



SMT power inductors

Size 12.5 × 12.5 × 8.5 (mm)

Series/Type: B82477P4

Date: July 2017

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SMD
Rated inductance 0.82 ... 1000 μ H
Rated current 0.6 ... 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 020D
- Qualified to AEC-Q200
- RoHS-compatible

Applications

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

Terminals

- Base material
Cu ($L \leq 22 \mu\text{H}$), CuSn6P ($L > 22 \mu\text{H}$)
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

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

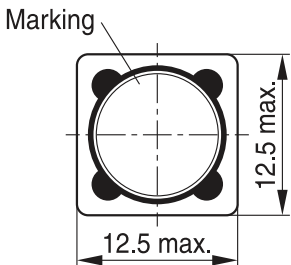
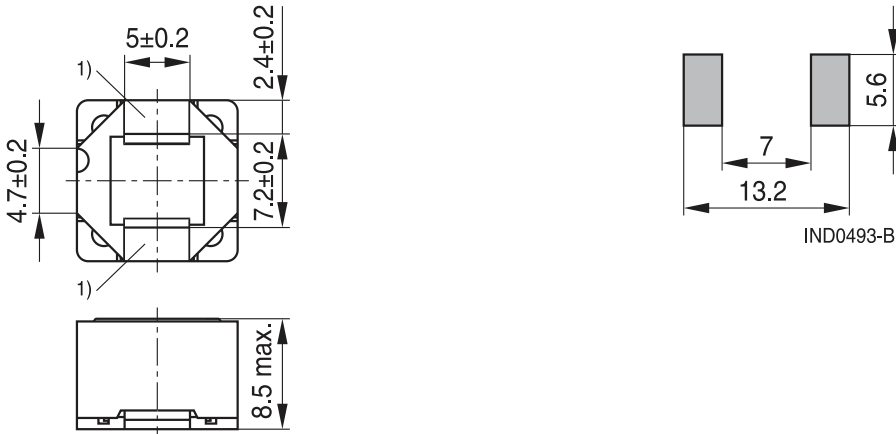
Delivery mode and packing unit

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



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Dimensional drawing and layout recommendation



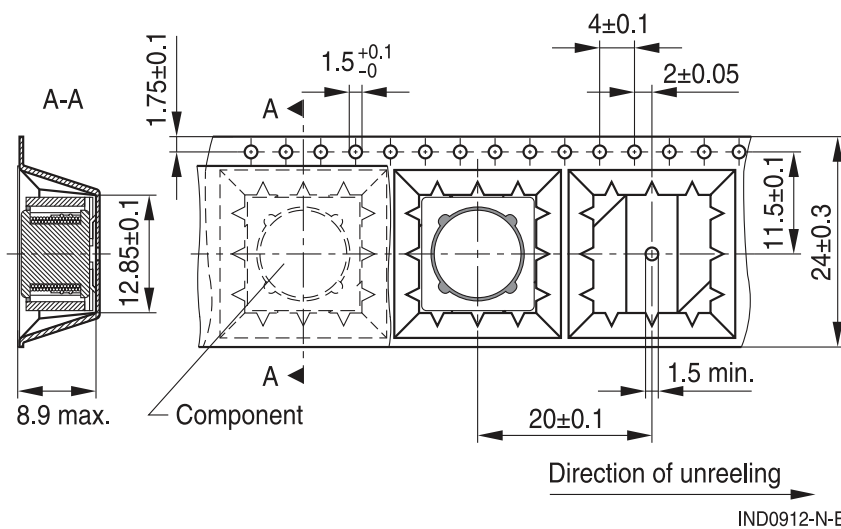
1) Soldering area

IND0572-K-E

Dimensions in mm

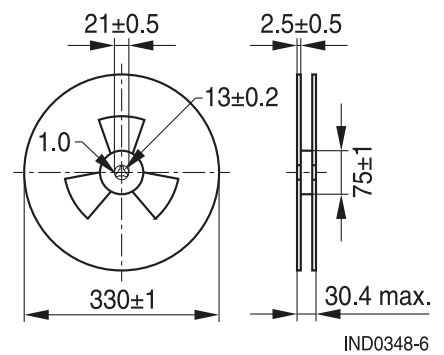
Taping and packing

Blister tape



Dimensions in mm

Reel



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Technical data and measuring conditions

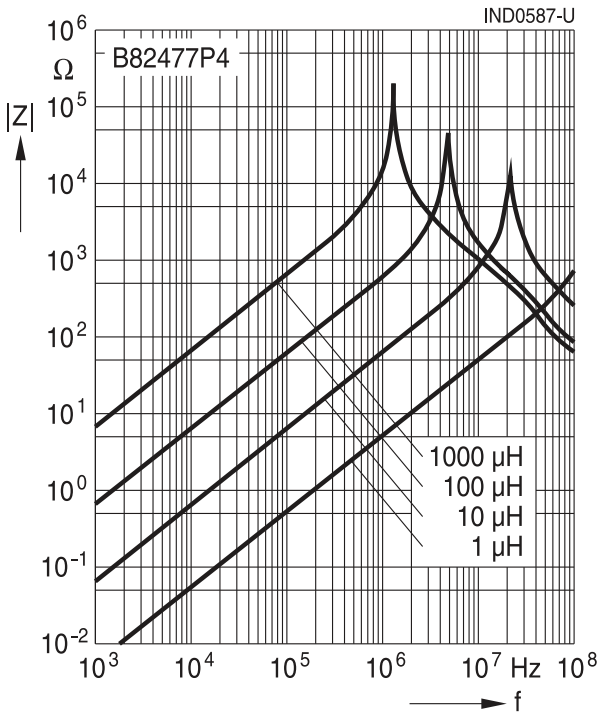
| | |
|------------------------------|---|
| Rated inductance L_R | Measured with LCR meter Agilent 4284A at frequency f_L 0.1 V, +20 °C |
| Operating temperature range | −55 °C ... +150 °C |
| Rated current I_R | Max. permissible DC with temperature increase of ≤ 40 K at rated temperature |
| Saturation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

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Characteristics and ordering codes

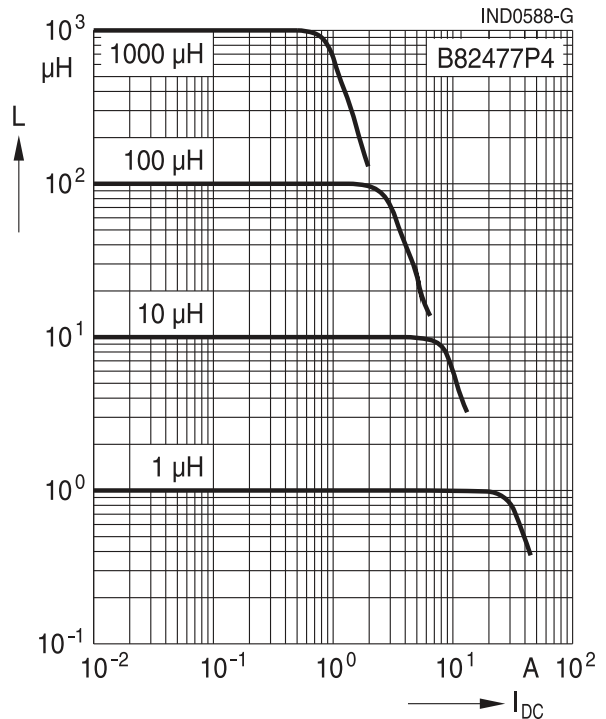
| L_R μH | Tolerance | f_L MHz | I_R A | $I_{\text{sat,min}}$ A | $I_{\text{sat,typ}}$ A | $R_{\text{DC,max}}$ Ω | $R_{\text{DC,typ}}$ Ω | Ordering code |
|------------------------|-------------------------|--------------|------------|---------------------------|---------------------------|---------------------------------|---------------------------------|-----------------|
| 0.82 | $\pm 20\% \triangleq M$ | 0.1 | 11.00 | 15.00 | 28.00 | 0.0055 | 0.0039 | B82477P4821M000 |
| 2.0 | | 0.1 | 8.90 | 11.00 | 20.50 | 0.0080 | 0.0061 | B82477P4202M000 |
| 3.3 | | 0.1 | 8.10 | 9.60 | 13.50 | 0.0100 | 0.0080 | B82477P4332M000 |
| 3.9 | | 0.1 | 8.00 | 9.50 | 13.10 | 0.0100 | 0.0081 | B82477P4392M000 |
| 4.7 | | 0.1 | 7.30 | 8.40 | 12.00 | 0.0120 | 0.0092 | B82477P4472M000 |
| 5.6 | | 0.1 | 7.15 | 8.30 | 11.00 | 0.0125 | 0.0104 | B82477P4562M000 |
| 6.8 | | 0.1 | 6.60 | 7.30 | 9.85 | 0.0150 | 0.0111 | B82477P4682M000 |
| 10 | | 0.1 | 5.80 | 6.40 | 8.40 | 0.0190 | 0.0165 | B82477P4103M000 |
| 15 | | 0.1 | 4.80 | 5.20 | 6.55 | 0.0285 | 0.0224 | B82477P4153M000 |
| 22 | | 0.1 | 4.15 | 4.35 | 5.65 | 0.0350 | 0.0305 | B82477P4223M000 |
| 33 | | 0.1 | 3.35 | 3.50 | 4.65 | 0.0520 | 0.0451 | B82477P4333M000 |
| 47 | | 0.1 | 2.80 | 3.00 | 3.70 | 0.0670 | 0.0552 | B82477P4473M000 |
| 68 | | 0.1 | 2.35 | 2.45 | 3.50 | 0.0980 | 0.0826 | B82477P4683M000 |
| 82 | | 0.1 | 2.10 | 2.25 | 2.72 | 0.1200 | 0.0921 | B82477P4823M000 |
| 100 | | 0.1 | 1.87 | 1.95 | 2.55 | 0.1380 | 0.1250 | B82477P4104M000 |
| 150 | | 0.1 | 1.61 | 1.70 | 2.14 | 0.1850 | 0.1590 | B82477P4154M000 |
| 220 | | 0.1 | 1.24 | 1.35 | 1.73 | 0.3050 | 0.2680 | B82477P4224M000 |
| 330 | | 0.1 | 1.02 | 1.15 | 1.32 | 0.4600 | 0.4110 | B82477P4334M000 |
| 470 | | 0.1 | 0.86 | 0.95 | 1.21 | 0.6400 | 0.5740 | B82477P4474M000 |
| 680 | 0.1 | 0.69 | 0.78 | 1.02 | 1.0500 | 0.8450 | B82477P4684M000 | |
| 1000 | 0.1 | 0.60 | 0.65 | 0.85 | 1.3800 | 1.2650 | B82477P4105M000 | |

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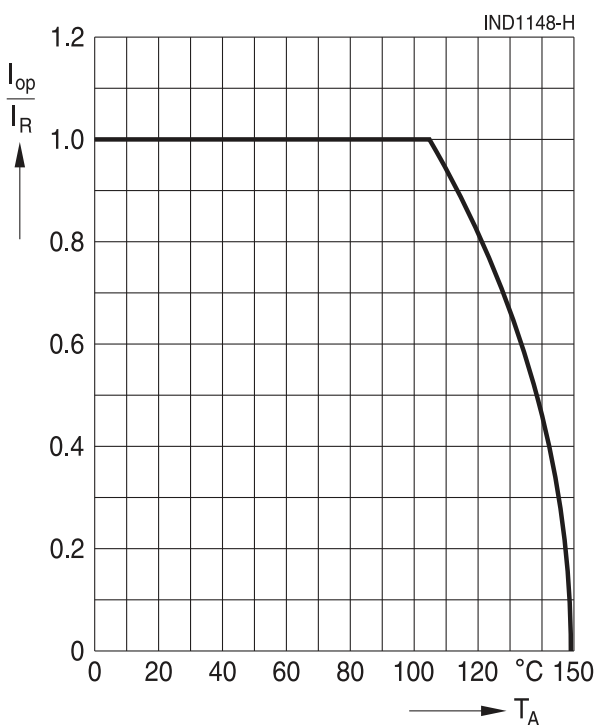
Impedance $|Z|$ versus frequency f
 measured with impedance analyzer
 Agilent 4294A, typical values at +20 °C



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 $T_R = +105$ °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 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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