SMT power inductors

Size 12.5 × 12.5 × 8.5 (mm)

Series/Type: **B82477P4**

Date: July 2017

EPCOS AG is a TDK Group Company.

Size 12.5 x 12.5 x 8.5 (mm)

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Rated inductance 0.82 ... 1000 µH
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 ($L \leq 22$ µH), CuSn6P ($L > 22$ µH)
- 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 ∅ reel
- Packing unit: 350 pcs./reel

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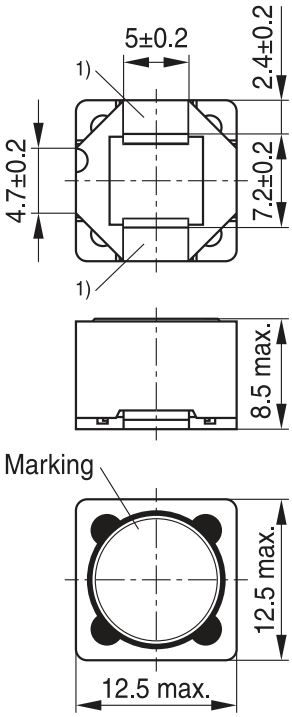
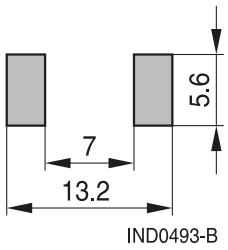
Dimensional drawing and layout recommendation





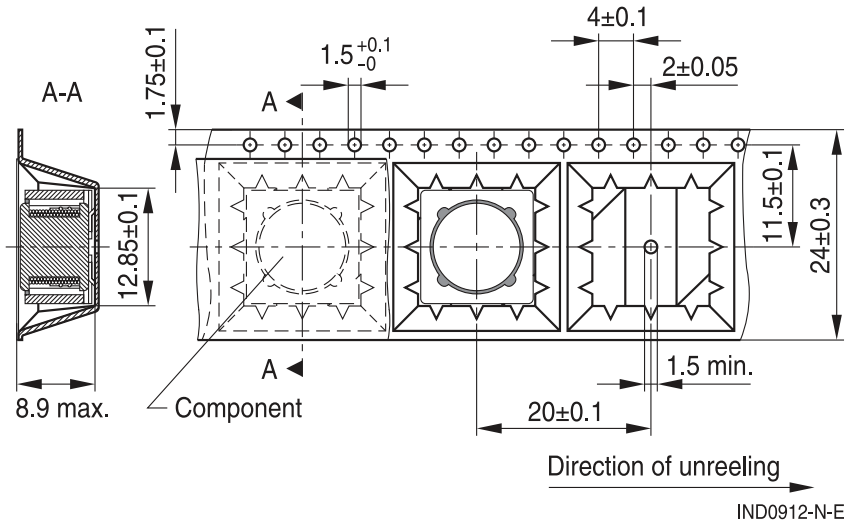
1) Soldering area

IND0572-K-E

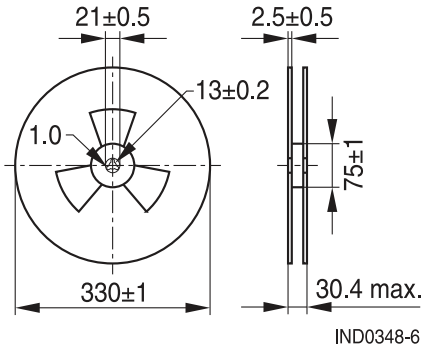
Dimensions in mm

Taping and packing

Blister tape



Reel



Dimensions in mm

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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 ≥ 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, ≤ 75% RH
Weight	Approx. 4 g

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Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	I_R A	$I_{sat,min}$ A	$I_{sat,typ}$ A	$R_{DC,max}$ Ω	$R_{DC,typ}$ Ω	Ordering code
0.82	±20% ≙ 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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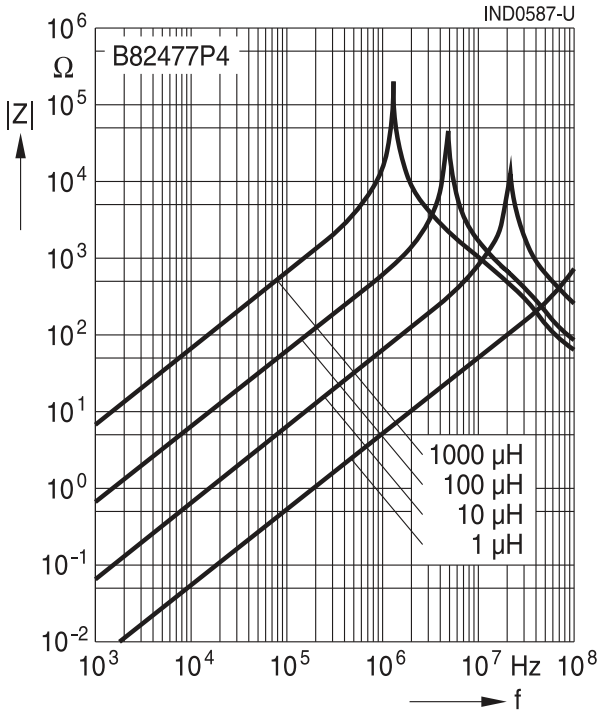
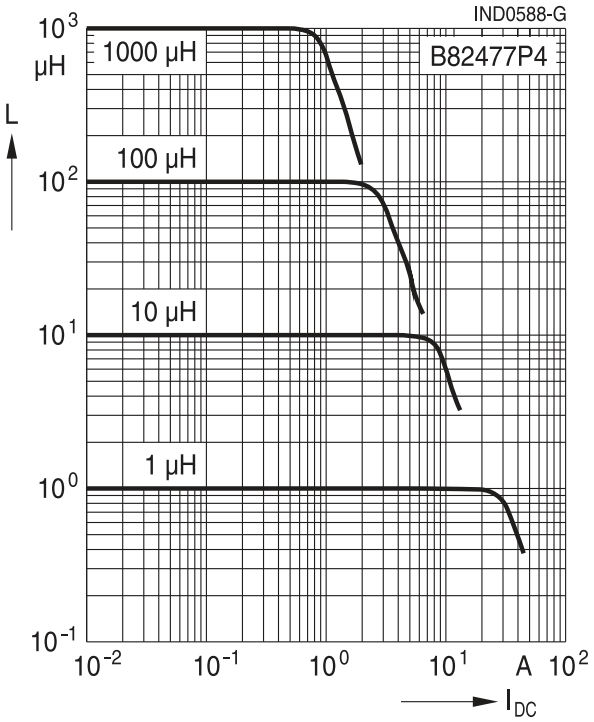
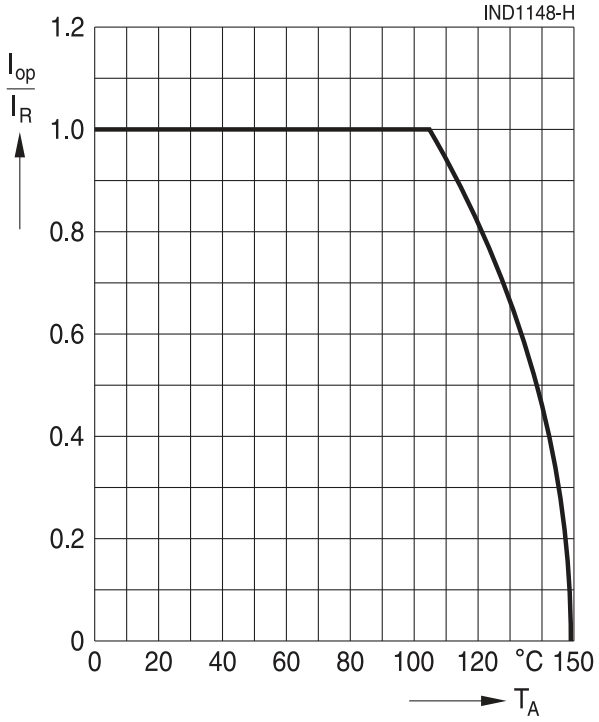
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent 4294A, typical values at +20 °C



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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