SMT power inductors

Size 7.3 × 7.3 × 4.5 (mm)

Series/Type: **B82472N6*M**

Date: July 2021

SMD

400 V surge voltage proof
Rated inductance 150 ... 1000 µH
Rated current 0.25 ... 0.64 A

Construction

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

Features

- Temperature range up to +125 °C
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering
- RoHS-compatible
- 400 V surge voltage proof

Applications

- Switch-mode power supplies
- Offline non-insulated AC/DC converters
- Buck-boost inductors for switching converters for stand-by enabled equipment
- Industrial electronics
- Consumer electronics

Terminals

- Base material CuSn6P
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

- Marking on component:
  code letter "N", L value (µH, coded), manufacturing date (YWWD)
- Minimum data on reel:
  Manufacturer, ordering code, L value,
  quantity, date of packing

Delivery mode and packing unit

- 16-mm blister tape, wound on 330-mm ∅ reel
- Packing unit: 1000 pcs./reel

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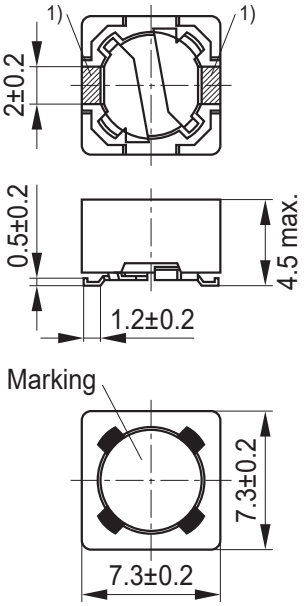
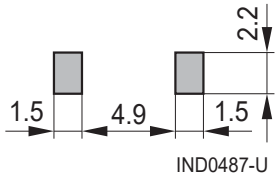
Dimensional drawing and layout recommendation





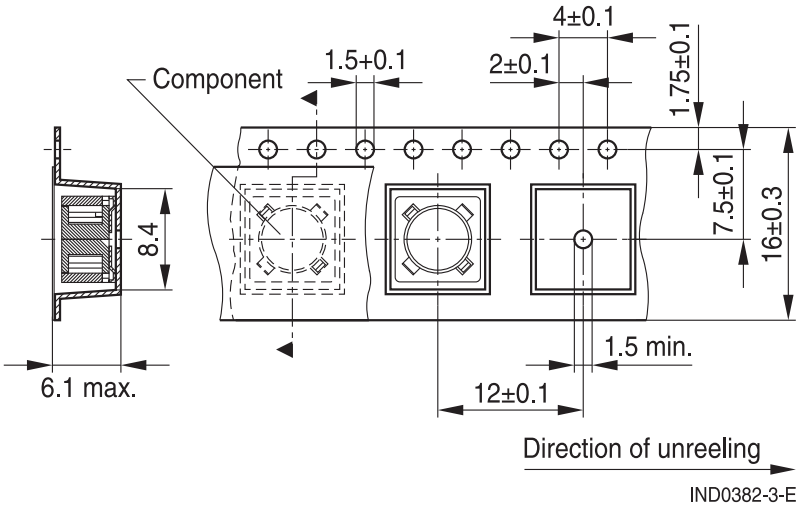
1) Soldering area

IND0488-G-E

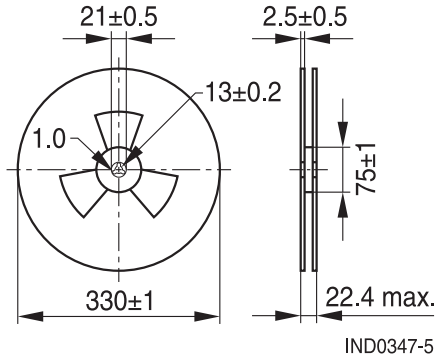
Dimensions in mm

Taping and packing

Blister tape



Reel



Dimensions in mm

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Technical data and measuring conditions

Rated inductance L_R	Measured with LCR meter Agilent 4284A at frequency f_L, 0.1 V, +20 °C
Operating temperature range	–55 ... +125 °C
Rated current I_R	Max. permissible DC with temperature increase of ≤ 40 K Method to IEC 62024-2
Saturation current I_{sat}	Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 10%
DC resistance R_{max}	Measured at +20 °C
Operating voltage	400 V DC to TDK surge-voltage-proof standard
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (5 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	+260°C, 10 s based on IEC 60068-2-58
Climatic category	55/125/56 (to IEC 60068-1)
Storage conditions	Mounted: –55 °C … +125 °C Packaged: –25 °C … +40 °C, ≤ 75% RH
Weight	Approx. 1.5 g

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Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	I_R A	$I_{sat,min}$ A	$I_{sat,typ}$ A	R_{max} Ω	R_{typ} Ω	Ordering code
150	±20% ≙ M	0.1	0.64	0.43	0.72	0.86	0.74	B82472N6154M000
220		0.1	0.50	0.36	0.55	1.38	1.22	B82472N6224M000
330		0.1	0.43	0.30	0.45	1.95	1.60	B82472N6334M000
470		0.1	0.37	0.25	0.39	2.60	2.20	B82472N6474M000
560		0.1	0.32	0.23	0.36	3.35	2.87	B82472N6564M000
680		0.1	0.28	0.20	0.32	4.50	3.86	B82472N6684M000
820		0.1	0.26	0.17	0.30	5.00	4.33	B82472N6824M000
1000		0.1	0.25	0.15	0.27	5.50	4.80	B82472N6105M000

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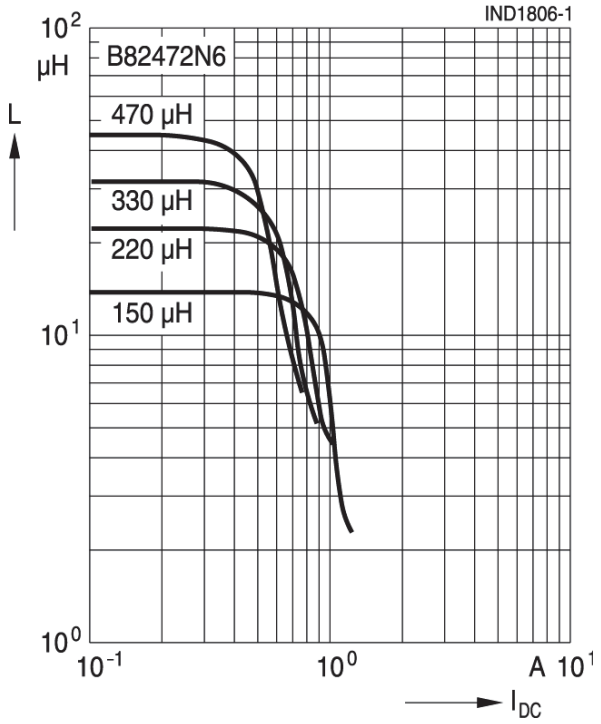
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A,
typical values at +20 °C



Inductance L versus DC load current I_{DC}
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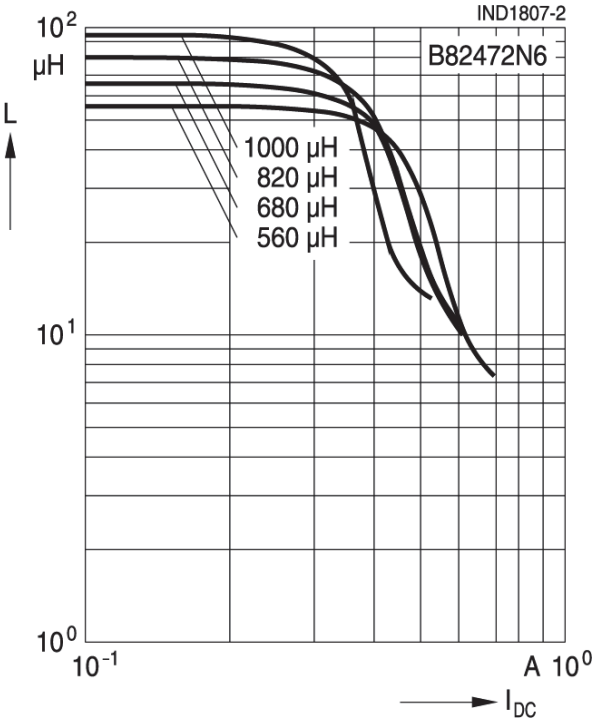
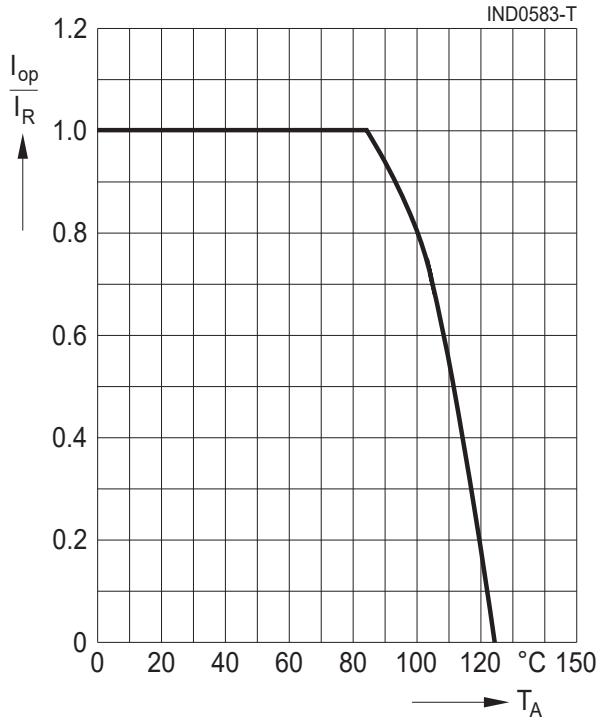


Current derating I_{op}/I_R
versus ambient temperature T_A
(rated temperature T_R = +85 °C)



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.

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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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The following applies to all products named in this publication:

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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   We also **reserve the right to discontinue production and delivery of products**. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

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