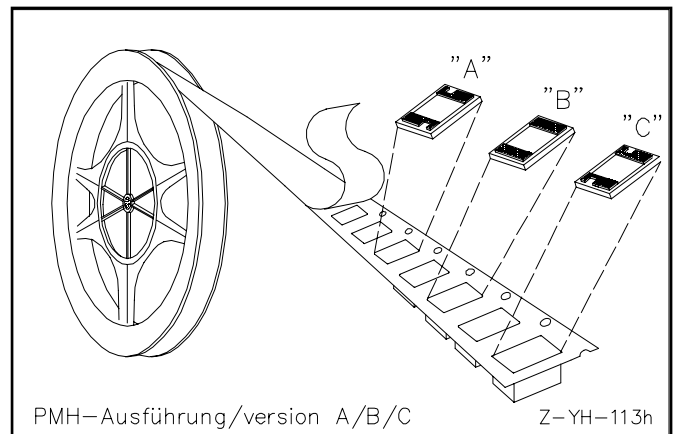


Layout B: Bei Bei Mäanderform des Widerstandsmaterials kann die Anordnung der Bonddrähte gemäß Layout A sinnvoller sein / For meander-structure of resistance material the bond proposal acc. layout A could be better.

Lötprofil Vorschlag / Recommended solder profile			
Reflow-, IR-löten			
Reflow, infrared soldering			
Temperatur	260 °C	255 °C	217 °C
Zeit (s)	peak	40	90
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			

GURTFORMEN / TAPE & REEL INFORMATION	
Norm / Specification	DIN EN 60286-3
Gurtbreite / Tape width	12 mm
Anzahl Bauteile/Parts per reel	5000

BESTELLBEZEICHNUNG / ORDERING CODE			
PMH-A-R005-1.0			
Typ	Layout	Widerstandswert	Toleranz
Type	Layout	Resistance value	Tolerance
PMH	A/B/C	5 mOhm	1.0 %



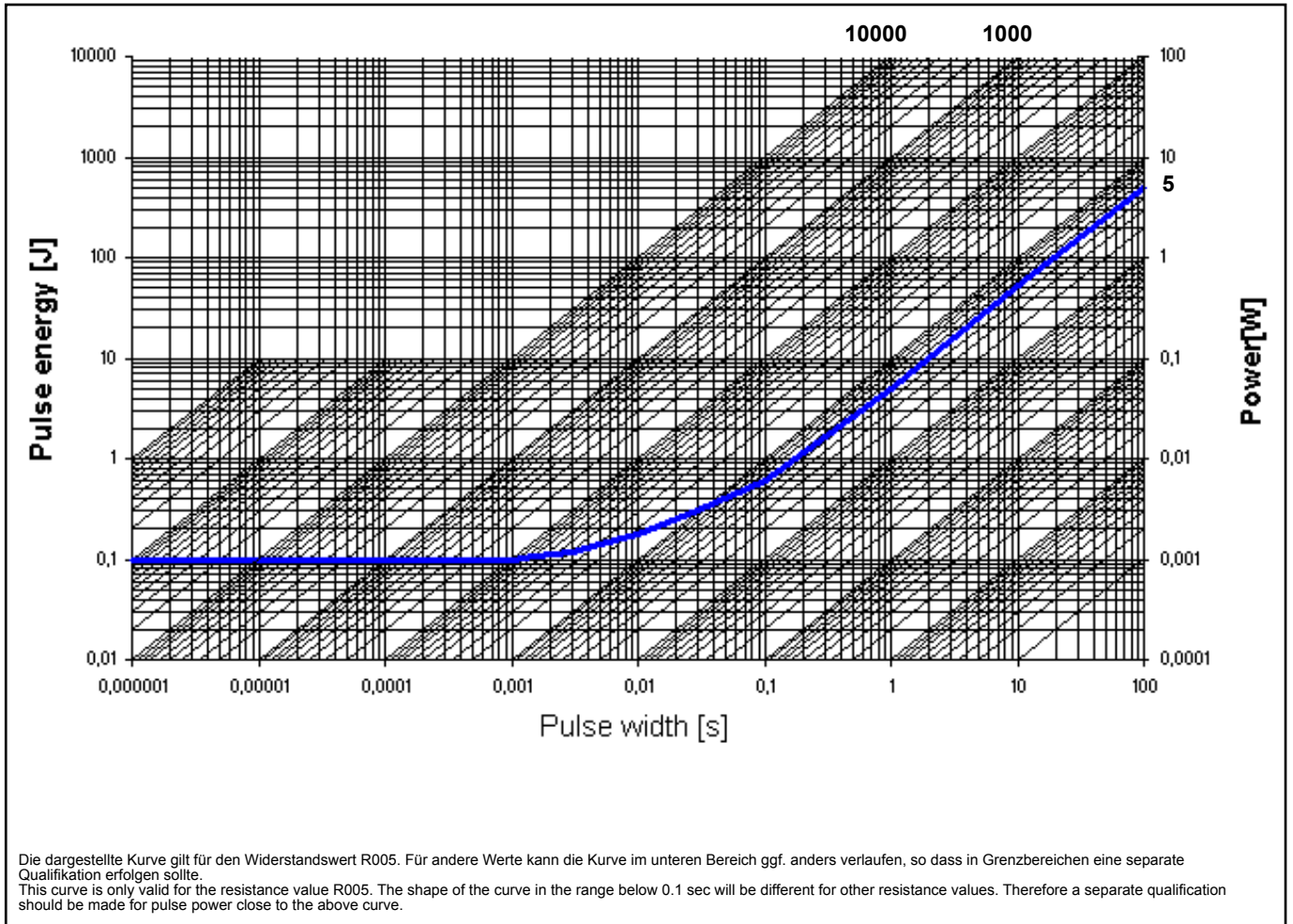
Gewährleistung

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

Warranty

All information regarding the suitability, 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 continuous operation



Spezifikation/Specification			
Parameters	Test Conditions	Specification	Typical data
Maximum Temperature for full power operation	140 °C	140 °C	140 °C
Working Temperature	-55 to 170 °C	-55 to 170 °C	-55 to 170 °C
Thermal Shock	MIL-STD-202 method 107-B1	0.2 %	0.1 %
Overload	MIL-R-26E (5 times rated power, 5 sec)	0.2 %	0.1 %
Solderability	MIL-STD-202 method 208	> 95 % coverage	> 95 % coverage
Resistance to Solvents	MIL-STD-202 method 215, 2.1a, 2.1d	no damage	no damage
Low Temperature Storage and Operation	MIL-STD-26E	0.1 %	0.03 %
Resistance to Soldering Heat	MIL-STD-202 method 210	0.1 %	0.02 %
Moisture Resistance	MIL-STD-202 method 106	0.1 %	0.01 %
Shock	MIL-STD-202 method 213-A	0.2 %	0.1 %
Vibration, High Frequency	MIL-STD-202 method 204-B	0.2 %	0.05 %
Life	MIL-STD-26E	0.2 %	0.1 %
Storage Life at Elevated Temperature	MIL-STD-202 method 108-F	0.3 %	0.2 %
High Temperature Exposure	140 °C, 2000 h	0.3%	0.2 %
Current Noise	MIL-STD-202 method 308	0.01 %	0.001 %
Voltage Coefficient (%/V)	MIL-STD-202 method 309	linearity error less than 120dB	
Resistance Temperature Characteristic	MIL-STD-202 method 304 (20-60°C)	<30 ppm/K	<30 ppm/K
Thermal EMF	0 - 100 °C	2 µV/ °C max.	2 µV/ °C
Frequency Characteristic	inductivity	< 3 nH	< 3 nH