Power line chokes

Current-compensated frame core double chokes
300 V AC / 500 V DC, 0.7 … 2.3 A, 10 … 100 mH, +40 °C

Series/Type: **B82733F/V**

Date: November 2023

Current-compensated frame core double chokes

Rated voltage 300 V AC / 500 V DC
Rated current 0.7 ... 2.3 A (+40 °C)
Rated inductance 10 ... 100 mH

Construction

- Current-compensated frame core double choke
- Closed magnetic circuit with frame construction made of ferrite
- Epoxy coating (UL94 V-0)
- Plastic coil former (UL94 V-0)
- 4-section winding with direct winding on the core
- Sector winding
- Clearance and creepage distances >4 mm

Features

- High inductance with low resistance
- Approx. 2% stray inductance for symmetrical interference suppression
- High pulse-handling capability
- Very good inductance/rated current ratio
- Low height (14 mm, B82733F)
- Suitable for wave soldering
- Design complies with IEC/EN 60938-2 (VDE 0565-2) and UL/IEC 60939-3
- VDE/ENEC10[1)] and UL/ENEC15[2)] approvals
- RoHS-compatible

Applications

- Suppression of common-mode and differential-mode interferences
- Electronic ballasts for lamps
- Switch-mode power applications

Terminals

- Base material CP wire
- Hot dipped
- Pins 0.7 × 0.7 mm
- Lead spacing: B82733F: 20 × 22.5 mm
  B82733V: 10 × 18.75 mm

Marking

Product brand (EPCOS), date of manufacture (YYWWD), production place identification code, ordering code, approval signs

Delivery mode

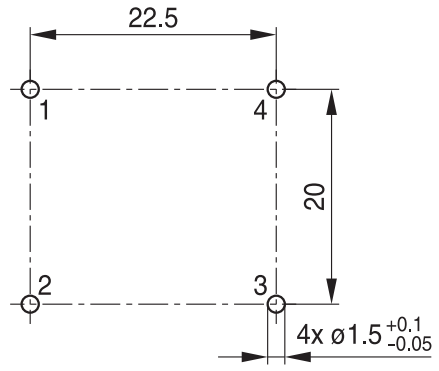
- Blister tray (anti-static) in cardboard box

1) VDE approval with 300 V AC
2) UL approval with 300 V AC / 500 V DC

imensional drawing and layout recommendation

B82733F (horizontal version)

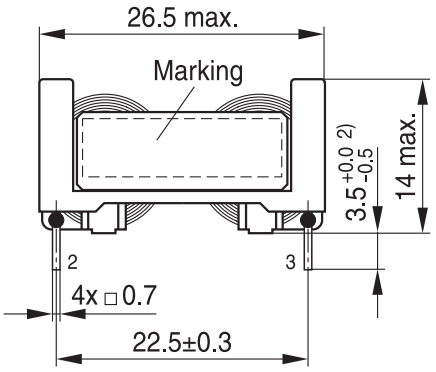
Recommended PCB layout
(top view)

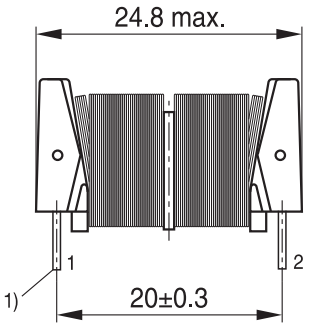


IND1155-B-E

Part tolerances to ISO 2768-c / ISO 8015.
Size ISO 14405 Ⓔ
All dimensions in mm

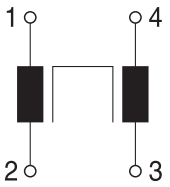
IND2140-B-E





1) Tin tips permissible
2) Dimension does not include tin tip

IND2208-N-E

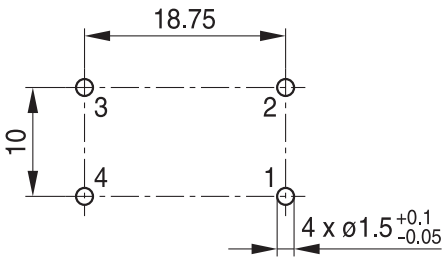


No polarity

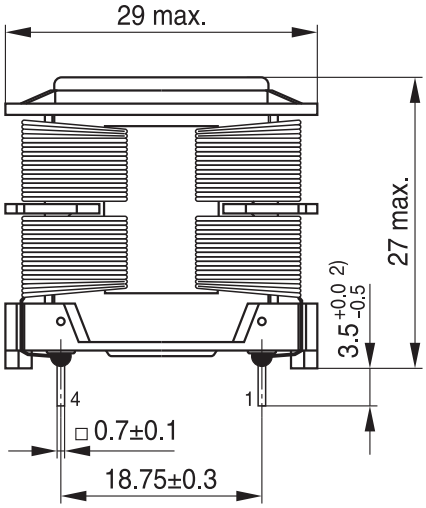
IND1499-V-E

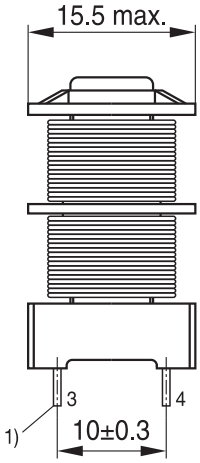
B82733V (vertical version)

Recommended PCB layout
(top view)



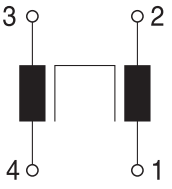
IND1058-W-E





1) Tin tips permissible
2) Dimension does not include tin tip

IND2209-O-E



No polarity

IND1500-X-E

Part tolerances to ISO 2768-c / ISO 8015.
Size ISO 14405 Ⓔ
All dimensions in mm

IND2140-B-E

Technical data and measuring conditions

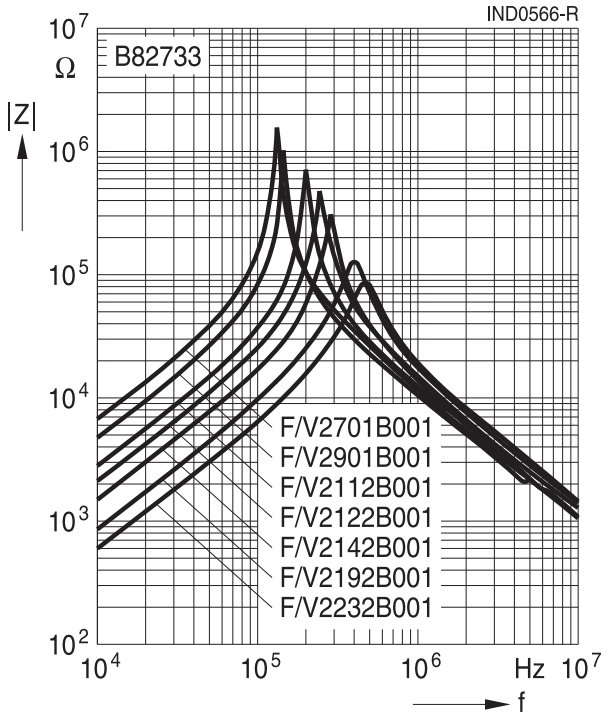
Rated voltage V_R	300 V AC (50/60 Hz) 500 V DC (DC-link)
Test voltage V_{test}	2000 V DC, 2 s (line/line)
Rated temperature T_R	+40 °C
Rated current I_R	Referred to 50 Hz and rated temperature
Rated inductance L_R	Measured with Agilent 4284A at 10 kHz, 0.1 mA, +20 °C. Inductance is specified per winding.
Inductance tolerance	–30/+50% at +20 °C
Inductance decrease $\Delta L/L_0$	<10% at DC magnetic bias with I_R, +20 °C
Stray inductance $L_{stray,typ}$	Measured with Agilent 4284A at 10 kHz, 5 mA, +20 °C, typical values
DC resistance R_{typ}	Measured at +20 °C; typical values, specified per winding
Solderability (lead-free)	Sn96.5Ag3.0Cu0.5: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 95% (to IEC 60068-2-20, test Ta)
Resistance to soldering heat (wave soldering)	+(260 ±5) °C, (10 ±1) s (to IEC 60068-2-20, test Tb)
Climatic category	40/125/56 (to IEC 60068-1)
Pollution degree	P2 (to IEC 61558-1)
Storage conditions (packaged)	–25 °C … +40 °C, ≤ 75% RH
Weight	Approx. 18 g
Approvals	IEC/EN 60938-2, UL/IEC 60939-3

Characteristics and ordering codes

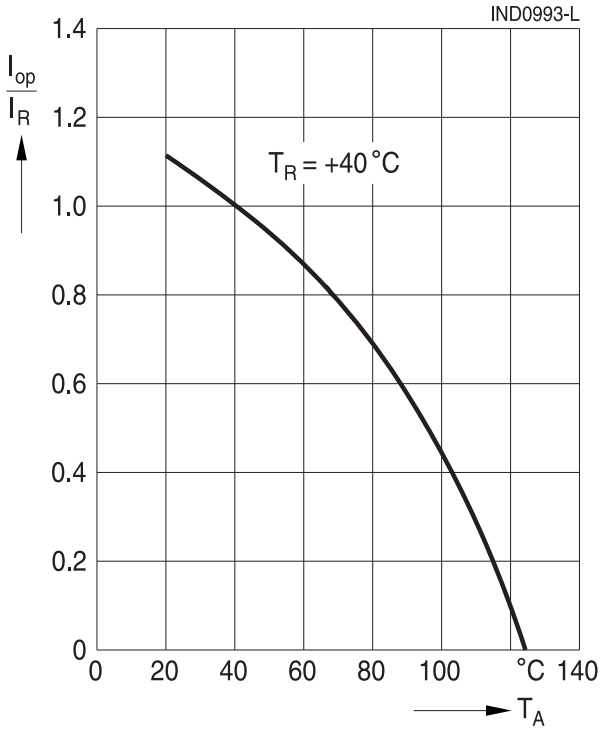
I_R	L_R	$L_{stray,typ}$	R_{typ}	Ordering code	Ordering code	Approvals	
A	mH	µH	mΩ	horizontal			
0.7	100	2100	1810	B82733F2701B001	B82733V2701B001	×	×
0.9	68	1440	1100	B82733F2901B001	B82733V2901B001	×	×
1.1	47	970	804	B82733F2112B001	B82733V2112B001	×	×
1.2	39	800	696	B82733F2122B001	B82733V2122B001	×	×
1.4	27	550	440	B82733F2142B001	B82733V2142B001	×	×
1.9	15	310	279	B82733F2192B001	B82733V2192B001	×	×
2.3	10	210	188	B82733F2232B001	B82733V2232B001	×	×

× = approval granted

Impedance |Z| versus frequency f
measured with windings in parallel at +20 °C, typical values



Current derating I_{op}/I_R versus ambient temperature T_A



Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition), online catalogs and in the data sheets.
  - Particular attention should be paid to the derating curves, if given. Derating applies in the case the ambient temperature in application exceeds the rated temperature of the component.
  - Ensure the operation temperature of the component in application not to exceed the maximum specified value or the upper climatic category temperature.
  - 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. 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, sealed, or varnished in customer applications:
  - Many potting, sealing, or varnishing 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, sealing or varnishing materials used attack or destroy the wire insulation, plastics, or glue.
  - The effect of the potting, sealing, or varnishing materials may change the high−frequency behavior of the components.
- Magnetic core materials such as ferrites are sensitive to direct impact. This can cause the core material to flake or lead to breakage of the magnetic core material.
- Any type of tension or pressure on the product may result in damage and affect its functionality and reliability.
  - The products are only to be attached to fixings or mounting holes provided for this purpose in accordance with the data sheet.
  - If additional mechanical forces are applied to the component, e.g., application of gap pads, it is necessary to check whether they attack or destroy any part of the component.
  - It is not permitted for the product specified in the data sheet to assume a mechanical function in the final application.
- Inductance value can drop if external metallic or magnetic parts will be put close to the coil or into the air gap of the coil or core or magnetic material.
- Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

Display of ordering codes for TDK Electronics products

The ordering code for one and the same product can be represented differently in data sheets, data books, other publications, on the company website, or in order-related documents such as shipping notes, order confirmations and product labels. **The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products**. Detailed information can be found on the Internet under www.tdk-electronics.tdk.com/orderingcodes.

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1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.** As a rule, we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.

2. We also point out that **in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified.** In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.

3. **The warnings, cautions and product-specific notes must be observed**.

4. In order to satisfy certain technical requirements, **some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous)**. Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.

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