SMT inductors

SIMID series, SIMID 1812-A

Series/Type: **B82432A**

Date: March 2008

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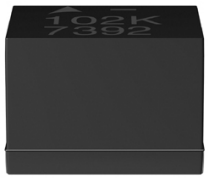
SMD

Size 1812 (EIA) or 4532 (IEC)
Rated inductance 1 µH to 1000 µH
Rated current 55 mA to 600 mA



Construction

- Ferrite core
- Ultrasonic-welded winding
- Flame-retardant molding

Features

- High Q factor
- High resonance frequency
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020C
- RoHS-compatible

Applications

- Filtering of supply voltages, coupling, decoupling
- Antenna systems
- Automotive electronics
- Telecommunications
- Industrial electronics

Terminals

- Base material CuSn6
- Layer composition Cu, Ag (lead-free)
- Electro-plated

Marking

- Marking on component:
  Manufacturer and series mark "–"
  L value (in nH), tolerance of L value (coded),
  date of manufacture (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 330-mm ∅ reel
- Packing unit: 2500 pcs./reel

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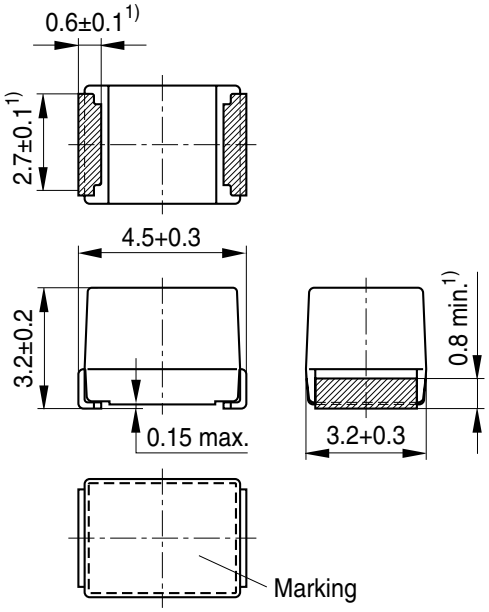
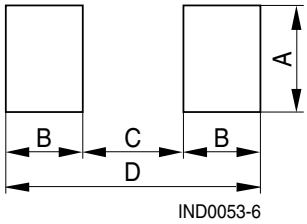
SMD

Dimensional drawing and layout recommendation





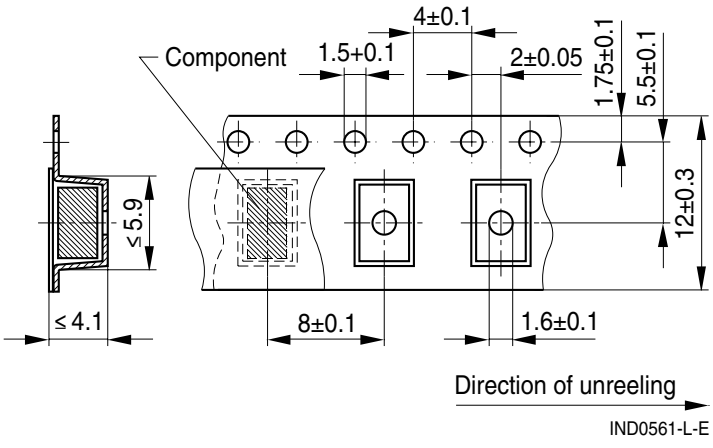
A	B	C	D
3.6	1.3	3.2	5.8

1) Soldering area IND0078-R-E

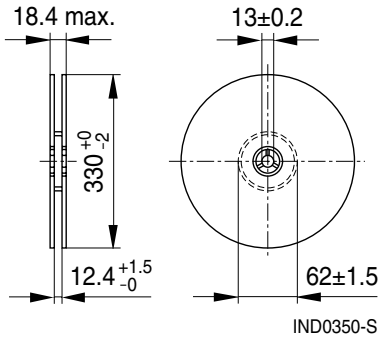
Dimensions in mm

Taping and packing

Blister tape



Reel



Dimensions in mm

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Technical data and measuring conditions

Rated inductance L_R	Measured with impedance analyzer Agilent 4294A at frequency f_L, 0.1 V, 20 °C
Q factor Q_{min}	Measured with impedance analyzer Agilent 4294A at frequency f_Q, 20 °C
Rated temperature T_R	85 °C
Rated current I_R	Maximum permissible DC with inductance decrease $\Delta L/L_0 \leq 10\%$ and temperature increase of ≤ 30 K at rated temperature
Self-resonance frequency $f_{res,min}$	Measured with network analyzer Agilent 8753D, 20 °C
DC resistance R_{max}	Measured at 20 °C
Solderability (lead-free)	Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (5 ±0.3) s Wetting of soldering area ≥ 95% (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, ≤ 75% RH
Weight	Approx. 130 mg

Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code
1.0	±10% ≙ K	1	25	7.96	600	0.28	260	B82432A1102K000
1.2		1	25	7.96	560	0.32	250	B82432A1122K000
1.5		1	25	7.96	535	0.35	230	B82432A1152K000
1.8		1	25	7.96	490	0.41	210	B82432A1182K000
2.2		1	30	7.96	480	0.43	190	B82432A1222K000
2.7		1	30	7.96	450	0.49	170	B82432A1272K000
3.3		1	30	7.96	425	0.55	155	B82432A1332K000
3.9		1	30	7.96	410	0.59	145	B82432A1392K000
4.7		1	30	7.96	390	0.65	110	B82432A1472K000
5.6		1	30	7.96	375	0.71	100	B82432A1562K000
6.8		1	30	7.96	360	0.78	75	B82432A1682K000
8.2		1	30	7.96	330	0.92	23	B82432A1822K000

Higher currents possible at temperatures $<T_R$ on request.
Closer tolerances and special versions on request.

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Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code[1)]
10	±10% ≙ K	1	45	2.52	320	0.98	22	B82432A1103K000
12		0.1	45	2.52	300	1.10	19	B82432A1123K000
15		0.1	45	2.52	280	1.25	17	B82432A1153K000
18		0.1	45	2.52	270	1.35	15	B82432A1183K000
22		0.1	45	2.52	260	1.45	13	B82432A1223K000
27		0.1	45	2.52	245	1.65	12	B82432A1273K000
33	±5% ≙ J	0.1	45	2.52	230	1.85	10.5	B82432A1333+000
39	±10% ≙ K	0.1	45	2.52	220	2.05	10.0	B82432A1393+000
47		0.1	40	2.52	210	2.3	9.5	B82432A1473+000
56		0.1	40	2.52	200	2.5	9.0	B82432A1563+000
68		0.1	40	2.52	190	2.8	8.0	B82432A1683+000
82		0.1	35	2.52	175	3.2	7.0	B82432A1823+000
100		0.1	40	2.52	145	4.7	6.5	B82432A1104+000
120		0.1	35	0.796	140	5.2	6.0	B82432A1124+000
150		0.1	35	0.796	130	6.1	5.5	B82432A1154+000
180		0.1	35	0.796	120	6.9	5.0	B82432A1184+000
220		0.1	30	0.796	115	7.5	4.6	B82432A1224+000
270		0.1	30	0.796	90	12.5	4.4	B82432A1274+000
330		0.1	30	0.796	85	14.1	4.1	B82432A1334+000
390		0.1	35	0.796	80	15.3	3.8	B82432A1394+000
470		0.1	35	0.796	75	17.5	3.5	B82432A1474+000
560		0.1	30	0.796	70	23.0	2.8	B82432A1564+000
680		0.1	30	0.796	65	25.0	2.6	B82432A1684+000
820		0.1	30	0.796	60	28.0	2.5	B82432A1824+000
1000		0.1	30	0.796	55	32.0	2.3	B82432A1105+000

Higher currents possible at temperatures $<T_R$ on request.
Closer tolerances and special versions on request.

1) Replace the + by the code letter for the required inductance tolerance.

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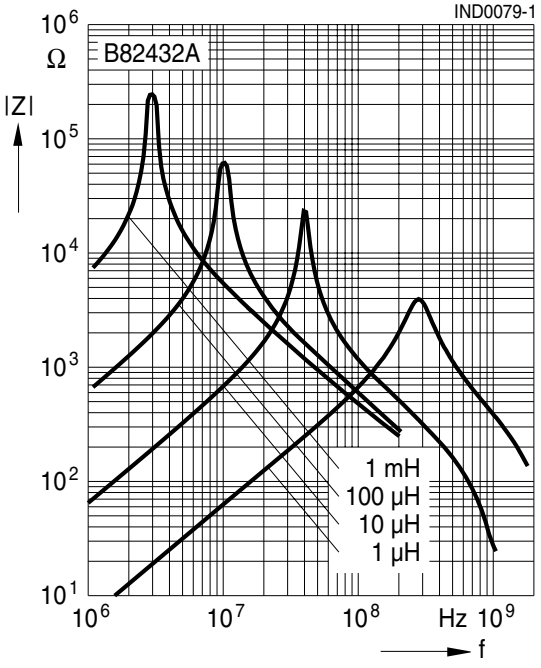
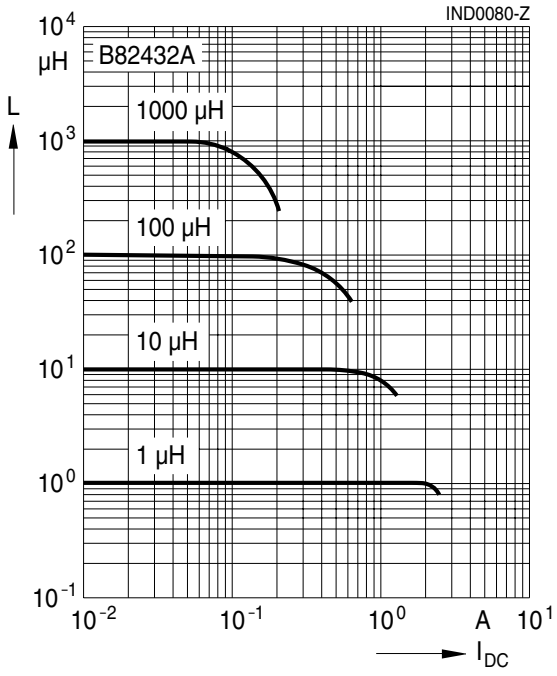
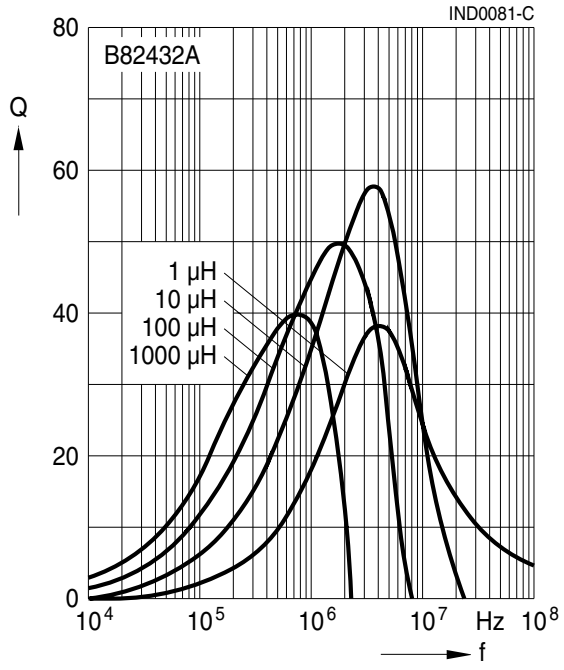
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent 4291A, typical values at 20 °C



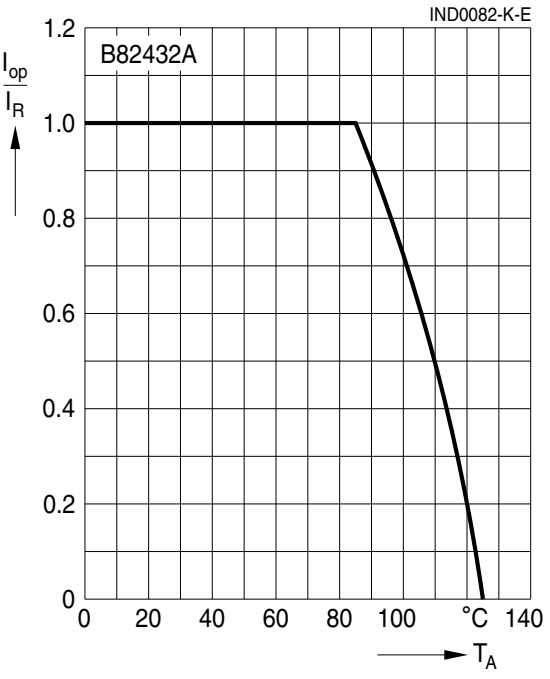
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A, typical values at 20 °C



Q factor versus frequency f
measured with impedance analyzer Agilent 4194A, typical values at 20 °C



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



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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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