



## **SMT Power Inductors**

ERU 20, helically wound

**Series/Type:** B82559\*A020

**Ordering code:**

**Date:** June 2012

**Rated inductance 1 ... 35  $\mu$ H**  
**Saturation current 9.3 ... 50.0 A**

### Construction

- High temperature ferrite core
- Magnetically shielded
- Helical winding
- Self-leded construction under body termination



### Features

- High rated current
- Extremely low DC resistance
- Very low profile and smallest possible footprint
- RoHS-compatible
- Easily customized
- Suitable for pick-and-place processes

### Applications

Energy storage chokes for

- DC/DC converters
- VRM modules
- POL converters
- Solar converters

### Terminals

- Lead-free tinned

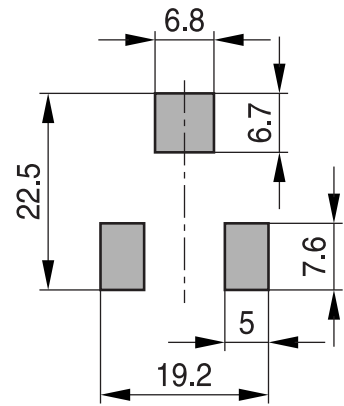
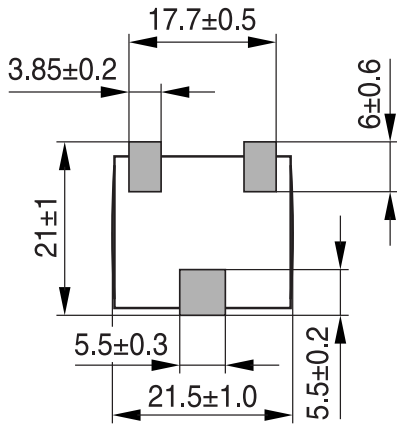
### Marking

- Manufacturer, ordering code, inductance  
manufacturing date, coded (yyww)

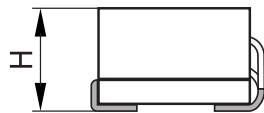
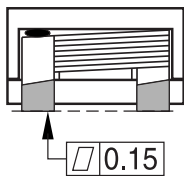
### Delivery mode and packing units

- Blister tape
- Reel

Dimensional Drawing and layout recommendation



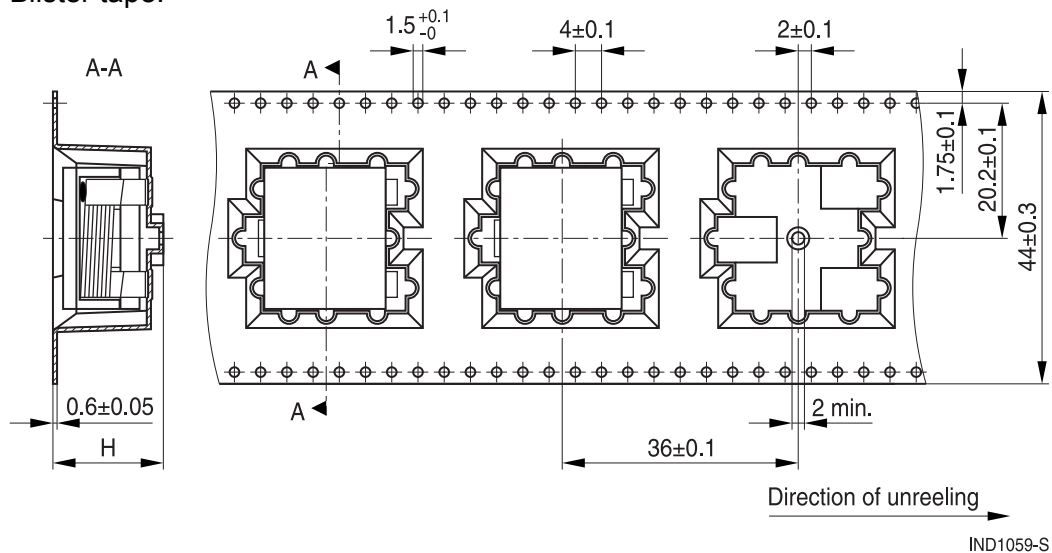
IND1057-H



IND1056-B

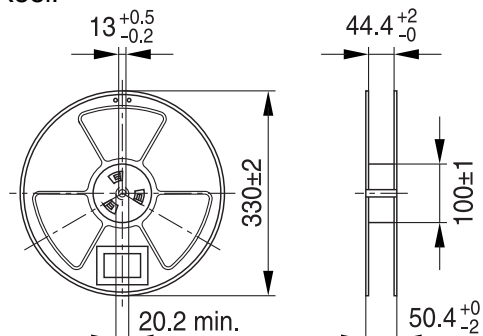
**Taping and packing**

Blister tape:



IND1059-S

Reel:



Dimensions in mm

| Height (mm)   |                  | Packaging unit (pcs.) |
|---------------|------------------|-----------------------|
| Component (h) | Blister tape (H) | Per reel              |
| 9.8           | 10.8             | 150                   |
| 10.8          | 12.5             | 130                   |
| 12.2          | 13.9             | 115                   |
| 13.2          | 14.9             | 110                   |
| 14.2          | 15.9             | 100                   |

**Technical data and measuring conditions**

|  |  |
|--|--|
| Inductance L                             | Measured with Wayne-Kerr 3260/3265 at 0.1 V, +25 °C, 100 kHz                                     |
| Inductance tolerance                     | ±10 %  |
| Saturation current I [L <sub>IDC</sub> ] | Current that will result in approx. 10-15 % drop in inductance values                            |
| Rated inductance L <sub>IDC</sub>        | The minimum allowable inductance at the saturation current I[L <sub>IDC</sub> ]                  |
| DC resistance R <sub>DC</sub> (max)      | Measured at +25 °C, toleranced resistances upon request  |
| Self-resonant frequency                  | > 2 MHz  |
| Solderability                            | +235 °C, 5 s<br>Wetting of soldering area ≥ 90%<br>(based on IEC 60068-2-58, solder bath method) |
| Resistance to soldering heat             | To JEDEC J-STD 020D  |
| Operating temperature                    | -40 °C ... +150 °C   |
| Storage conditions (packaged)            | -25 °C ... +40 °C, ≤ 75% RH  |

**Characteristics and ordering codes**

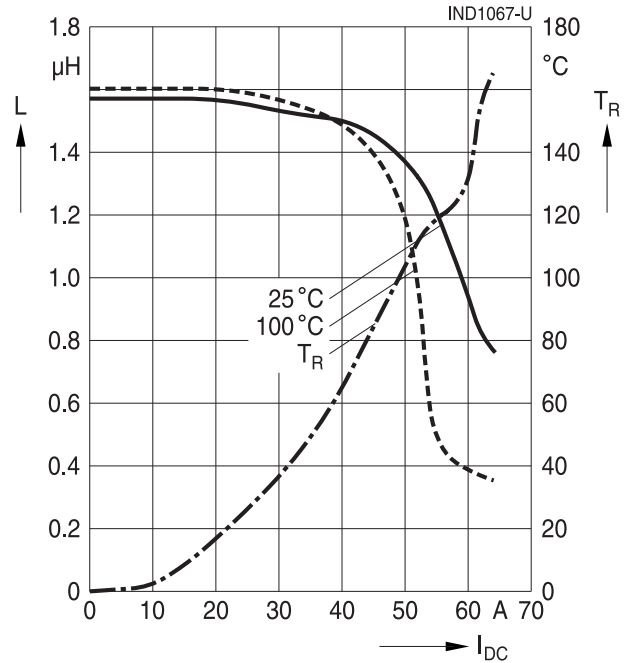
| L    | L                         | I <sub>sat</sub> | R <sub>DC</sub> (max) | R <sub>DC</sub> (typ) | Height h (max.) | Approx. weight | Ordering code   |
|------|---------------------------|------------------|-----------------------|-----------------------|-----------------|----------------|-----------------|
| μH   | at I <sub>sat</sub><br>μH | A                | mΩ                    | mΩ                    | mm              | g              |                 |
| 1.0  | 0.75                      | 50.0             | 0.62                  | 0.55                  | 9.8             | 15.7           | B82559A2102A020 |
| 1.5  | 1.10                      | 50.0             | 0.9                   | 0.78                  | 10.8            | 17.6           | B82559A3152A020 |
| 2.2  | 1.60                      | 43.0             | 1.2                   | 1.0                   | 12.2            | 19.8           | B82559A4222A020 |
| 3.3  | 2.50                      | 34.0             | 1.5                   | 1.28                  | 13.2            | 22.5           | B82559A5332A020 |
| 4.7  | 3.50                      | 22.0             | 2.6                   | 2.15                  | 9.8             | 15.7           | B82559A4472A020 |
| 6.8  | 5.10                      | 19.0             | 2.9                   | 2.68                  | 9.8             | 16.3           | B82559A5682A020 |
| 10.0 | 7.50                      | 18.3             | 3.9                   | 3.74                  | 10.8            | 18.1           | B82559A7103A020 |
| 15.0 | 11.2                      | 15.3             | 4.9                   | 4.65                  | 12.2            | 19.7           | B82559A9153A020 |
| 20.0 | 14.9                      | 14.3             | 6.4                   | 6.0                   | 14.2            | 22.5           | B82559A0203A020 |
| 29.0 | 21.5                      | 11.0             | 7.0                   | 6.65                  | 14.2            | 23.9           | B82559A0293A020 |
| 35.0 | 26.0                      | 9.3              | 7.0                   | 6.65                  | 14.2            | 23.9           | B82559A0353A020 |

**Inductance L versus DC load current  $I_{DC}$**

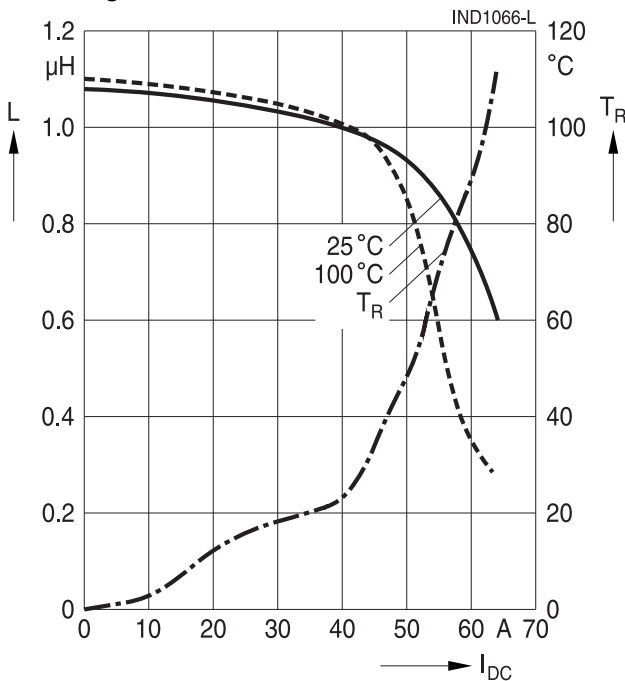
The temperature rise  $T_R$  is measured at an ambient of +25 °C. A current is applied for 30 minutes and the temperature is measured when point equilibrium is reached via a thermal coupler placed on top of the device. No forced air cooling is applied.

The inductance vs. current curves are generated by measuring the inductors at +25 °C and +100 °C using a Wayne Kerr PM 3260A with the related bias units.

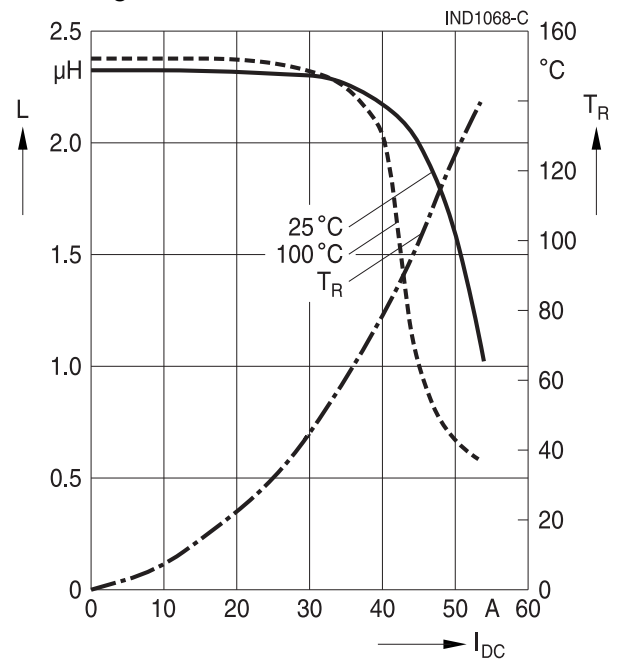
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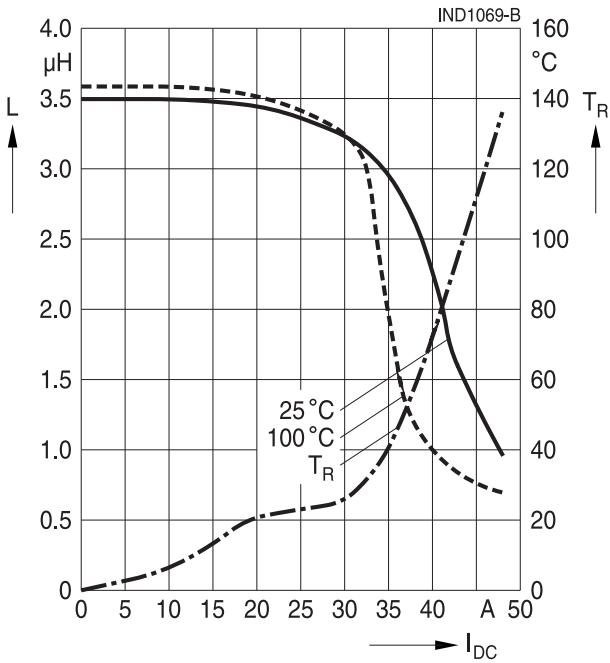
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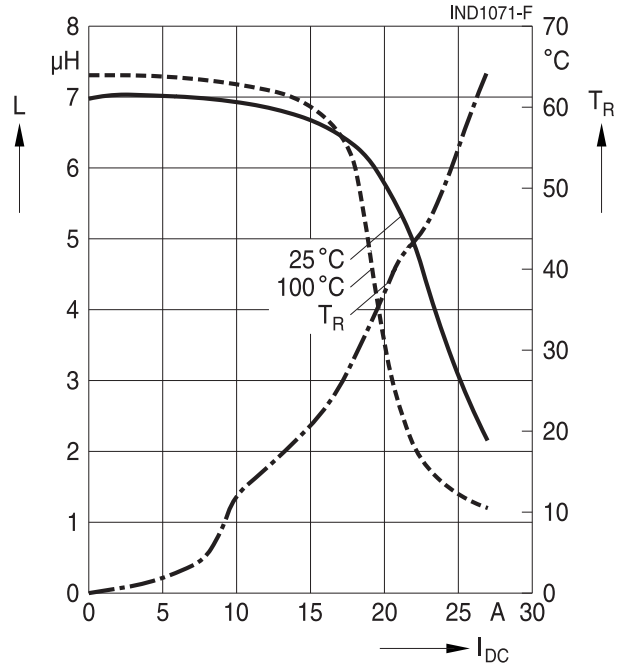
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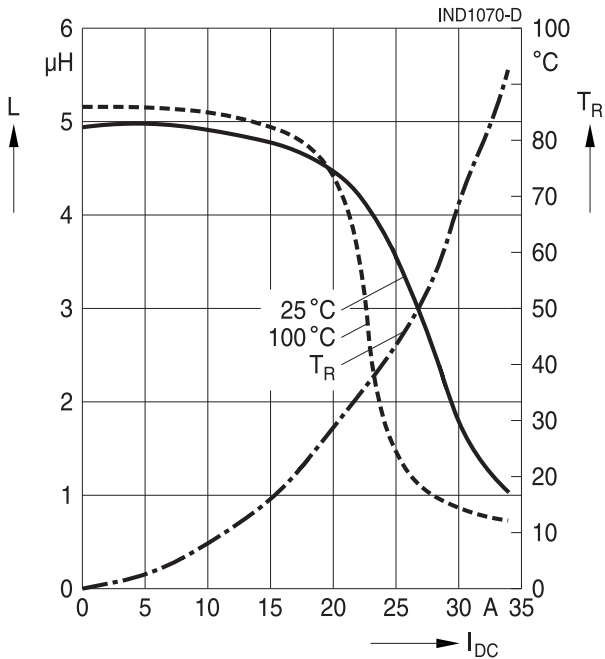
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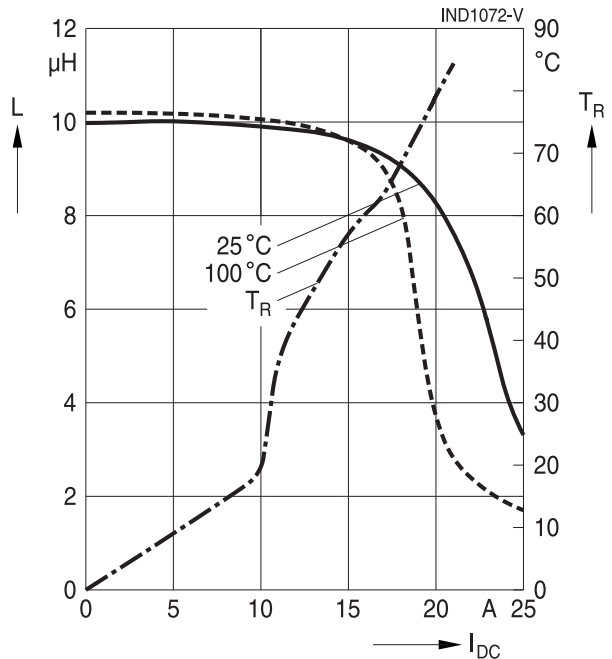
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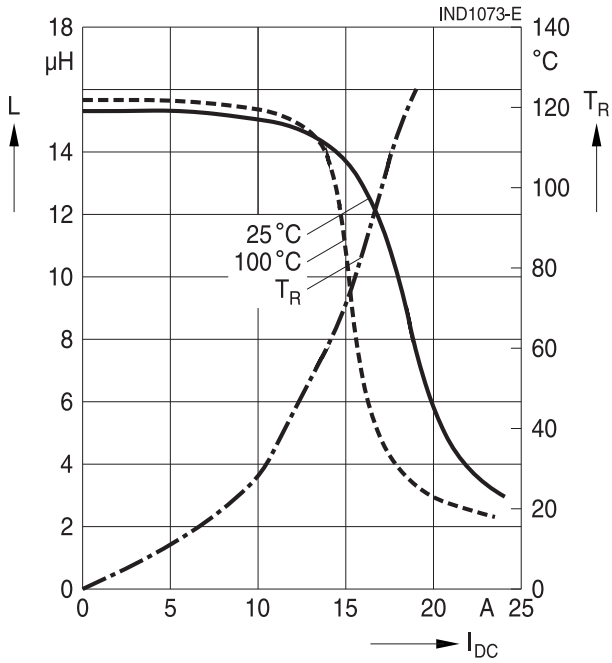
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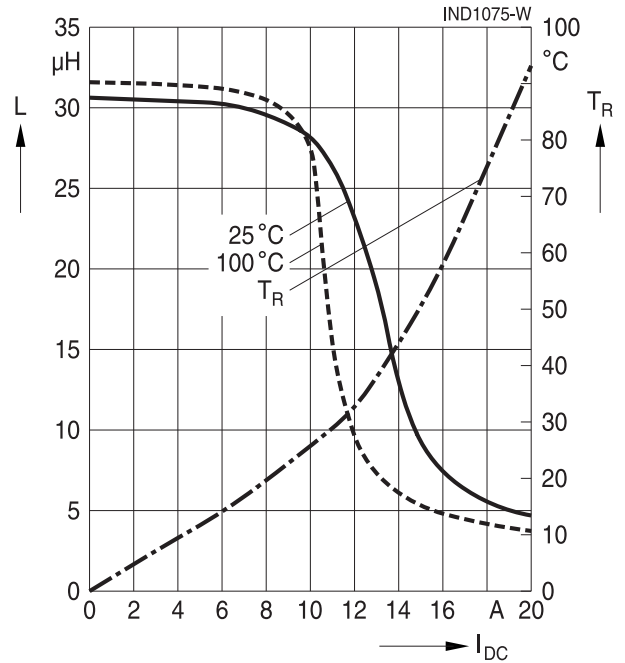
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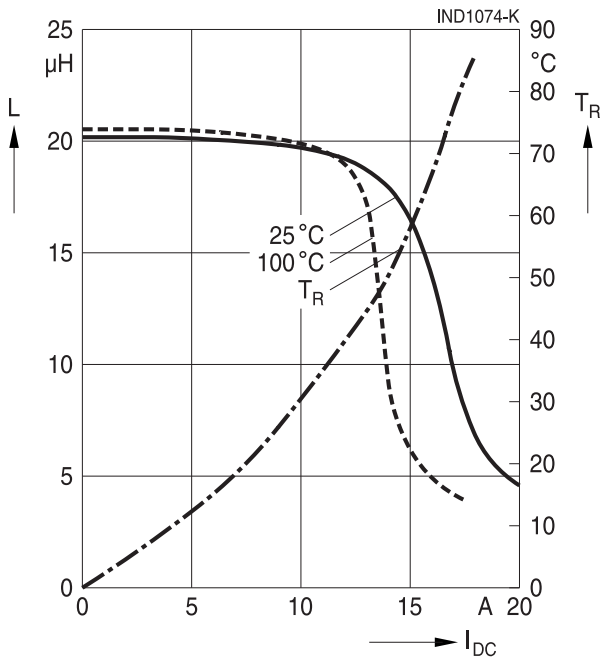
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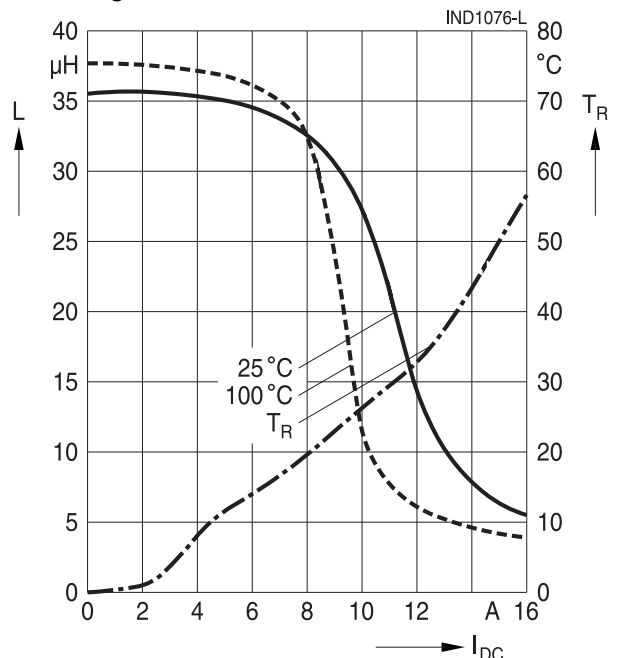
Ordering code: B82559A0293A020



Ordering code: B82559A0203A020



Ordering code: B82559A0353A020





### Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition) and in the data sheets.
  - Particular attention should be paid to the derating curves given there.
  - The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not the housing.
  
- If the components are to be washed varnished it is necessary to check whether the washing varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. In particular, it is possible for washing varnish agent residues to have a negative effect in the long-term on wire insulation  
Washing processes may damage the product due to the possible static or cyclic mechanical loads (e.g. ultrasonic cleaning). They may cause cracks to develop on the product and its parts, which might lead to reduced reliability or lifetime.
  
- The following points must be observed if the components are potted in customer applications:
  - Many potting materials shrink as they harden. They therefore exert a pressure on the plastic housing or core. This pressure can have a deleterious effect on electrical properties, and in extreme cases can damage the core or plastic housing mechanically.
  - It is necessary to check whether the potting material used attacks or destroys the wire insulation, plastics or glue.
  - The effect of the potting material can change the high-frequency behaviour of the components.
  
- Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core.
  
- Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

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