



SMT power inductors

Low profile

Size $4.8 \times 4.8 \times 1.04$ / $4.8 \times 4.8 \times 1.2$ (mm)

Series/Type: **B82470A0/A1**

Date: **March 2008**

Rated inductance 1 μH to 47 μH

Rated current 0.32 A to 1.8 A



Construction

- Ferrite core
- Plastic protection case
- Winding: enamel copper wire
- Winding welded to terminals

Features

- Low profile
- Temperature range up to 125 °C
- High rated current
- Low DC resistance
- Suitable for reflow soldering as referenced in JEDEC J-STD 020C
- RoHS-compatible

Applications

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Handheld devices (e.g. mobile phones, MP3 players, etc.)
- Industrial electronics
- Consumer electronics

Terminals

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

Marking

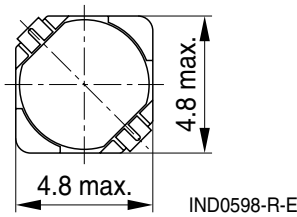
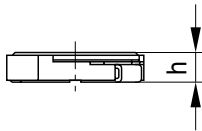
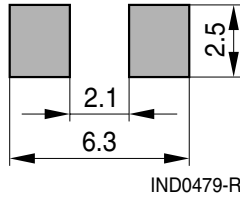
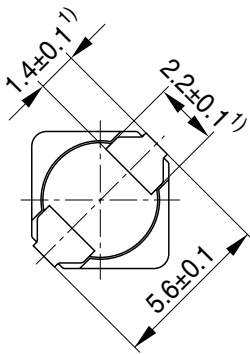
- Marking on component:
L value (μH, coded), manufacturing date (YWWD)
- Minimum data on reel:
Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing unit

- 12-mm blister tape, wound on 180-mm Ø reel
- Packing unit: 1000 pcs./reel

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Dimensional drawing and layout recommendation



Type	Height h
B82470A0	1.04 max.
B82470A1	1.2 max.

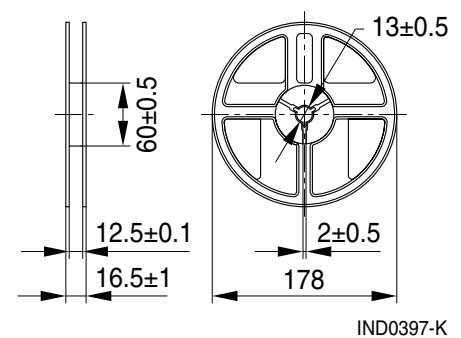
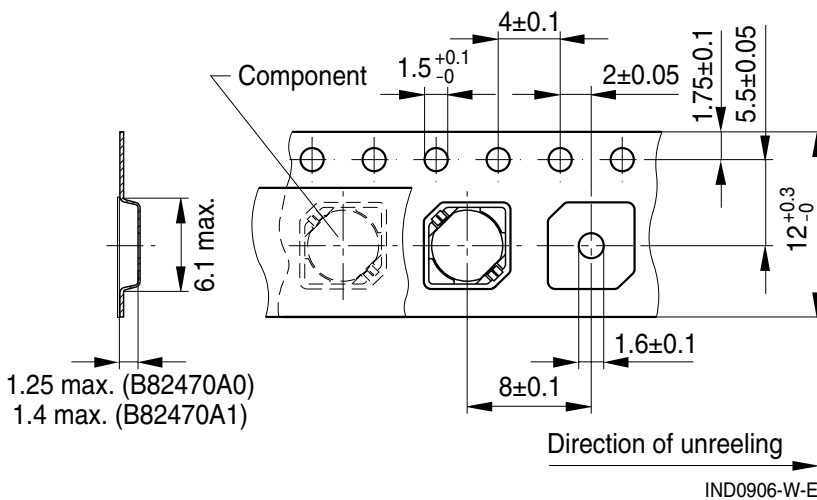
1) Soldering area

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 , 0.1 V, 20 °C
Rated temperature T_R	85 °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. 30%
DC resistance R_{max}	Measured at 20 °C
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±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 020C)
Climatic category	55/125/56 (to IEC 60068-1)
Storage conditions	Mounted: -55 °C ... +125 °C Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH
Weight	B82470A0: approx. 0.1 g B82470A1: approx. 0.2 g

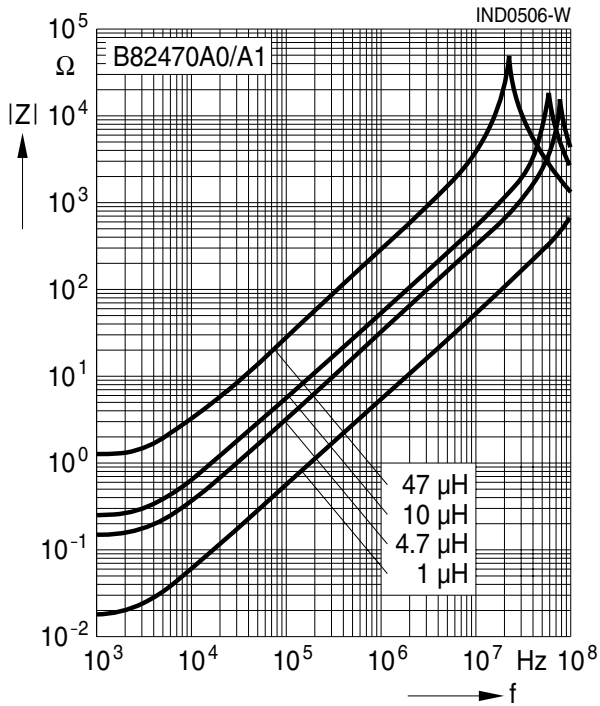
Characteristics and ordering codes

L_R μH	Tolerance	f_L MHz	I_R A	I_{sat} A	R_{max} Ω	Ordering code	
B82470A0							
1.0	$\pm 20\% \triangleq M$	0.1	1.80	2.50	0.045	B82470A0102M000	
1.5		0.1	1.62	2.25	0.056	B82470A0152M000	
2.2		0.1	1.40	1.68	0.085	B82470A0222M000	
3.0		0.1	1.15	1.60	0.112	B82470A0302M000	
4.7		0.1	0.96	1.24	0.170	B82470A0472M000	
6.8		0.1	0.85	0.98	0.225	B82470A0682M000	
10		0.1	0.77	0.82	0.290	B82470A0103M000	
15		0.1	0.59	0.64	0.475	B82470A0153M000	
22		0.1	0.49	0.54	0.680	B82470A0223M000	
33		0.1	0.38	0.42	1.10	B82470A0333M000	
47		0.1	0.32	0.37	1.50	B82470A0473M000	
B82470A1							
1.0		$\pm 20\% \triangleq M$	0.1	1.80	3.05	0.045	B82470A1102M000
1.2	0.1		1.60	2.75	0.060	B82470A1122M000	
2.2	0.1		1.35	2.05	0.090	B82470A1222M000	
3.3	0.1		1.10	1.80	0.120	B82470A1332M000	
4.7	0.1		0.95	1.60	0.190	B82470A1472M000	
6.8	0.1		0.85	1.15	0.228	B82470A1682M000	
10	0.1		0.75	1.05	0.305	B82470A1103M000	
15	0.1		0.58	0.75	0.480	B82470A1153M000	
22	0.1		0.48	0.65	0.690	B82470A1223M000	
33	0.1		0.38	0.53	1.10	B82470A1333M000	
47	0.1		0.32	0.44	1.50	B82470A1473M000	

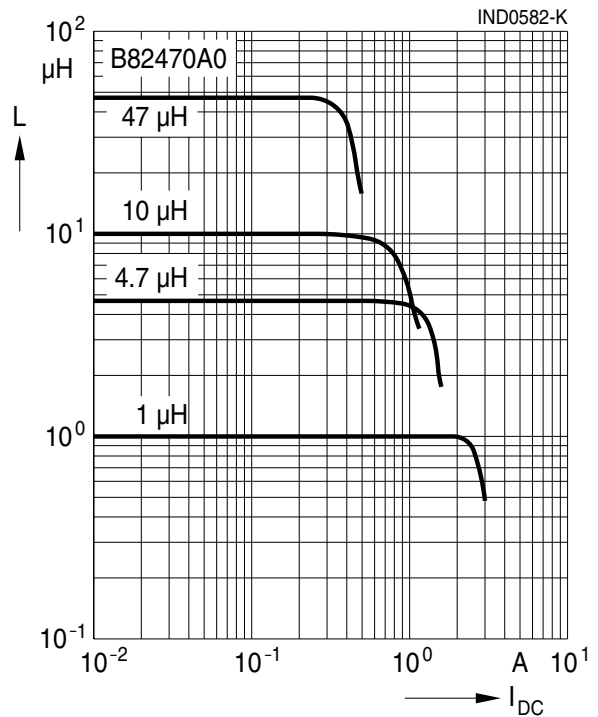
Version with height 1.45 mm on request (same footprint). Type: B82470A5

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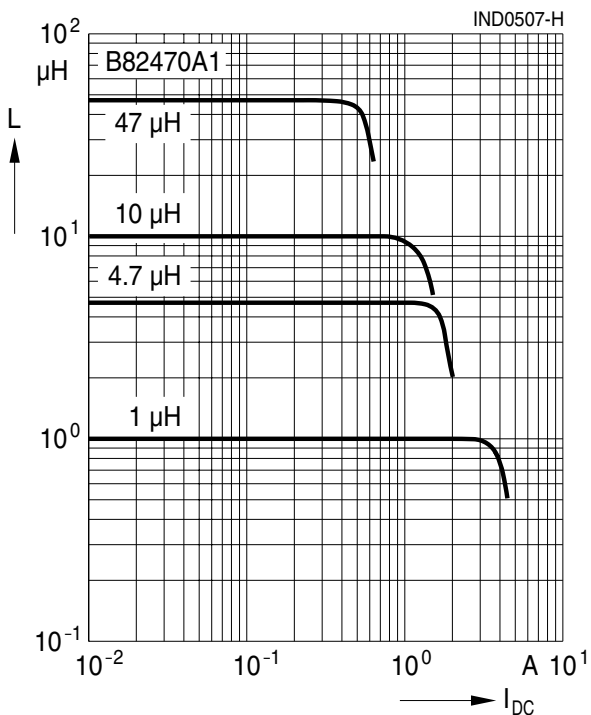
Impedance |Z| versus frequency f
measured with impedance analyzer
Agilent 4294A, typical values at 20 °C



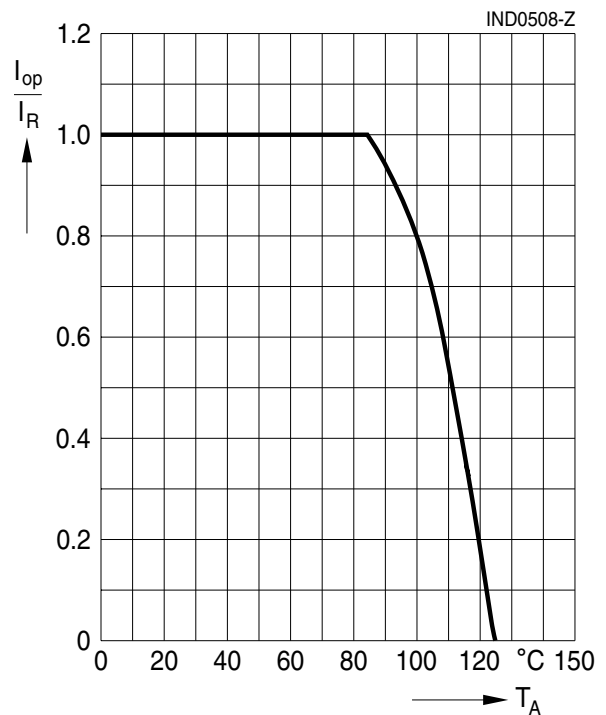
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A,
typical values at 20 °C (B82470A0)



Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A,
typical values at 20 °C (B82470A1)



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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