



## ERU chokes

ERU 20, helically wound

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

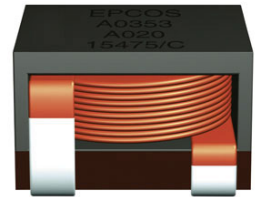
**Date:**                    August 2018

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### SMD

**Rated inductance 1.0 .... 35  $\mu$ H**  
**Saturation current 9.3 ... 50 A**



#### Construction

- High temperature ferrite core
- Magnetically shielded
- Helical winding
- Self-leaded construction
- Under body termination
- 3 pins for improved reliability

#### Features

- High rated current
- Extremely low DC resistance
- Very low profile and extremely small footprint
- Suitable for pick-and-place processes
- RoHS-compatible
- Easily customized
- AEC-Q200 qualified

#### Applications

Energy storage chokes for

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

#### Terminals

Lead-free tinned

#### Marking

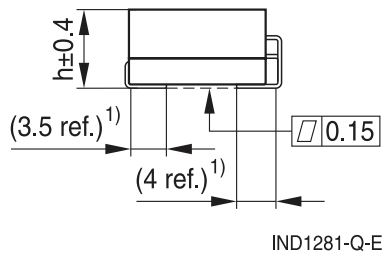
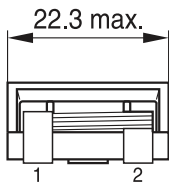
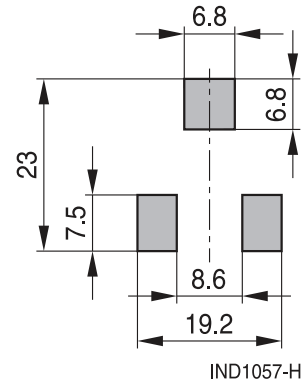
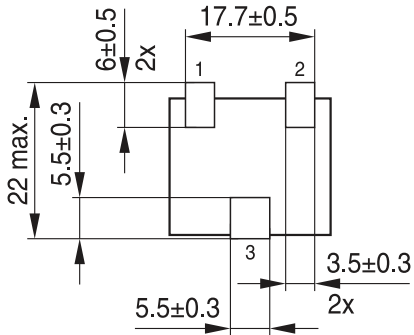
Manufacturer, ordering code, date of manufacture and production place (YYWWD/X),

#### Delivery mode and packing units

- Blister tape

**SMD**

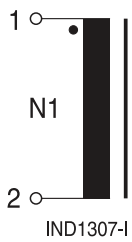
**Dimensional drawing and layout recommendation**



<sup>1)</sup> The flatness of the pins

Dimensions in mm

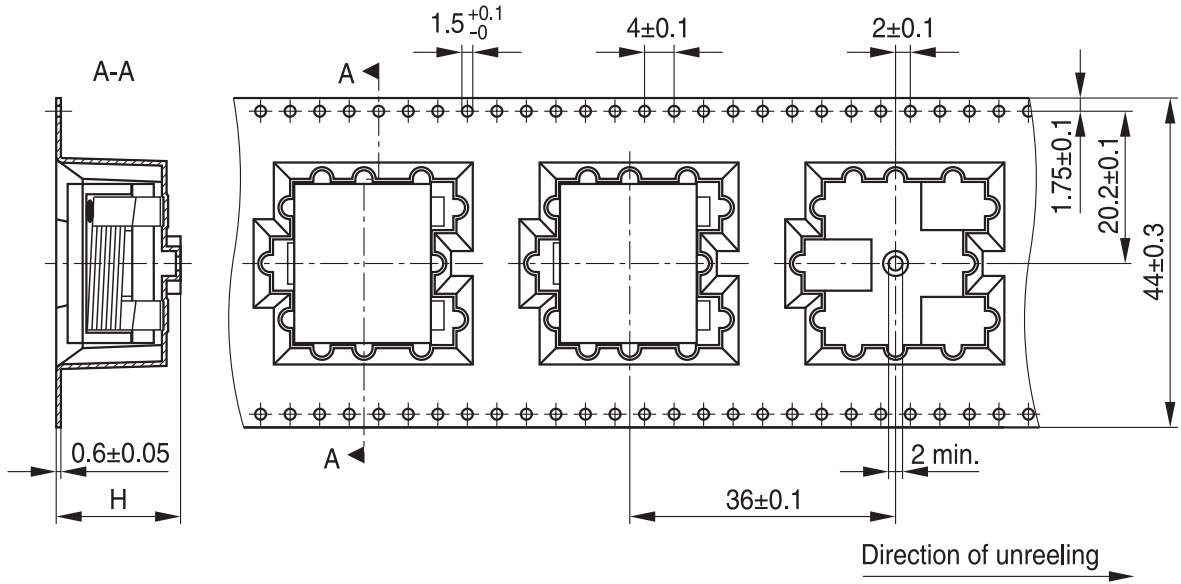
**Circuit diagram**



**SMD**

**Taping and packing**

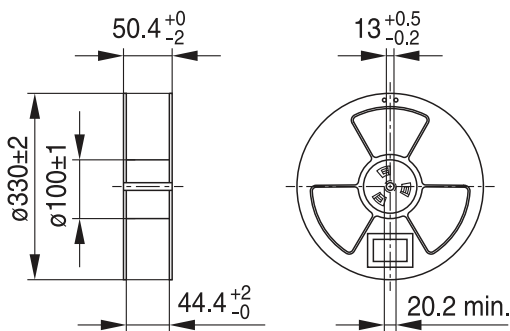
**Tape:**



IND1059-S

Dimensions in mm

**Reel:**



IND1262-7

Dimensions in mm

| Height (mm) |          | Packing unit<br>per reel |
|-------------|----------|--------------------------|
| component h | cavity H |                          |
| 9.8         | 12.5     | 130                      |
| 10.7        | 12.5     | 130                      |
| 12.1        | 13.9     | 115                      |
| 14.1        | 15.9     | 100                      |

**SMD**
**Technical data and measuring conditions**

|  |   |
|--|---|
| Rated inductance $L_R$                             | Measured at 100 kHz, 0.1 V, +25 °C  |
| Inductance tolerance                               | ±10%  |
| Saturation current $I_{Sat}$                       | Current that will result in an approximately 10% drop in the inductance values at the specified temperature |
| DC resistance $R_{DC}$                             | Measured at +25 °C  |
| Self-resonant frequency                            | > 2 MHz   |
| High voltage: N1 - core                            | 200 V DC, 1 s   |
| Solderability<br>(test of wettability of the pins) | (245 ±5) °C, (3 ±0.3) s,<br>wetting of soldering area ≥95%<br>(based on IEC 60068-2-58, solder bath method) |
| Resistance to soldering heat                       | To JEDEC J-STD 020D (Tc: +245 °C on pin)  |
| Operating temperature                              | -40 °C ... +150 °C (component)  |
| Storage conditions (packaged)                      | -25 °C ... +40 °C, ≤ 75% RH   |

**Characteristics and ordering codes**

| $L_R$ | $I_{sat, 25°C}$ | $I_{sat, 100°C}$ | $R_{DC}$ (max) | $R_{DC}$ (typ) | Height h<br>(nom.) | Approx.<br>weight | Ordering code   |
|-------|-----------------|------------------|----------------|----------------|--------------------|-------------------|-----------------|
| μH    | A               | A                | mΩ             | mΩ             | mm                 | g                 |                 |
| 1.0   | 50.0            | 45.0             | 0.65           | 0.55           | 9.8                | 15.7              | B82559A2102A020 |
| 1.5   | 50.0            | 43.0             | 0.90           | 0.80           | 10.7               | 17.6              | B82559A3152A020 |
| 2.2   | 43.0            | 38.0             | 1.20           | 1.00           | 12.1               | 19.8              | B82559A4222A020 |
| 3.3   | 34.0            | 29.0             | 1.50           | 1.30           | 14.1               | 22.5              | B82559A5332A020 |
| 4.7   | 22.0            | 19.0             | 2.40           | 2.15           | 9.8                | 15.7              | B82559A4472A020 |
| 6.8   | 19.0            | 16.5             | 2.90           | 2.70           | 9.8                | 16.3              | B82559A5682A020 |
| 10.0  | 18.3            | 16.0             | 3.90           | 3.70           | 10.7               | 18.1              | B82559A7103A020 |
| 15.0  | 15.3            | 13.5             | 4.95           | 4.65           | 12.1               | 19.7              | B82559A9153A020 |
| 20.0  | 14.3            | 12.0             | 6.40           | 5.70           | 14.1               | 22.5              | B82559A0203A020 |
| 29.0  | 11.0            | 9.5              | 7.10           | 6.65           | 14.1               | 23.9              | B82559A0293A020 |
| 35.0  | 9.3             | 7.5              | 7.10           | 6.65           | 14.1               | 23.9              | B82559A0353A020 |

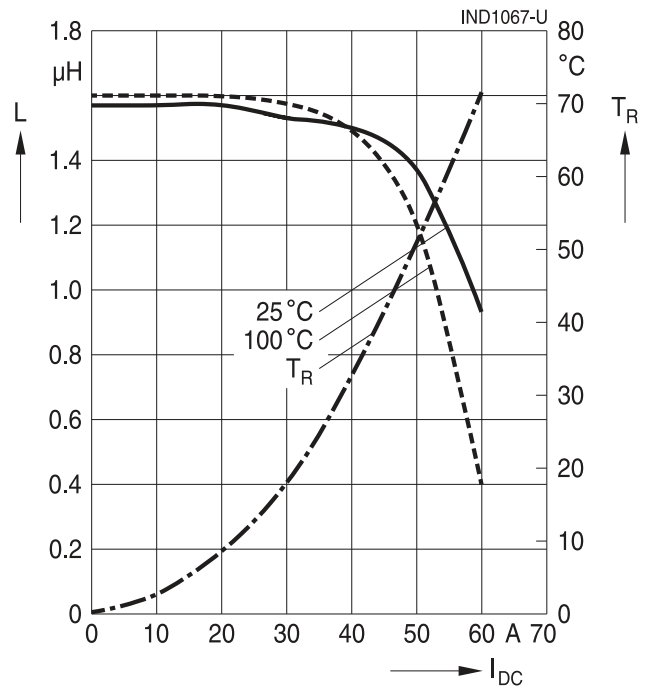
**SMD**

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

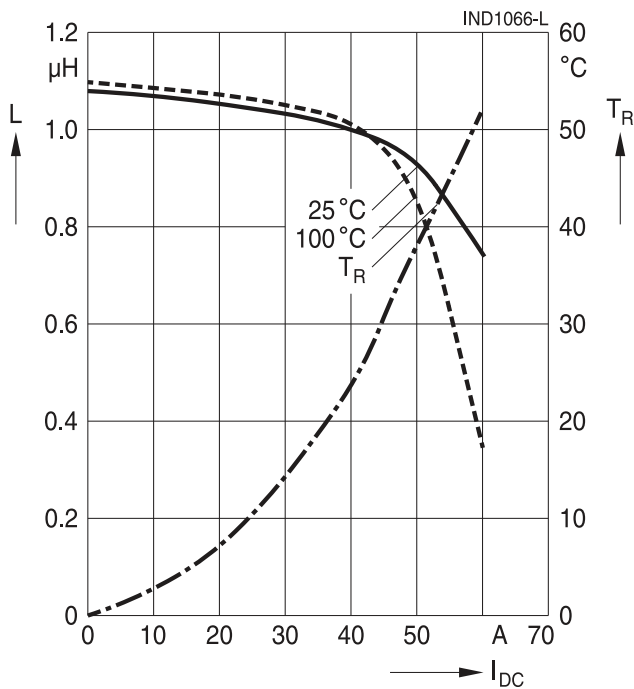
The temperature rise  $\Delta T$  is measured at an ambient temperature of +25 °C. A current is applied for 30 minutes and the temperature is measured via a thermocouple placed on top of the device. No forced air cooling is applied.

The inductance vs current curves are generated by measuring the inductors at +25 °C and +100 °C.

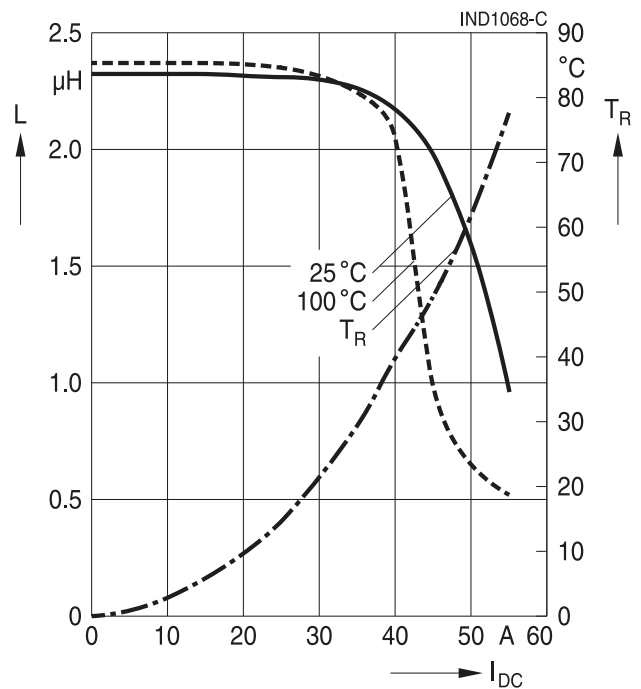
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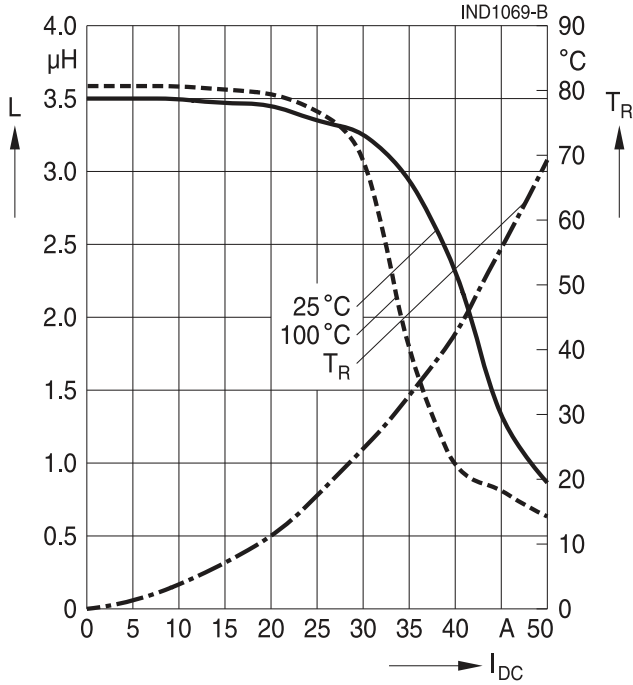


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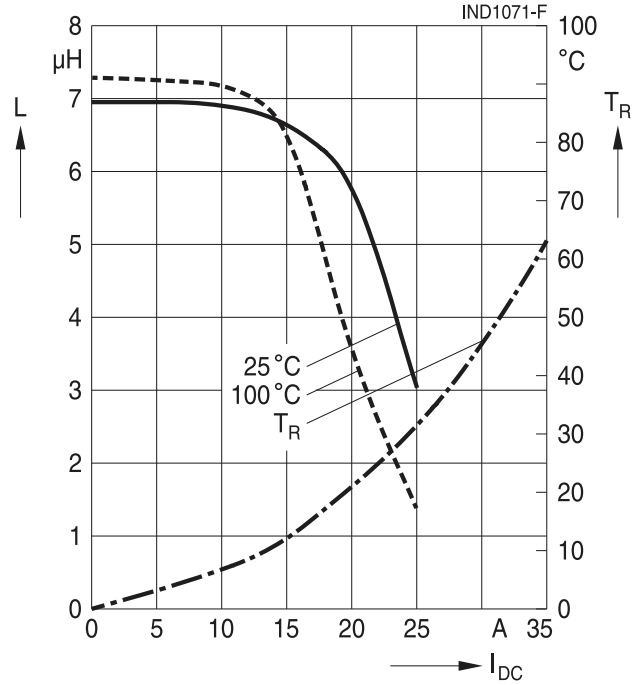


**SMD**

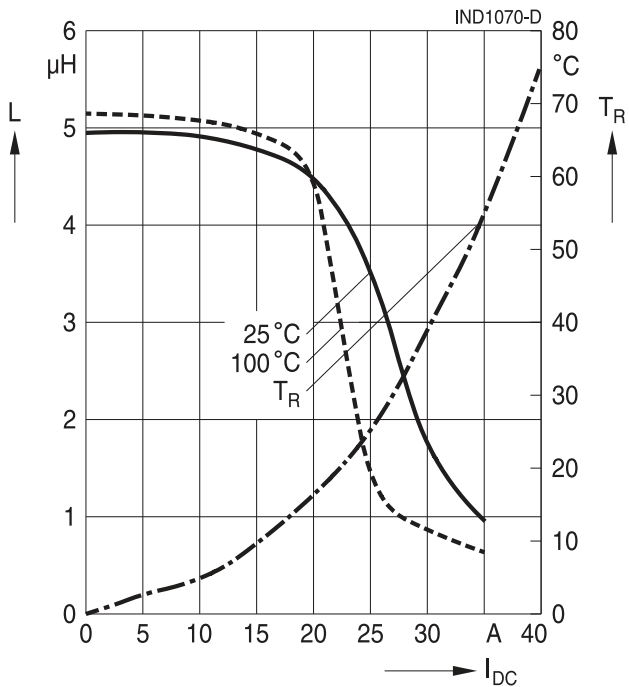
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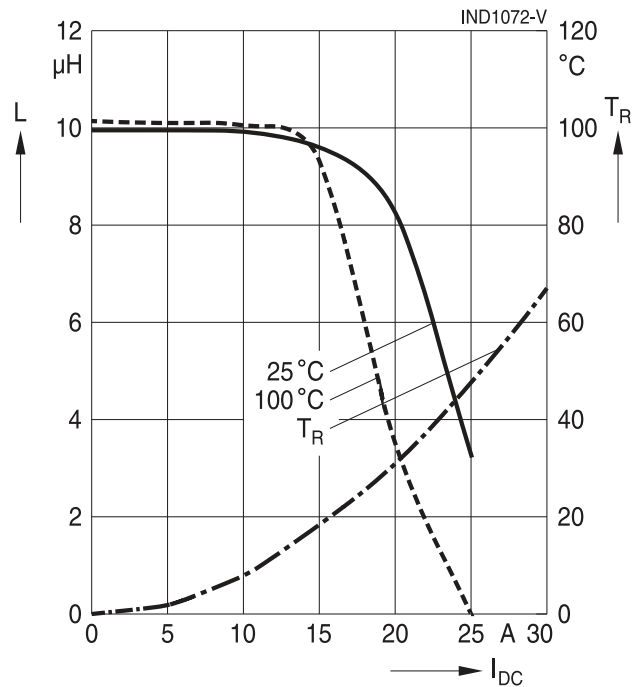
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**B82559A4472A020**

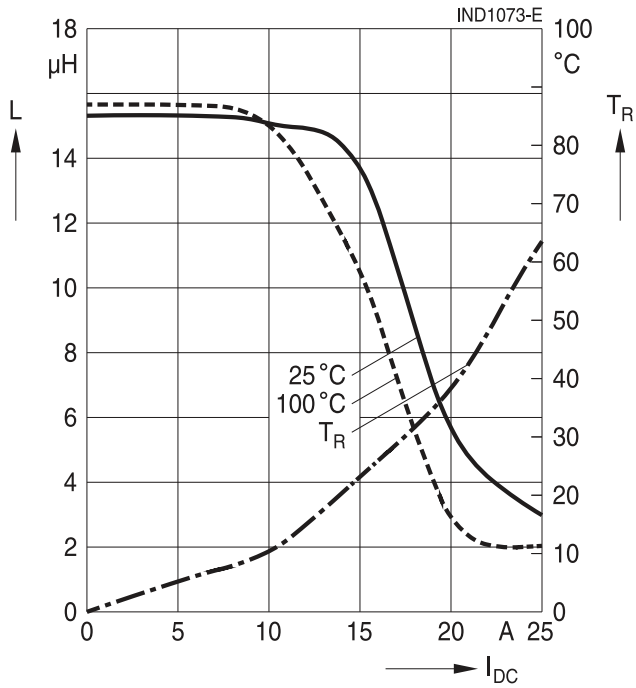


**B82559A7103A020**

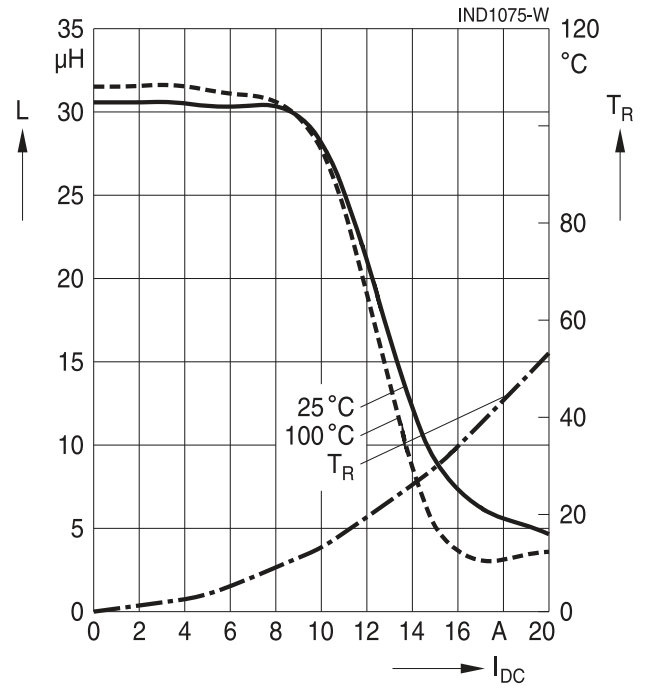


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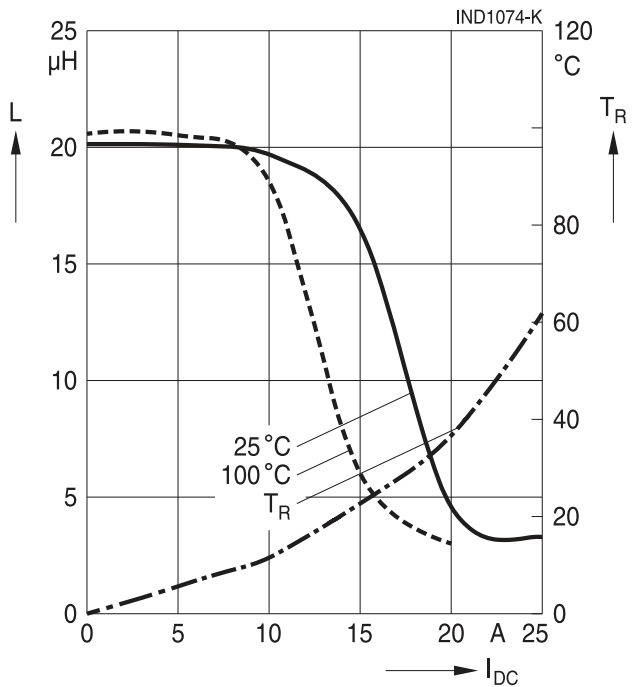
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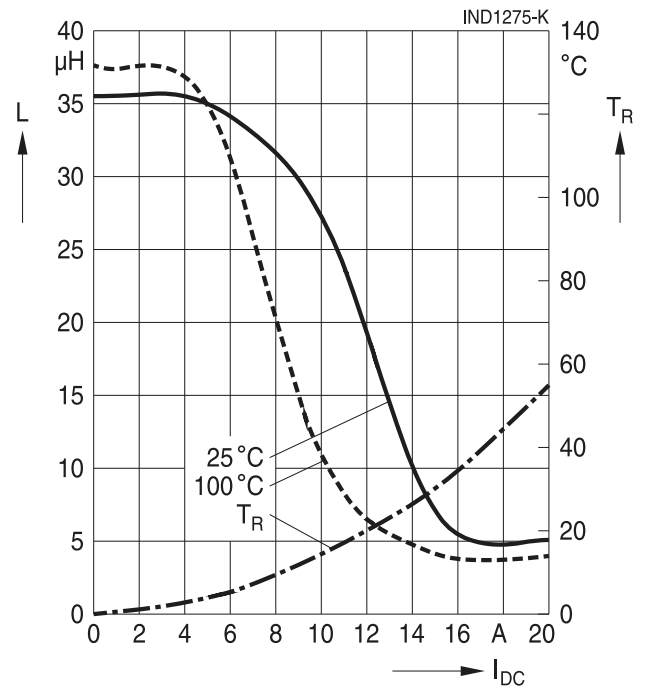
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B82559A0203A020



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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