

Inductors

VHF chokes

Series/Type: B82111E
Date: May 2022

VHF chokes

Rated voltage 500 V AC/DC
Rated current 0.2 ... 5 A
Rated inductance 7 ... 680 μ H


Construction

- Ferrite cylinder core
- Winding: single-layer, enamel copper wire
- Polyester insulating sleeve

Features

- High resonant frequency
- Wide inductance range
- Design complies with EN 60938
- Suitable for wave soldering
- RoHS-compatible

Applications

- RF blocking and filtering
- Interference suppression in small appliances
- Decoupling in telecommunications and entertainment electronics

Terminals

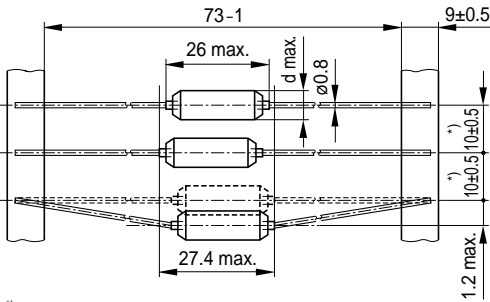
- Central axial leads
- Base material Cu
- Hot-dip tinned with pure tin

Marking

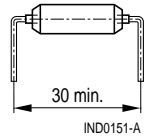
L_R and I_R in clear text

Delivery mode and packing unit

- Taped and reeled
- Packing unit: 1000 pcs./reel

Dimensional drawing

¹⁾ Tolerance over 10 spacings $\pm 2 \text{ mm}$

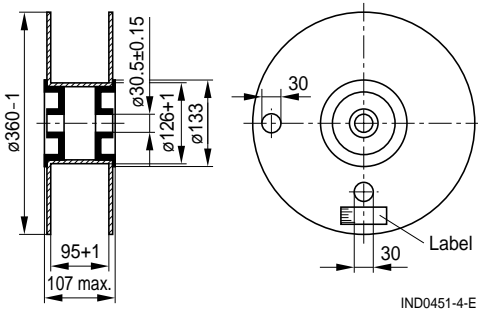
IND0150-S-E



Dimensions in mm

Reel packing

B82111E*C020 ... C028



IND0451-4-E

Dimensions in mm

Technical data and measuring conditions

Test voltage V_{test}	2500 V AC, 1 min
Rated inductance L_R	Measured with LCR meter Agilent 4284A or impedance analyzer Agilent 4294A, or Keysight E990A or equivalent Measuring frequency: $L_R \leq 10 \mu\text{H} = 1 \text{ MHz}$ $10 \mu\text{H} < L_R \leq 1000 \mu\text{H} = 100 \text{ kHz}$ Measuring voltage: max. 1 V 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_{typ}	Measured at +20 °C, tolerance ±20%, typical values
Resonance frequency f_{res}	Measured with Agilent 4294A or 8753ES, or Keysight E990A or equivalent, +20 °C, tolerance ±30%
Solderability (lead-free)	Sn95.5Ag3.8Cu0.7 or Sn96.5Ag3.0Cu0.5: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (to IEC 60068-2-20, test Ta)
Resistance to soldering heat (wave soldering)	+(260 ±5) °C, 10 s (to IEC 60068-2-20, test Tb)
Tensile strength of leads	acc. to IEC 60068-2-21, test Ua
Climatic category	55/125/56 (to IEC 60068-1)
Storage conditions	Mounted: -55 °C ... +125 °C Packaged: -25 °C ... +40 °C, ≤ 75% RH

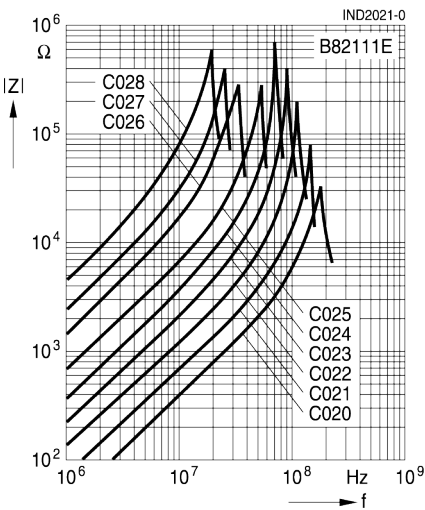
Mounting information

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.

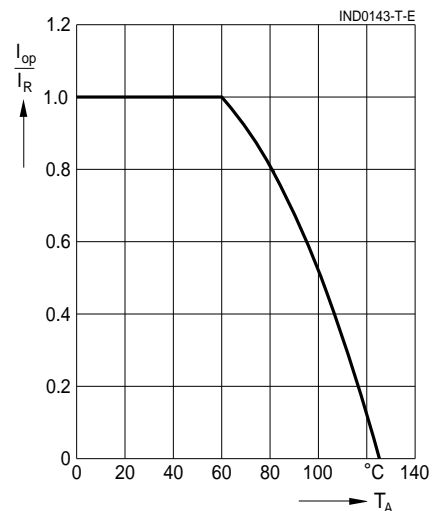
Characteristics and ordering codes

I_R	L_R	R_{typ}	f_{res}	Approx. weight	Dimensions	Ordering code
A	μH	Ω	MHz	g	d_{max} mm	
0.2	680	14	19	2.2	6.0	B82111E0000C028
0.3	470	6.5	25	2.3	6.0	B82111E0000C027
0.5	220	2.6	32	2.3	6.5	B82111E0000C026
1	100	0.65	55	2.5	6.5	B82111E0000C025
1.5	56	0.30	70	2.7	6.5	B82111E0000C024
2	40	0.18	90	3.0	7.0	B82111E0000C023
3	22	0.07	110	3.3	7.0	B82111E0000C022
4	12	0.04	140	3.5	7.5	B82111E0000C021
5	7	0.02	180	3.6	7.5	B82111E0001C020

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



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



Information about the exterior of VHF chokes

Condition	Criteria
Winding wire end out of the foil	Max. length until body diameter is allowed
Winding wire end out under foil	Max. length cannot reach the foil
Tin accumulation on the lead wire	Max. 1 mm is allowed
stamping picture, marking readability	The electrical values must be legible
Insulation foil position (the smallest overhang of the insulation foil on the core)	Min. 0.8 mm from the edge of the core Considering the above dimensions, the insulating foil can also be located asymmetrically on the core
Position of soldered starting and ending turns	They can locate outside of the insulating foil
Foil adhesion, upstanding foil	Max. 1 mm upstanding foil is allowed

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, wire insulation, plastics or glue.
 - The effect of the potting material can change the high-frequency behaviour of the components.
 - Many coating materials have a negative effect (chemically and mechanically) on the winding wires, insulation materials and connecting points. Customers are always obligated to determine whether and to what extent their coating materials influence the component. Customers are responsible and bear all risk for the use of the coating material. TDK Electronics does not assume any liability for failures of our components that are caused by the coating material.
- Ceramics / 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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3. **The warnings, cautions and product-specific notes must be observed.**
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