

Power line chokes

Mushroom Core Choke
3.1 μ H, 25 A / +140 °C

Series/Type: B82116S1221L026
Ordering code:

Date: September 2022

Power line chokes

B82116S1221L026

Mushroom Core Choke

Rated current 25 A / +140 °C

Rated Inductance 3.1 μ H

Construction

- Mushroom Core Choke
- Ferrit core
- Double layer winding
- Core and winding glued

Features

- Enameled wire in accordance to EN 60317-13 (class 200, grade 2, UL listed)
- Suitable for wave soldering
- Qualified according AEC-Q200
- RoHS compatible

Applications

- EMC choke

Terminals

- Ends of winding wire
- Pins hot dip tinned Sn99Cu
- Cut surface tinned with tin or globular

Marking

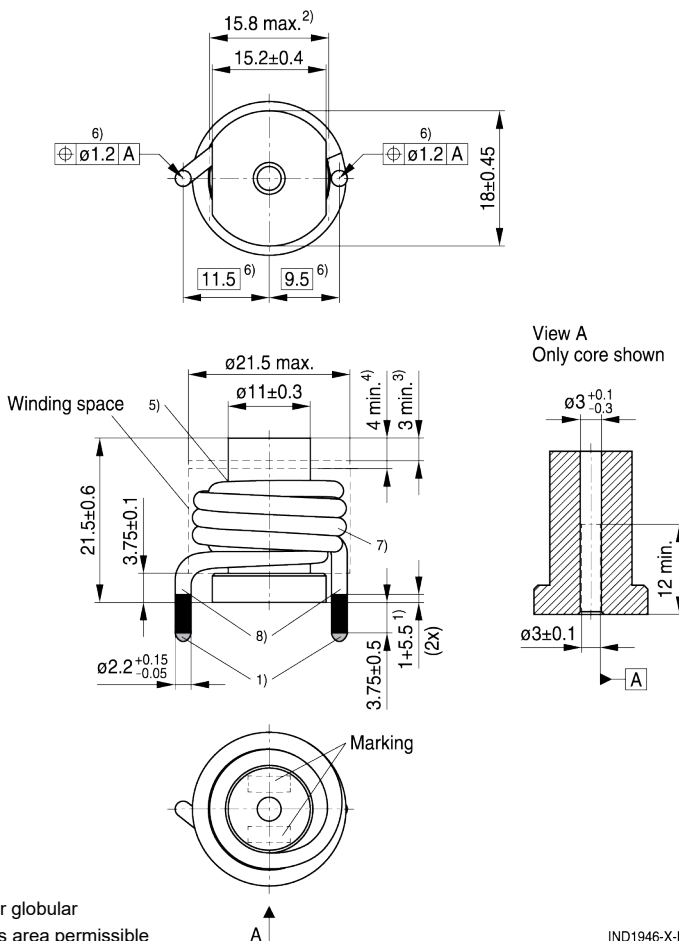
- Product brand
- part of ordering code
- date of manufacture (YYWWD)
- internal ID code (optional)

Delivery mode

- Blister tray in cardboard box



Dimensional drawing



IND1946-X-E

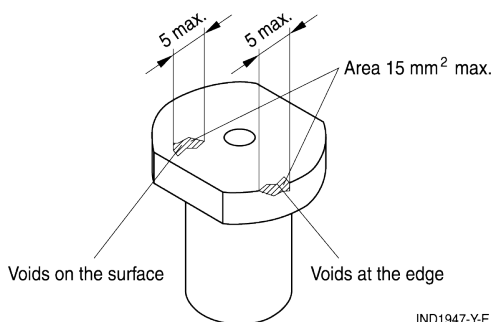
- 1) hot dip tinned Sn99Cu
pin ends tinned with tin or globular
- 2) twisting of core within this area permissible
- 3) no glue
- 4) no coil
- 5) coil is circumferential fixed on the core by glue
- 6) pin positions tested by gauge
- 7) nominal diameter of wire: 2.24 mm
- 8) above the tinned area of both pins bare copper wire
is permissible within tolerance of dimension 1 ± 5.5

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



IND1276-L-E

only core shown



IND1947-Y-E

Voids at all edges:

Voids at the edge can be created by the pressing, sintering or the following handling. Allowed is a length of max. 5 mm, and a area of max. 15 mm².

Maximum allowable are 3 voids per core between 10 mm² an 15 mm².

The voids don't have any influence on the properties of the inductor.

Voids on all surfaces:

Allowed is a length of max. 5 mm, and a area of max. 15 mm².

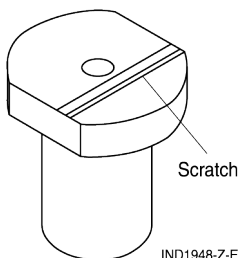
Maximum allowable are 3 voids per core between 10 mm² an 15 mm².

The voids don't have any influence on the properties of the inductor.

Cracks:

Small cracks in the ferrite are caused by production and permissible, as long as there is no risk of chips (ferrite particles).

The cracks don't have any influence on the properties of the inductor.



IND1948-Z-E

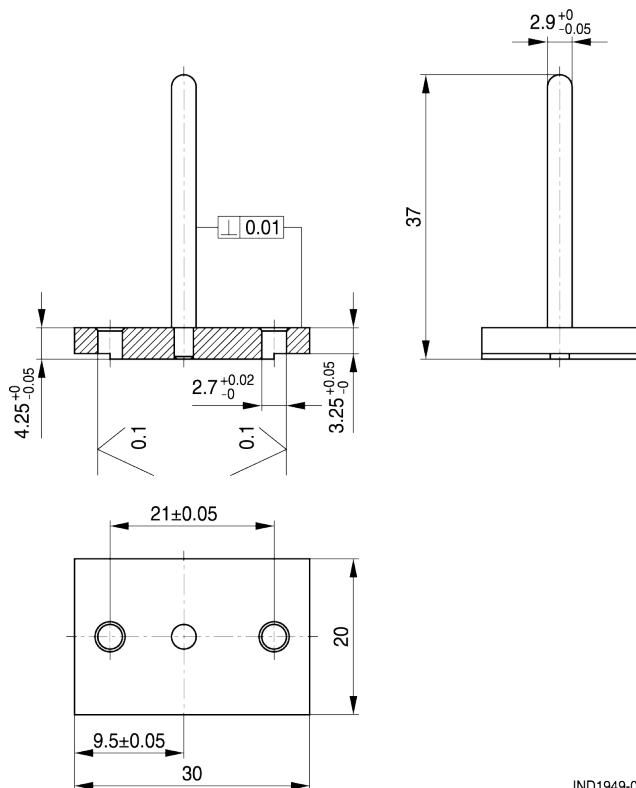
Scratches:

Scratched are caused by production. They are created by moving the pressed core (soft) on a fireproof panel on which they will be sintered later on.

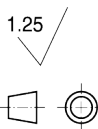
There may be several scratches on a core.

The cracks don't have any influence on the properties of the inductor.

Gauge for test in production



IND1949-0



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Technical data and measuring conditions

Rated temperature T_R	+140 °C
Rated current I_R	25 A Referred to rated temperature T_R , for current derating see next page
Operating temperature range	−40 °C ... +180 °C
Rated inductance L_R	3,1 μH Measured with Agilent 4284A and Celvin cables at 1 mA, 10 kHz, +20 °C 2.8 μH ¹⁾ Measured with Agilent 4284A and measurement fixture Agilent 16047E at 1 mA, 10 kHz, +20 °C
Insulation voltage	Insulation between core and winding can not be guaranteed due to allowed leaks in winding wire accordance EN 60317 ff
Inductance tolerance	$\pm 20\%$ at +20 °C
Inductance decrease $\Delta L/L_0$	< 7% at DC magnetic bias with 50 A, +20 °C
DC resistance R_{typ}	1.8 m Ω typ. value, measured at +20 °C
Weight	Approx. 25 g
Ferrite core	Three core suppliers are released for EPCOS Mush- room core chokes. Mushroom core choke family rep- resentatives with cores from all suppliers are qualified according AEC-Q200.

1) inductance versus length of pins



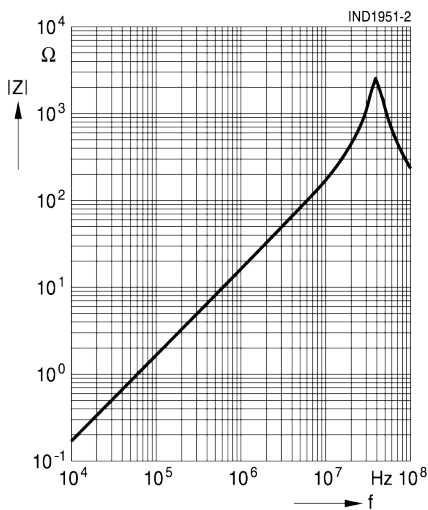
3.5 μH



2.81 μH

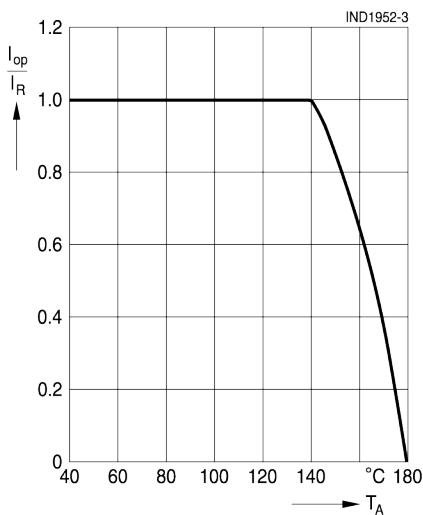
The small distance between ferrite core and metal parts of measurement adapter causes a decrease of the measured inductance from 3.5 μH to 2.81 μH .

Impedance $|Z|$ (typical values at +20 °C)

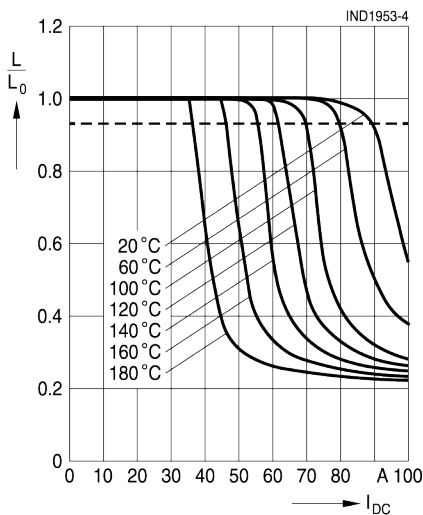


Current derating I_{op}/I_R versus temperature T_A

(rated temperature $T_R = +140$ °C)



Inductance versus I bias versus temperature (typical values)



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.
- Due to product design and applied manufacturing process, appearance, symmetry, and shape of not dimensioned details could vary within same lot, as well discoloration of housing is possible. TDK does not expect detrimental effects on product function or reliability. In case of conflicts, TDK reference standard shall prevail.

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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.**
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Important notes

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Release 2022-07