

## Power line chokes

Mushroom Core Choke  
3.1  $\mu\text{H}$ , 25 A / +140 °C

**Series/Type:** B82116S1221L026

**Ordering code:**

**Date:** September 2022

**Mushroom Core Choke**

**Rated current 25 A / +140 °C**

**Rated Inductance 3.1  $\mu$ 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 (YYWWDD)
- internal ID code (optional)

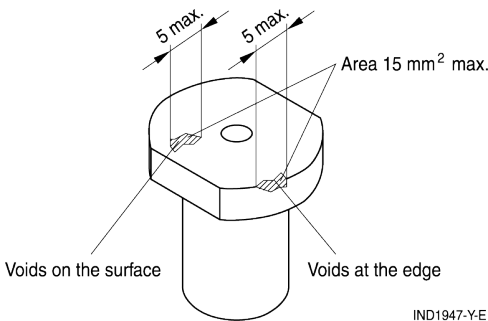
**Delivery mode**

- Blister tray in cardboard box





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 mm<sup>2</sup>.

Maximum allowable are 3 voids per core between 10 mm<sup>2</sup> an 15 mm<sup>2</sup>.

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 mm<sup>2</sup>.

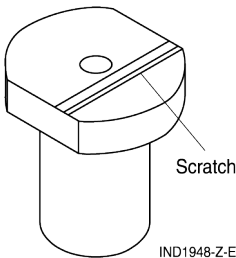
Maximum allowable are 3 voids per core between 10 mm<sup>2</sup> an 15 mm<sup>2</sup>.

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

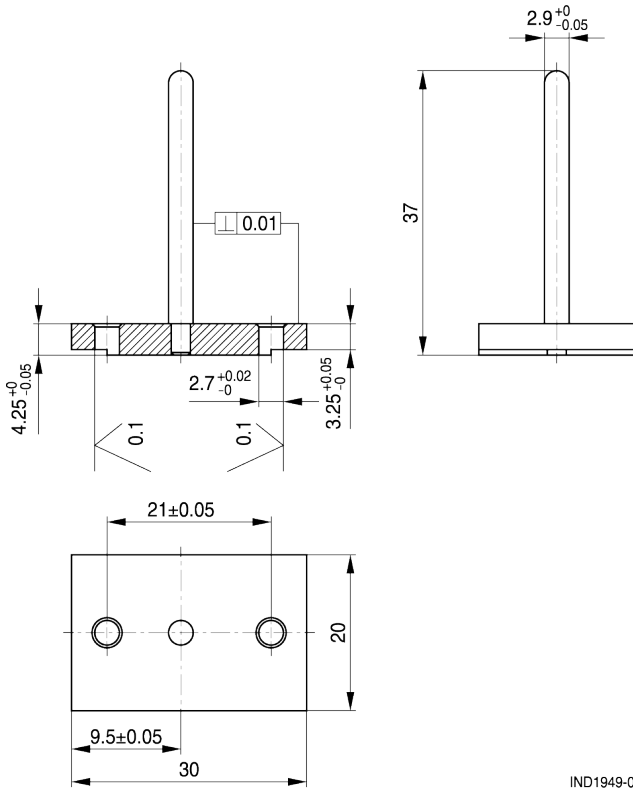
**Scratches:**

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.

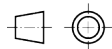
The cracks don't have any influence on the properties of the inductor.

Gauge for test in production



IND1949-0

1.25



**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 $\mu\text{H}$ Measured with Agilent 4284A and Celvin cables at 1 mA, 10 kHz, +20 °C 2.8 $\mu\text{H}$ <sup>1)</sup> 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 $R_{\text{typ}}$	1.8 m $\Omega$ 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- representatives with cores from all suppliers are qualified according AEC-Q200.

1) inductance versus length of pins

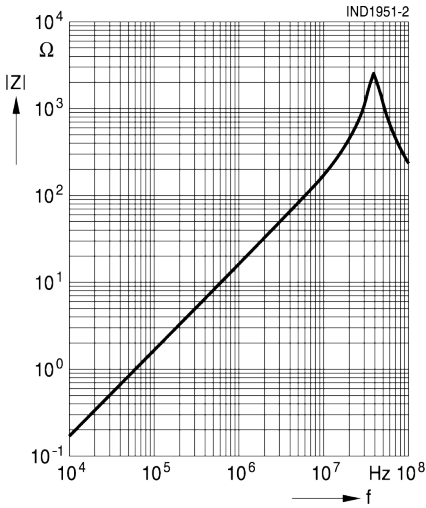


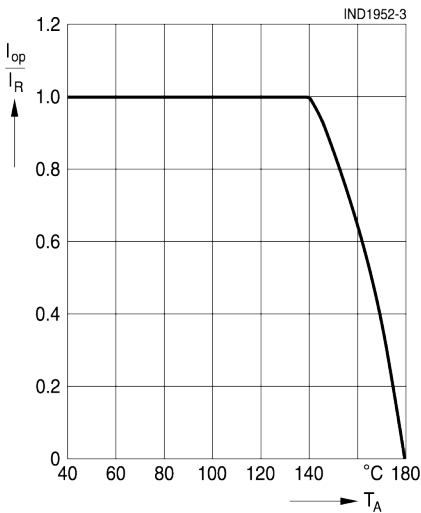
3.5  $\mu\text{H}$



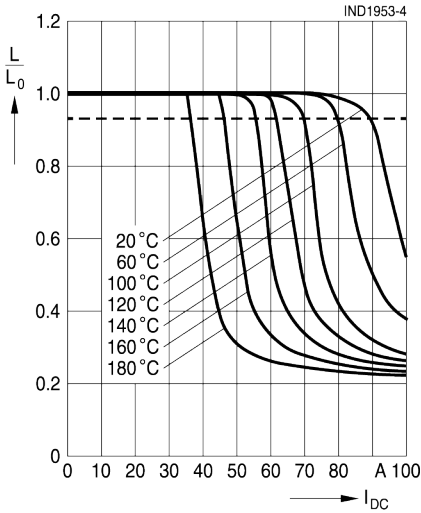
2.81  $\mu\text{H}$

The small distance between ferrite core and metal parts of measurement adapter causes a decrease of the measured inductance from 3.5  $\mu\text{H}$  to 2.81  $\mu\text{H}$ .

**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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## Important notes

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