



# Inductors

## VHF chokes

**Series/Type:** B82111B  
**Date:** March 2008


**Rated voltage 500 V AC/DC**  
**Rated current 2 A to 10 A**  
**Rated inductance 3  $\mu$ H to 25  $\mu$ H**



### Construction

- Ferrite cylinder core
- Winding: single-layer, enamel copper wire, winding ends brought out as leads
- Polyester insulating sleeve

### Features

- High resonant frequency
- High rated current
- Suitable for wave soldering
- RoHS-compatible
- ENEC10 approval 

### Applications

- RF blocking and filtering
- Interference suppression in small appliances

### Terminals

- Central axial leads
- Base material Cu
- Hot-dip tinned with pure tin

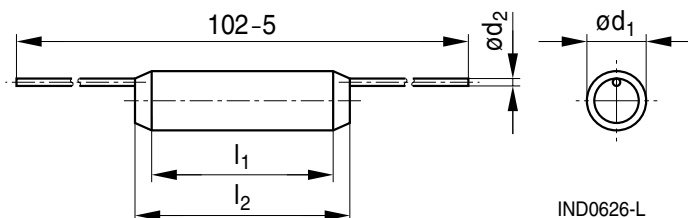
### Marking

$L_R$  and  $I_R$  in clear text and approval mark

### Delivery mode

Bulk

### Dimensional drawing



Dimensions in mm


# Technical data and measuring conditions

|   |   |
|---|---|
| Test voltage $V_{\text{test}}$                | 2500 V AC, 1 min  |
| Rated inductance $L_R$                        | Measured with LCR meter Agilent 4284A or impedance analyzer Agilent 4294A<br>Measuring frequency: $L_R \leq 10 \mu\text{H}$ = 1 MHz<br>$10 \mu\text{H} < L_R \leq 1000 \mu\text{H}$ = 100 kHz<br>Measuring voltage: 1 V<br>Measuring temperature: 20 °C |
| Inductance tolerance                          | ±20%  |
| Rated temperature $T_R$                       | 60 °C   |
| Rated current $I_R$                           | Maximum permissible DC current at rated temperature   |
| DC resistance $R_{\text{typ}}$                | Measured at 20 °C, tolerance ±20%, typical values   |
| Resonance frequency $f_{\text{res}}$          | Measured with Agilent 4294A or 8753ES, 20 °C<br>tolerance ±30%  |
| Solderability (lead-free)                     | Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s<br>Wetting of soldering area ≥ 90%<br>(to IEC 60068-2-20, test Ta)  |
| Resistance to soldering heat (wave soldering) | (260 ±5) °C, 10 s<br>(to IEC 60068-2-20, test Tb)   |
| Tensile strength of leads                     | ≥ 30 N (to IEC 60068-2-21, test Ua)   |
| Climatic category                             | 55/125/56 (to IEC 60068-1)  |
| Storage conditions                            | Mounted: -55 °C ... +125 °C<br>Packaged: -25 °C ... +40 °C, ≤ 75% RH  |
| Approvals                                     | EN 60938  |

## ⚠ Mounting information

When bending the leads, take care that the bending point is **at least 3 mm** apart from the face ends of the core and that the start-of-winding areas are not subjected to any mechanical stress.

### Characteristics and ordering codes

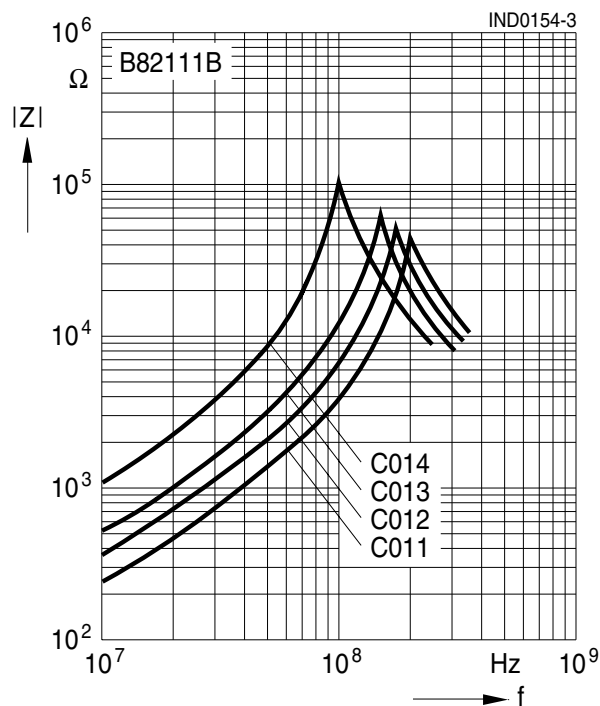
| $I_R$ | $L_R$   | $R_{typ}$ | $f_{res}$ | Dimensions (mm) |           |              |       | Approx.<br>weight<br>g | Ordering code   | Approvals<br> |
|-------|---------|-----------|-----------|-----------------|-----------|--------------|-------|------------------------|-----------------|--|
|       | $\mu H$ | $\Omega$  | MHz       | $l_{1-1.5}$     | $l_{2-3}$ | $d_{1 max.}$ | $d_2$ |                        |                 |  |
| 2     | 17      | 0.063     | 100       | 18.3            | 24        | 7.0          | 0.45  | 3.0                    | B82111B0000C014 | ×  |
| 3     | 8       | 0.025     | 145       | 18.3            | 24        | 7.0          | 0.63  | 3.0                    | B82111B0000C013 | ×  |
| 3     | 13      | 0.024     | 170       | 24.5            | 29        | 6.5          | 0.67  | 3.5                    | B82111B0000C019 | ×  |
| 3     | 20      | 0.054     | 125       | 24.5            | 29        | 6.0          | 0.5   | 3.5                    | B82111B0000C020 | ×  |
| 3     | 25      | 0.046     | 85        | 28.5            | 34        | 8.5          | 0.63  | 6.0                    | B82111B0000C024 | ×  |
| 4     | 6       | 0.017     | 170       | 18.3            | 24        | 7.5          | 0.75  | 3.0                    | B82111B0000C012 | ×  |
| 4     | 11      | 0.020     | 150       | 24.5            | 29        | 6.5          | 0.71  | 6.0                    | B82111B0000C018 | ×  |
| 4     | 15      | 0.024     | 120       | 28.5            | 34        | 8.5          | 0.75  | 7.0                    | B82111B0000C023 | ×  |
| 6     | 4       | 0.014     | 205       | 18.3            | 24        | 7.5          | 0.8   | 4.0                    | B82111B0000C011 | ×  |
| 6     | 6       | 0.010     | 200       | 24.5            | 29        | 7.0          | 0.95  | 5.0                    | B82111B0000C017 | ×  |
| 6     | 9       | 0.012     | 150       | 28.5            | 34        | 9.0          | 0.95  | 8.0                    | B82111B0000C022 | ×  |
| 9     | 3       | 0.006     | 220       | 24.5            | 29        | 7.5          | 1.2   | 5.0                    | B82111B0000C016 | ×  |
| 10    | 5       | 0.005     | 175       | 28.5            | 34        | 9.5          | 1.3   | 10.0                   | B82111B0000C021 | ×  |

× = approval granted

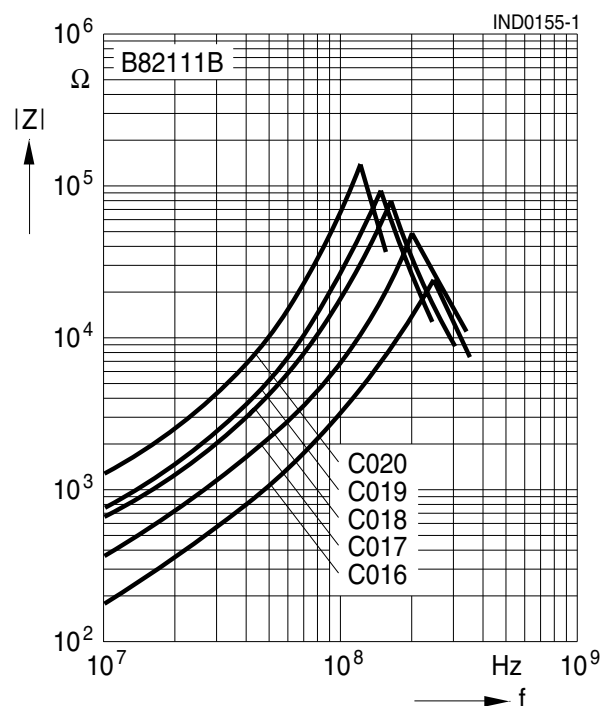
### Impedance $|Z|$ versus frequency $f$

measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at 20 °C

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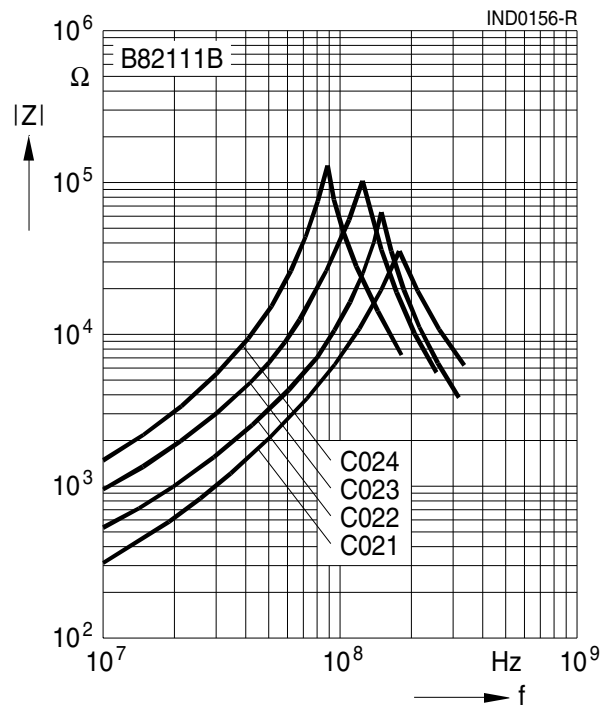


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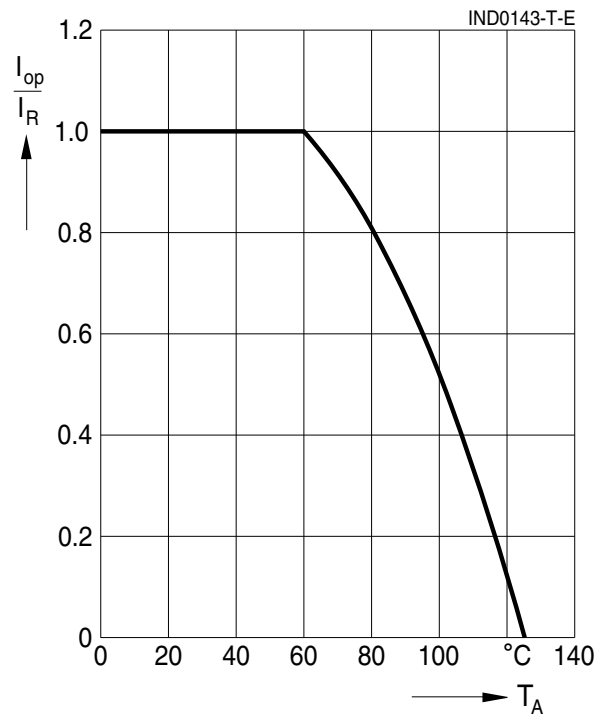


**Impedance  $|Z|$  versus frequency  $f$**   
 measured with impedance analyzer Agilent 4294A or S-parameter network analyzer Agilent 8753ES, typical values at 20 °C

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**Current derating  $I_{op}/I_R$**   
**versus ambient temperature  $T_A$**   
 (rated temperature  $T_R = 60$  °C)



## 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.
- 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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