SMT inductors

SIMID series, SIMID 1210-01

Series/Type: **B82412A**

Date: October 2012

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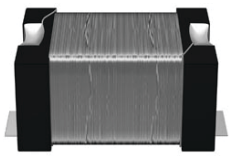

Size 1210 (EIA) or 3225 (IEC)
Rated inductance 0.010 ... 10 µH
Rated current 90 ... 700 mA

Construction

- Ceramic or ferrite core
- Single-layer winding fixed by glue
- Ultrasonic-welded winding

Features

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

Applications

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

Terminals

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

Marking

- No marking on component
- Minimum data on reel:
  Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing units

- 8-mm blister tape, wound on 180-mm or 330-mm ∅ reel
- Packing units:
  180-mm reel: 2500 pcs./reel
  330-mm reel: 10000 pcs./reel

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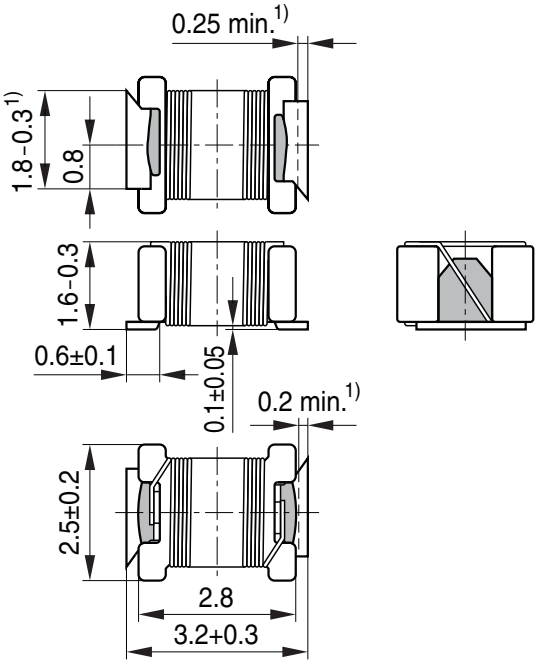
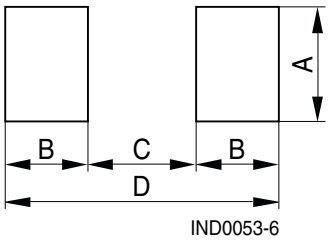
Dimensional drawing and layout recommendation





IND0053-6

A	B	C	D
2.7	1.15	2.1	4.4

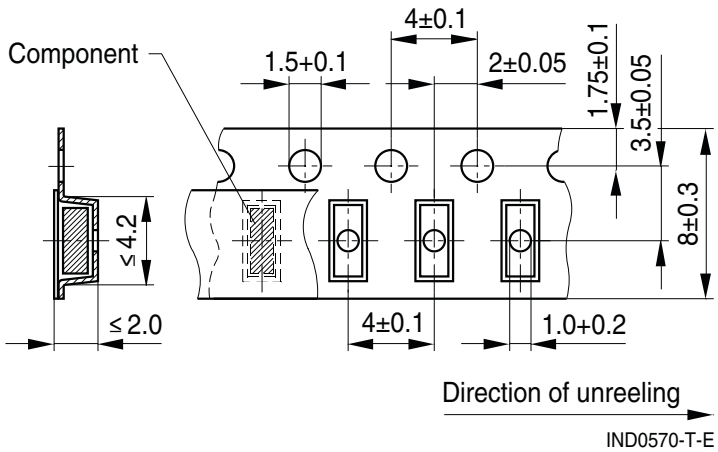
1) Soldering area

IND0052-V-E

Dimensions in mm

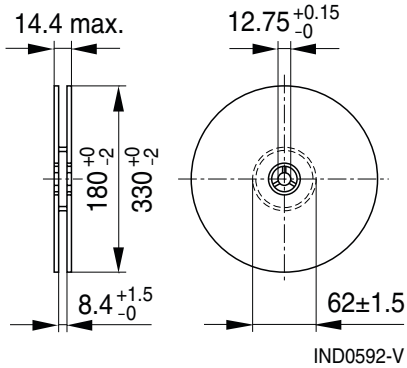
Taping and packing

Blister tape



IND0570-T-E

Reel



IND0592-V

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 ≤ 20 K at rated temperature
Self-resonance frequency $f_{res,min}$	Measured with impedance analyzer Agilent E4991A / network analyzer Agilent E8362B, +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 020D)
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. 40 mg

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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] (∅ 180-mm reel)
Core material: ceramic								
0.010	±20% ≙ M	10	25	100	700	0.10	4000	B82412A3100M000
0.012		10	25	100	700	0.10	3500	B82412A3120M000
0.015		10	25	100	640	0.12	3000	B82412A3150M000
0.018		10	30	100	640	0.12	2700	B82412A3180M000
0.022	±5% ≙ J	10	30	100	600	0.12	2400	B82412A3220+000
0.027	±10% ≙ K	10	20	50	600	0.15	2200	B82412A3270+000
0.033		10	25	50	540	0.17	2000	B82412A3330+000
0.039		10	25	50	500	0.18	1700	B82412A3390+000
0.047		10	25	50	470	0.22	1600	B82412A3470+000
0.056		10	30	50	460	0.23	1400	B82412A3560+000
0.068		10	30	50	440	0.25	1350	B82412A3680+000
0.082		10	30	50	430	0.27	1100	B82412A3820+000
0.10		10	30	50	400	0.30	1000	B82412A3101+000
0.12		1	25	30	380	0.35	900	B82412A3121+000
0.15		1	25	30	370	0.36	820	B82412A3151+000
0.18		1	25	30	340	0.42	700	B82412A3181+000
0.22		1	25	30	320	0.48	630	B82412A3221+000
0.27		1	30	30	300	0.55	570	B82412A3271+000
0.33		1	30	30	280	0.65	550	B82412A3331+000
0.39		1	30	30	260	0.75	500	B82412A3391+000
0.47		1	30	30	225	1.00	450	B82412A3471+000
0.56		1	30	30	200	1.20	430	B82412A3561+000
0.68		1	30	30	180	1.40	400	B82412A3681+000
0.82		1	30	30	150	2.00	380	B82412A3821+000

Closer tolerances and special versions on request.

1) Replace the + by the code letter for the required inductance tolerance.
For reel size ∅ 330 mm the last digit has to be an »8«. Example: B82412A3100M008

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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] (∅ 180-mm reel)
Core material: ferrite								
1.0	±5% ≙ J	1	30	7.96	330	0.45	300	B82412A1102+000
1.2	±10% ≙ K	1	30	7.96	310	0.50	260	B82412A1122+000
1.5		1	30	7.96	300	0.55	240	B82412A1152+000
1.8		1	30	7.96	290	0.60	220	B82412A1182+000
2.2		1	30	7.96	270	0.65	200	B82412A1222+000
2.7		1	30	7.96	220	1.05	180	B82412A1272+000
3.3		1	30	7.96	200	1.10	160	B82412A1332+000
3.9		1	30	7.96	190	1.35	150	B82412A1392+000
4.7		1	35	7.96	160	1.80	140	B82412A1472+000
5.6		1	35	7.96	140	2.70	125	B82412A1562+000
6.8		1	35	7.96	120	3.50	115	B82412A1682+000
8.2		1	35	7.96	110	3.80	100	B82412A1822+000
10		1	35	7.96	90	5.50	95	B82412A1103+000

Closer tolerances and special versions on request.

1) Replace the + by the code letter for the required inductance tolerance.
For reel size ∅ 330 mm the last digit has to be an »8«. Example: B82412A1102M008

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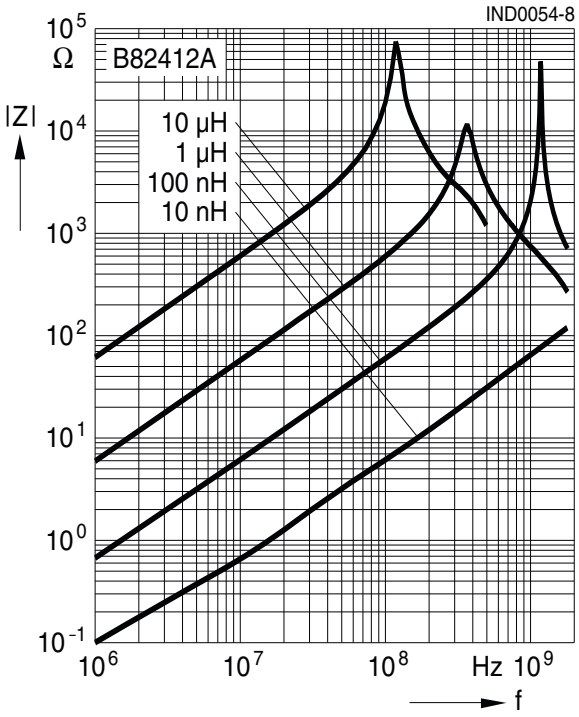
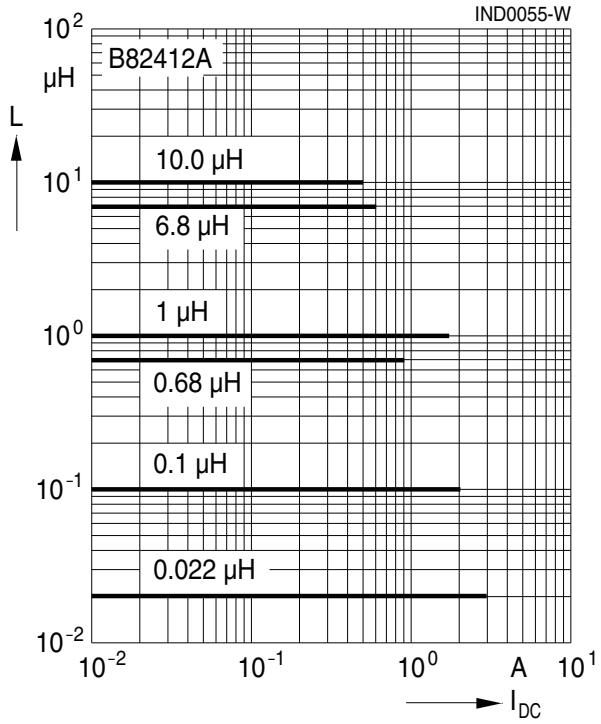
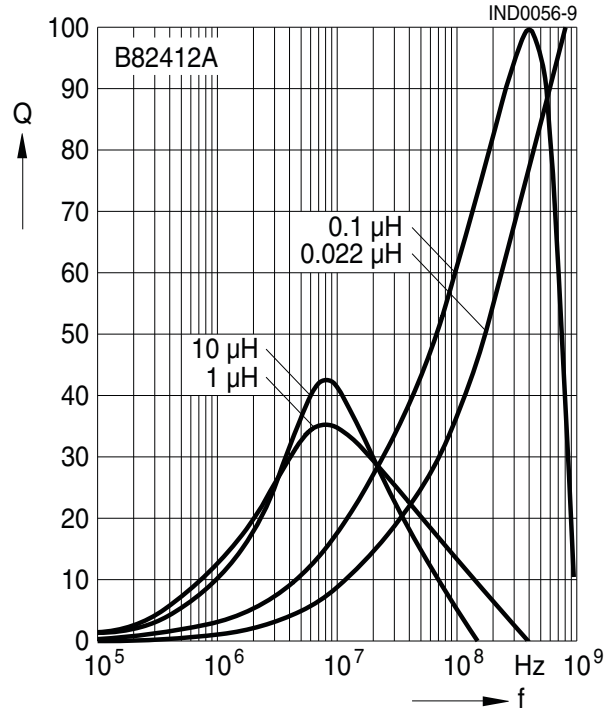
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent E4991A, typical values at +20 °C



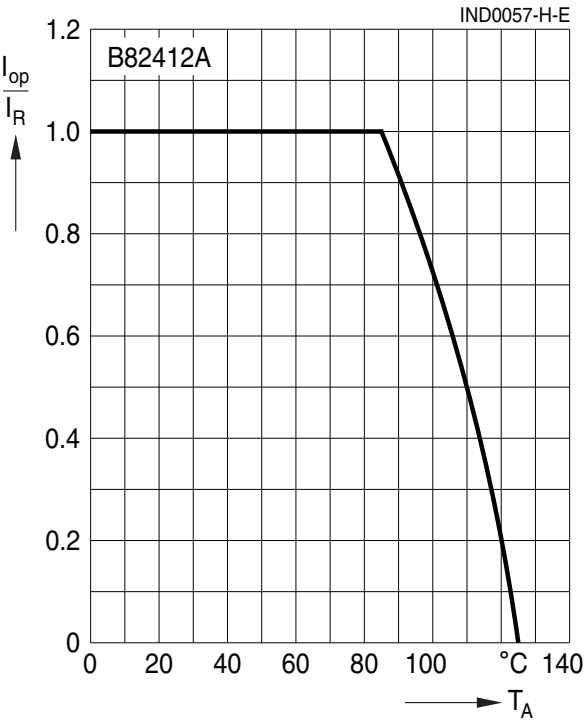
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4285A, typical values at +20 °C



Q factor versus frequency f
measured with impedance analyzer Agilent E4991A, 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.
  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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