SMT power inductors

Series/Type: **Size 15.5x15.5x14.5 (mm)**
Ordering Code: **B82480E8703M620**

Date: May 2025

Rated inductance 70 µH
Saturation current 6 A

Construction

- Ferrite core
- Magnetically shielded
- Winding: enamel copper wire
- Winding soldered to terminals
- 2 parallel windings can be either used as coupled inductor, in parallel or series connection

Features

- Qualified acc. to AEC-Q200
- RoHS-compatible
- Temperature range up to 150 °C
- High rated current
- Low DC resistance
- Functional isolation 1000 V

Applications

- Low resistance inductor when connecting both windings in parallel
- Common mode choke
- DC/DC converters, especially for SEPIC topology
- 1:1 transformer

Terminals

- Base material CuSn6P
- Lead finish Sn (leadfree)
- Electro-plated

Marking

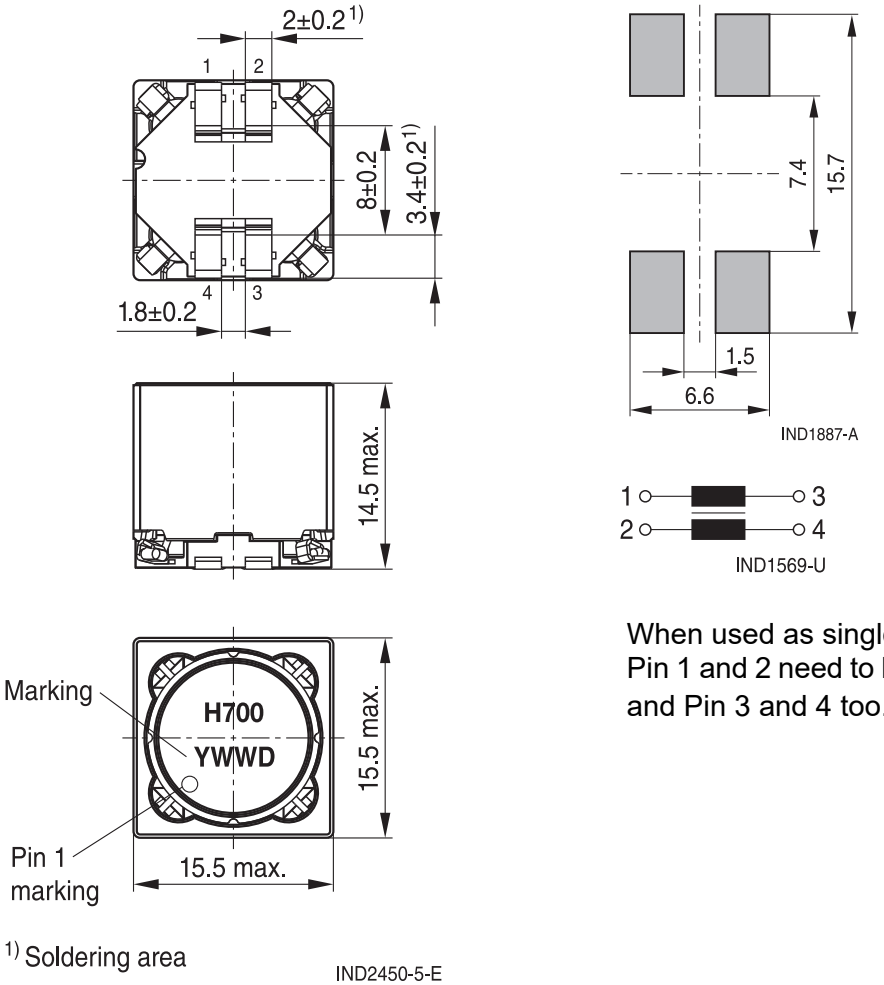
- Marking on component:
  Letter “H”, L value (µH, coded), Date code (YWWD)
  Dot as Pin 1 identification
- Minimum data on reel:
  Manufacturer, ordering code, L value,
  quantity, date of packing

Delivery mode and packing unit (series product)

- 24-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 175 pcs/reel

Dimensional drawing, layout recommendation and circuit diagram

(Dimensions in mm)



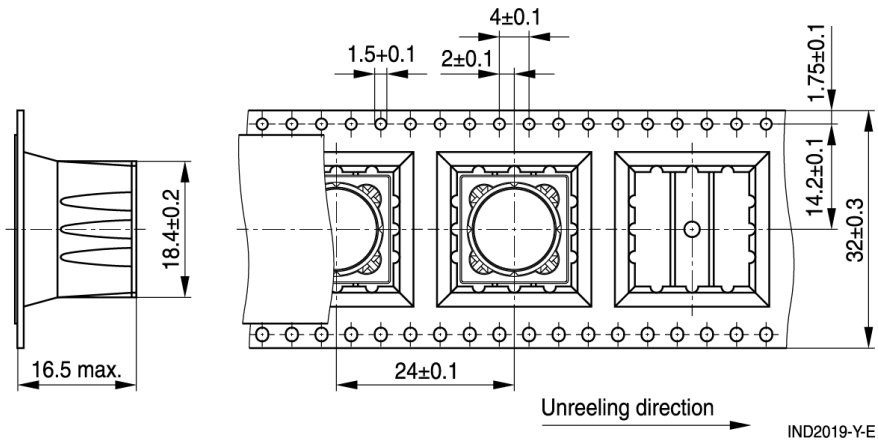
When used as single inductor,
Pin 1 and 2 need to be joined on PCB
and Pin 3 and 4 too.

1) Soldering area

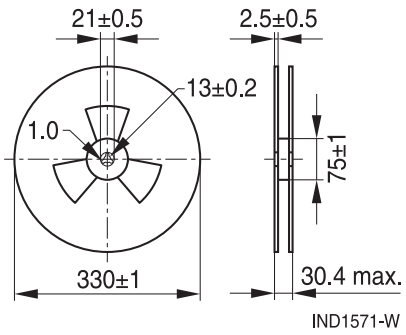
IND2450-5-E

Taping and packing

Blister tape



Reel



Technical data and measuring conditions

Rated inductance L_1, L_2	Measured with LCR meter Keysight E4980 at frequency f_L, 0.1 V, room temperature, or equivalent
Operating temperature range	–55 °C to 150 °C
Temperature rise current I_{temp}	Max. permissible DC with temperature increase of ≤ 40 K Method as per IEC62024-2.
Saturation current I_{sat}	DC with an inductance decrease $\Delta L/L_0$ of 30%
DC resistance R_1,R_2, (max)	Measured at room temperature
Isolation (functional)	Tested with Kokusai DWX-05, 100 pulses across windings in parallel mode
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	As referenced in JEDEC J-STD-020
Climatic category	55/150/56 (to IEC 60068-1)
Storage conditions	Mounted: –55 °C … +150 °C Packaged: –25 °C … +40 °C, ≤ 75% RH
Weight	Approx. 10 g

Characteristics and project code

L_1, L_2	Tolerance	f_L	I_{sat} / A		R_1, R_2 / mΩ (per winding)		I_{temp} / A (typ)		Ordering code
µH		MHz	typ	min	max	typ	one winding	parallel connection	
70	±20% ≙ M	0.1	6.0	5.2	115	99.2	4.6	6.5	B82480E8703M620

Inductance is per winding. When windings are connected in parallel, inductance is the same value. When windings are connected in series, inductance is four times the value.

DCR is for each winding. When windings are connected in parallel, DCR is half the value. When windings are connected in series, DCR is twice the value.

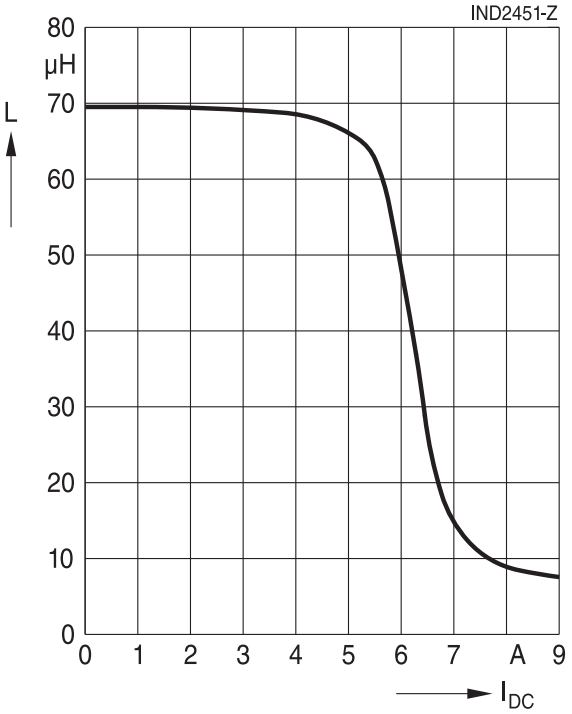
I_{sat} is the current flowing through one winding.

When windings are connected in parallel, I_{sat} is the same.

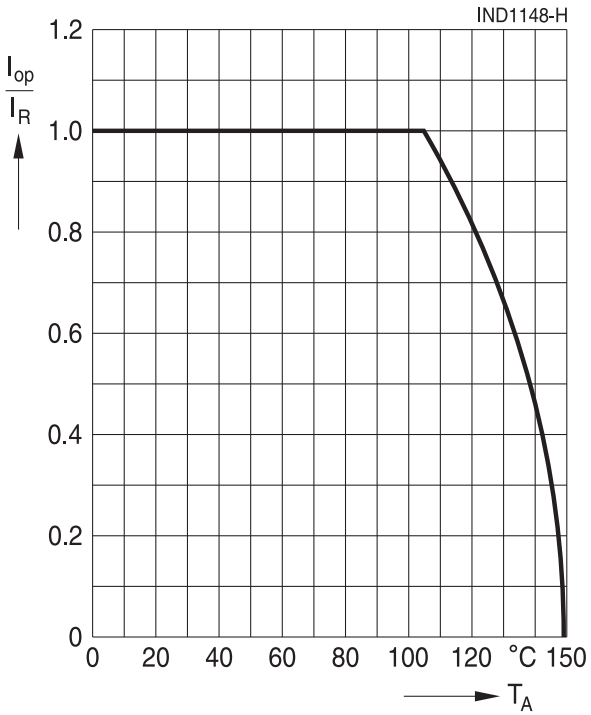
When windings are connected in series, I_{sat} is half the value.

Typical curves

Inductance vs. DC load current I_{DC} measured with LCR meter Agilent 4284A at room temperature



Current derating Iop/I_R versus ambient temperature



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 pins only. Temperatures specified in relation to reflow soldering can also refer to the pins or terminals for products with larger thermal mass, as in such cases, the temperature difference to the top of the component is too big (e.g., high proportion of core within the component).
- 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.

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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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