

## SMT power inductors

PIS power inductors

**Series/Type:** PIS150H

**Date:** April 2023

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**Rated inductance 470  $\mu$ H**

### Construction

- Ferrite core
- Magnetically shielded
- Winding enamel copper wire
- Winding soldered to terminals

### Features

- Temperature range up to +150 °C
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020E
- RoHS-compatible

### Applications

- Industrial electronics
- Power over Data Line (PoDL) for 10Base-T1L (IEEE 802.3cg)

### Terminals

- Base material CuSn6P
- Lead-finish Sn (lead-free)
- Electro-plated

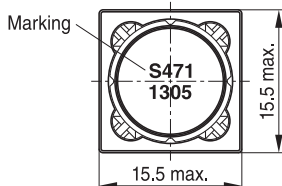
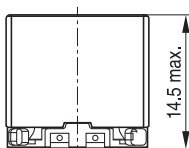
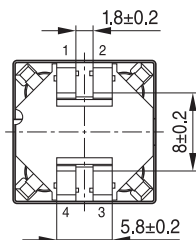
### Marking

- Marking on component: Code letter "S", L value (in  $\mu$ H), date of manufacture (YWWD), dot for Pin 1 identification

### Delivery mode and packing units

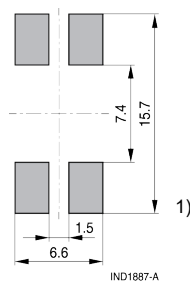
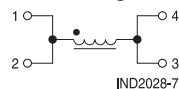
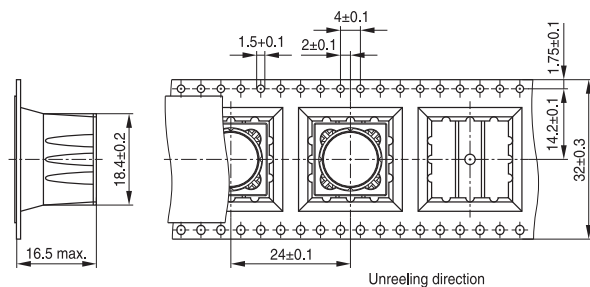
- 32-mm blister tape, wound on 330-mm  $\varnothing$  reel
- Packing unit: 175 pcs./reel



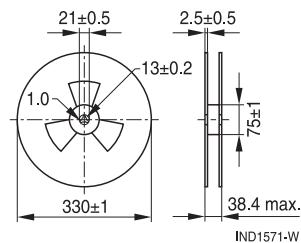
**Dimensional drawing**


IND2143-U-E

1) Pins 1 and 2 must be joined in PCB. Pins 3 and 4 must be joined in PCB.

**Layout recommendation**

**Circuit diagram**

**Taping and packing**
**Blister tape**


IND2019-V-E

**Reel**


IND1571-W

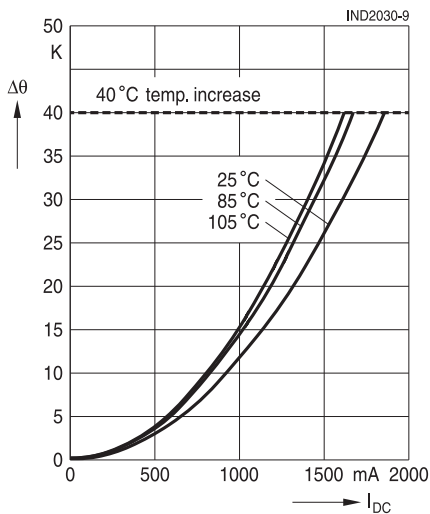
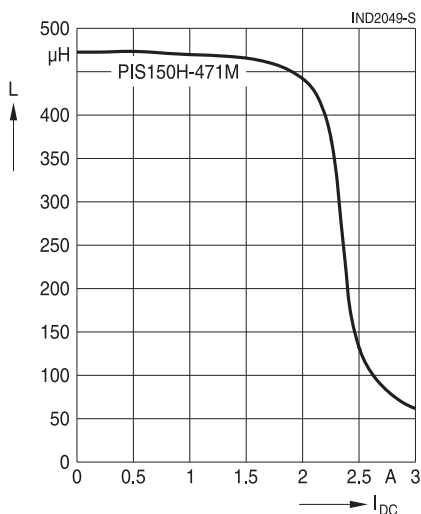
**Technical data and measuring conditions**

Rated inductance $L_R$	specified between 1&2 – 3&4, measured with LCR meter Agilent 4284A (or equivalent) at frequency $f_L$ , 0.1 V, +23 °C $\pm$ 3 °C
Tolerance	$\pm$ 20%
IEEE 802.3 cg Power class	Class 15 with two inductors
Operating temperature range	–40 °C to +150 °C (self-rise temperature included)
Rated current $I_R$	Max. typ. permissible DC with temperature increase of $\leq$ 40 K Method as per IEC62024-2
Saturation current $I_{Sat}$	DC with inductance decrease $\Delta L/L_0$ of approx. 30%, typical values
DC resistance	specified between 1&2 – 3&4, measured at +23 °C $\pm$ 3 °C
Solderability (lead-free)	Dip and look method, Wetting of soldering area $\geq$ 95% as referenced in EIA/IPC/JEDEC J-STD-002E
Resistance to soldering heat	as referenced in JEDEC J-STD-020E
Climatic category	40/150/56 (to IEC 60068-1)
Storage conditions	Mounted: –40 °C ... +150 °C Packaged: –25 °C ... +40 °C, $\leq$ 75% RH
Weight	Approx. 10.5 g

**Characteristics and ordering codes**

$L_R$	$R_{DC,typ}$	$I_{Sat,typ}$	$I_{R,typ}$ (ambient temp.)	Internal code	Ordering code
$\mu H$	$\Omega$	mA	mA		
470	0.25	2300	1810 (+25 °C) 1650 (+85 °C) 1600 (+105 °C)	B82480P8474M000	PIS150H-471M



**Temperature increase due to  $I_{DC}$  (typical values)**

**Inductance versus  $I_{DC}$  (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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**PIS150H**

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