



## **SMT power inductors**

Size 12.5 × 12.5 × 8.5 (mm)

**Series/Type:**            **B82477P4**

**Date:**                      October 2008

SMD

Rated inductance 0.82  $\mu$ H to 1000  $\mu$ H  
Rated current 0.6 A to 11 A



**Construction**

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

**Features**

- High mechanical stability
- High rated current, low DC resistance
- Temperature range up to 150 °C
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020C
- Qualified to AEC-Q200
- RoHS-compatible

**Applications**

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Automotive electronics

**Terminals**

- Base material  
Cu ( $L \leq 10 \mu$ H), CuSn6P ( $L \geq 15 \mu$ H)
- Layer composition Ni, Sn (lead-free)
- Electro-plated

**Marking**

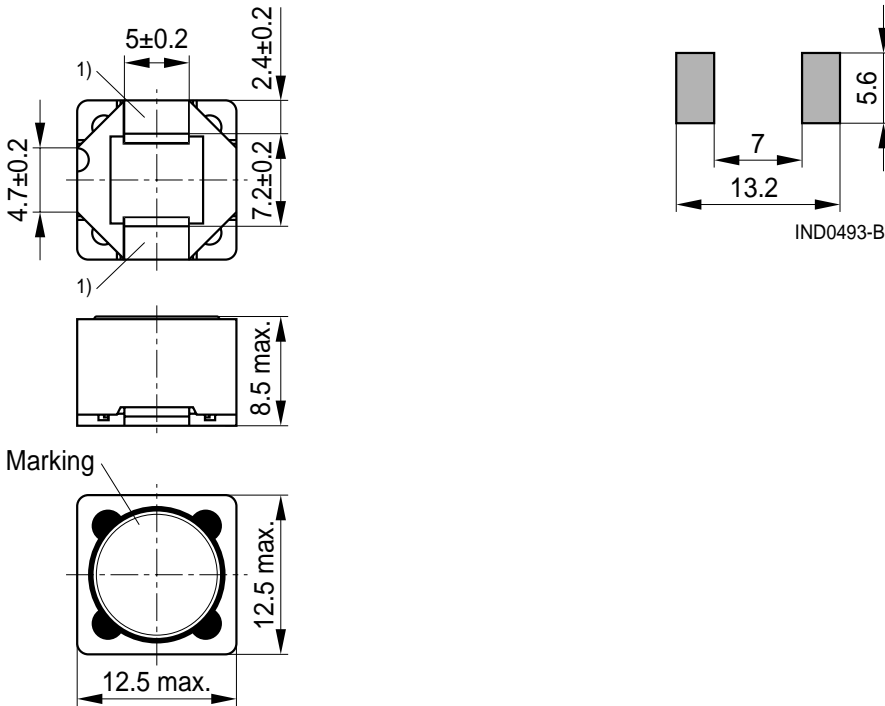
- Marking on component:  
Manufacturer, L value ( $\mu$ H, coded),  
manufacturing date (YWWD)
- Minimum data on reel:  
Manufacturer, ordering code, L value,  
quantity, date of packing

**Delivery mode and packing unit**

- 24-mm blister tape, wound on 330-mm  $\varnothing$  reel
- Packing unit: 350 pcs./reel

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Dimensional drawing and layout recommendation



1) Soldering area

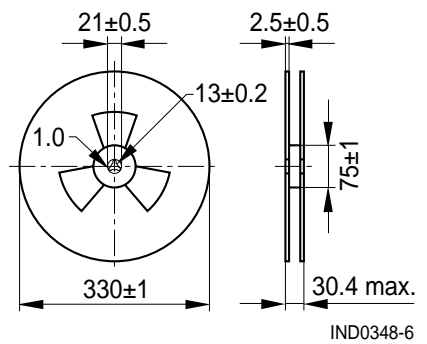
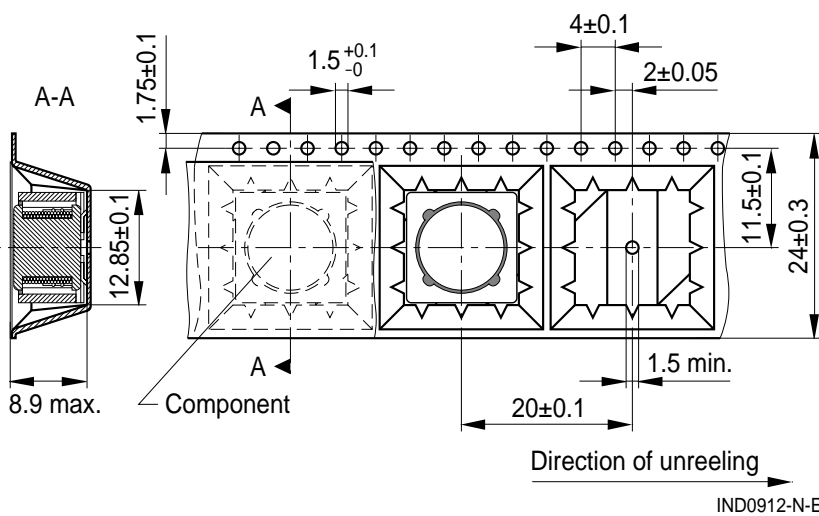
IND0572-K-E

Dimensions in mm

Taping and packing

Blister tape

Reel



Dimensions in mm

**Technical data and measuring conditions**

|                              |  |
|------------------------------|--|
| Rated inductance $L_R$       | Measured with LCR meter Agilent 4284A at frequency $f_L$<br>0.1 V, 20 °C   |
| Rated temperature $T_R$      | 85 °C  |
| Rated current $I_R$          | Max. permissible DC with temperature increase of $\leq 40$ K<br>at rated temperature   |
| Saturation current $I_{sat}$ | Max. permissible DC with inductance decrease<br>$\Delta L/L_0$ of approx. 10%  |
| DC resistance $R_{max}$      | Measured at 20 °C  |
| Solderability (lead-free)    | Dip and look method Sn95.5Ag3.8Cu0.7:<br>(245 ±5) °C, (5 ±0.3) s<br>Wetting of soldering area $\geq 90\%$<br>(based on IEC 60068-2-58) |
| Resistance to soldering heat | 260 °C, 40 s (as referenced in JEDEC J-STD 020C)   |
| Climatic category            | 55/150/56 (to IEC 60068-1)   |
| Storage conditions           | Mounted: -55 °C ... +150 °C<br>Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH   |
| Weight                       | Approx. 4 g  |

**Characteristics and ordering codes**

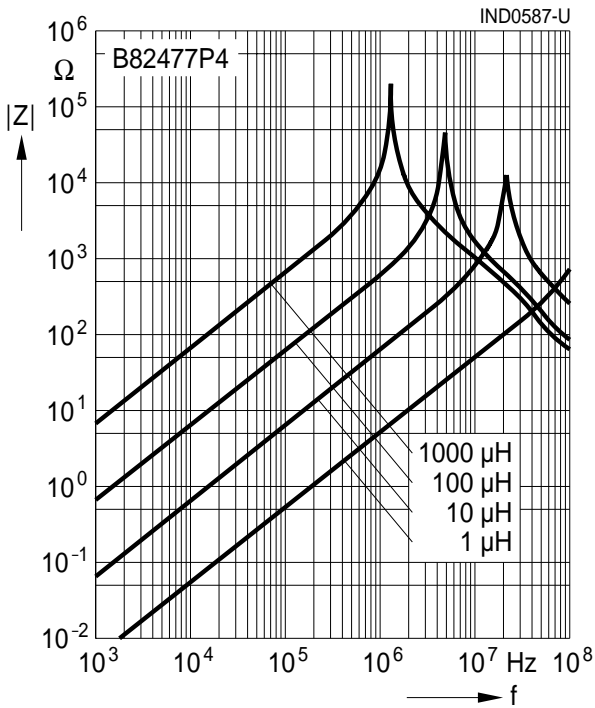
| $L_R$<br>$\mu\text{H}$ | Tolerance               | $f_L$<br>MHz | $I_R$<br>A | $I_{\text{sat}}$<br>A | $R_{\text{max}}$<br>$\Omega$ | Ordering code   |
|------------------------|-------------------------|--------------|------------|-----------------------|------------------------------|-----------------|
| 0.82                   | $\pm 20\% \triangleq M$ | 0.1          | 11.00      | 15.00                 | 0.0055                       | B82477P4821M000 |
| 2.0                    |                         | 0.1          | 8.90       | 11.00                 | 0.0080                       | B82477P4202M000 |
| 3.3                    |                         | 0.1          | 8.10       | 9.60                  | 0.0100                       | B82477P4332M000 |
| 3.9                    |                         | 0.1          | 8.00       | 9.50                  | 0.0100                       | B82477P4392M000 |
| 4.7                    |                         | 0.1          | 7.30       | 8.40                  | 0.0120                       | B82477P4472M000 |
| 5.6                    |                         | 0.1          | 7.15       | 8.30                  | 0.0125                       | B82477P4562M000 |
| 6.8                    |                         | 0.1          | 6.60       | 7.30                  | 0.0150                       | B82477P4682M000 |
| 10                     |                         | 0.1          | 5.80       | 6.40                  | 0.0190                       | B82477P4103M000 |
| 15                     |                         | 0.1          | 4.80       | 5.20                  | 0.0285                       | B82477P4153M000 |
| 22                     |                         | 0.1          | 4.15       | 4.35                  | 0.035                        | B82477P4223M000 |
| 33                     |                         | 0.1          | 3.35       | 3.50                  | 0.052                        | B82477P4333M000 |
| 47                     |                         | 0.1          | 2.80       | 3.00                  | 0.067                        | B82477P4473M000 |
| 68                     |                         | 0.1          | 2.35       | 2.45                  | 0.098                        | B82477P4683M000 |
| 82                     |                         | 0.1          | 2.10       | 2.25                  | 0.120                        | B82477P4823M000 |
| 100                    |                         | 0.1          | 1.87       | 1.95                  | 0.138                        | B82477P4104M000 |
| 150                    |                         | 0.1          | 1.61       | 1.70                  | 0.185                        | B82477P4154M000 |
| 220                    |                         | 0.1          | 1.24       | 1.35                  | 0.305                        | B82477P4224M000 |
| 330                    |                         | 0.1          | 1.02       | 1.15                  | 0.460                        | B82477P4334M000 |
| 470                    |                         | 0.1          | 0.86       | 0.95                  | 0.640                        | B82477P4474M000 |
| 680                    |                         | 0.1          | 0.69       | 0.78                  | 1.05                         | B82477P4684M000 |
| 1000                   | 0.1                     | 0.60         | 0.65       | 1.38                  | B82477P4105M000              |                 |

Version with height 4.8 mm on request (same footprint). Type: B82477P1

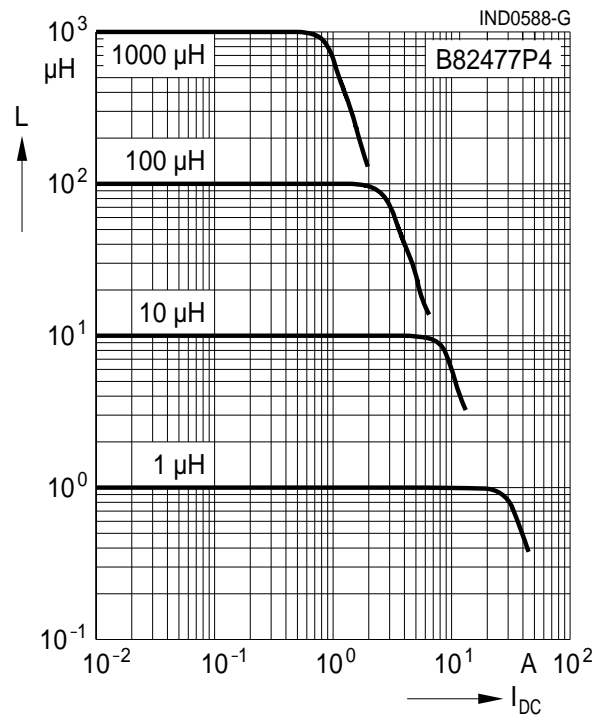
Version with height 6.5 mm on request (same footprint). Type: B82477P2.

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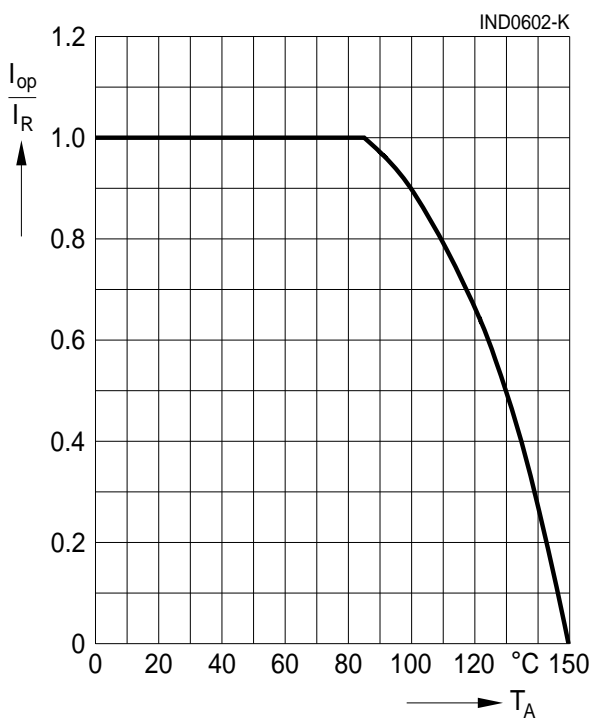
**Impedance  $|Z|$  versus frequency  $f$**   
 measured with impedance analyzer  
 Agilent 4294A, typical values at 20 °C



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



**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.
- 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 insulation, plastics or glue.
  - The effect of the potting material can change the high-frequency behaviour of the components.
- 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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