SMT inductors

SIMID series, SIMID 1210-100

Series/Type: **B82422A*100**

Date: June 2009

SMD

Size 1210 (EIA) or 3225 (IEC)
Rated inductance 0.0082 µH to 100 µH
Rated current 65 mA to 800 mA

Construction

- Ceramic or ferrite core
- Laser-welded winding
- Flame-retardant molding

Features

- Temperature range up to 145 °C
- High Q factor
- High resonance frequency
- Qualified to AEC-Q200
- 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
- Consumer and data processing equipment
- Industrial electronics

Terminals

- Base material CuSn6
- Layer composition Cu, Ag, Sn (lead-free)[1)]
- Electro-plated

Marking

- Marking on component:
  Manufacturer, 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 units

- 8-mm blister tape, wound on 180-mm or 330-mm ∅ reel
- Packing units:
  180-mm reel: 2000 pcs./reel
  330-mm reel: 8000 pcs./reel

1) Ni-barrier-plated terminals on request (B82422A*150).

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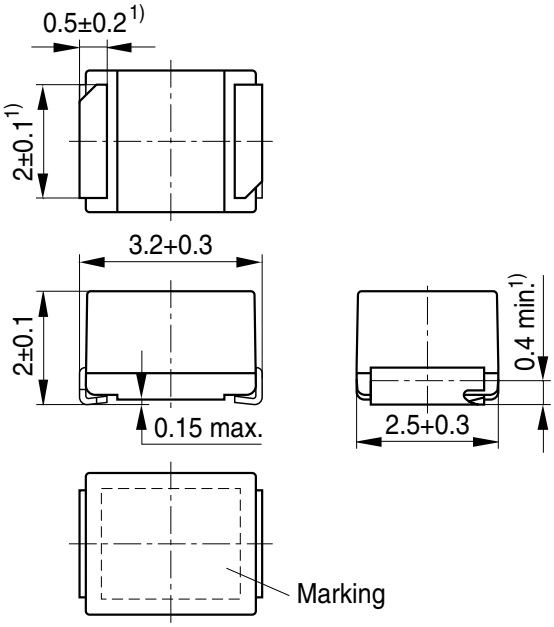
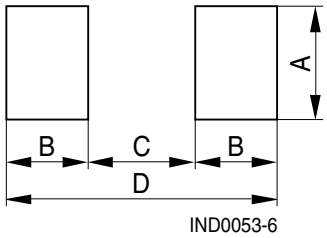
Dimensional drawing and layout recommendation





IND0053-6

A	B	C	D
2.7	1.15	2.1	4.4

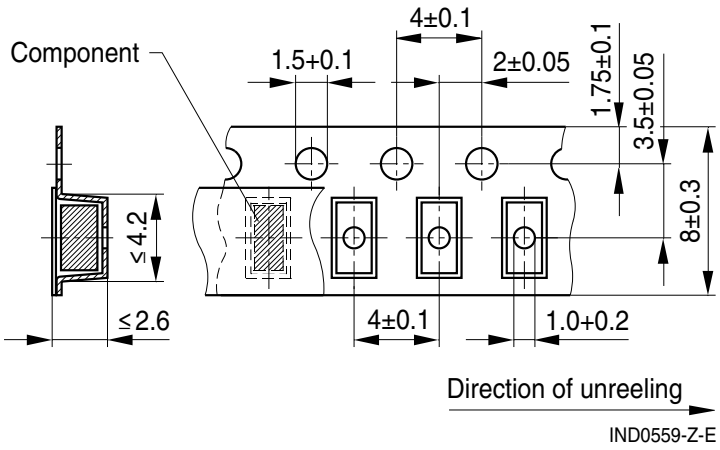
1) Soldering area

IND0073-6-E

Dimensions in mm

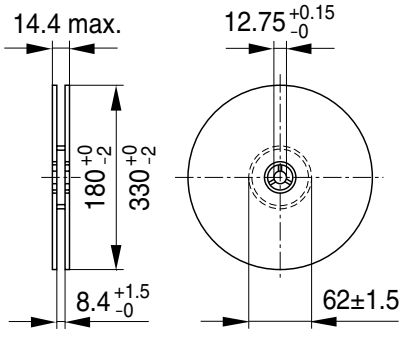
Taping and packing

Blister tape



IND0559-Z-E

Reel



IND0592-V

Dimensions in mm

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	125 °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 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 ≥ 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, ≤ 75% RH
Weight	Approx. 50 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)2)] (∅ 180-mm reel)
Core material: ceramic								
0.0082	±5% ≙ J	10	20	100	800	0.08	4000	B82422A3829+100
0.010	±10% ≙ K	10	20	100	750	0.09	4000	B82422A3100+100
0.012		10	25	100	700	0.10	3500	B82422A3120+100
0.015		10	27	100	640	0.12	3000	B82422A3150+100
0.018		10	30	100	640	0.12	2500	B82422A3180+100
0.022		10	30	100	600	0.14	2500	B82422A3220+100
0.027		10	23	50	600	0.14	1850	B82422A3270+100
0.033		10	20	50	540	0.17	1700	B82422A3330+100
0.039		10	25	50	530	0.18	1450	B82422A3390+100
0.047		10	26	50	510	0.19	1350	B82422A3470+100
0.056		10	26	50	500	0.20	1200	B82422A3560+100
0.068		10	27	50	480	0.21	1150	B82422A3680+100
0.082		10	27	50	450	0.24	1050	B82422A3820+100
0.10		10	25	50	440	0.26	1000	B82422A3101+100
0.12		1	22	30	400	0.32	880	B82422A3121+100
0.15		1	25	30	390	0.33	850	B82422A3151+100
0.18		1	25	30	360	0.38	800	B82422A3181+100
0.22		1	25	30	280	0.64	700	B82422A3221+100
0.27		1	20	30	235	0.90	650	B82422A3271+100
0.33		1	22	30	200	1.3	580	B82422A3331+100
0.39		1	22	30	190	1.4	540	B82422A3391+100
0.47		1	22	30	150	2.2	480	B82422A3471+100
0.56		1	22	30	150	2.2	400	B82422A3561+100
0.68		1	22	30	145	2.4	280	B82422A3681+100
0.82		1	22	30	140	2.5	240	B82422A3821+100

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

Sample kit available. Ordering code: B82422X100
For more information refer to chapter “Sample kits”.

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: B82422A3829K108
2) For Ni-barrier-plated terminals replace the last three digits “100” by “150” (reel 180 mm) or “158” (reel 330 mm).

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)2)] (∅ 180-mm reel)
Core material: ferrite								
1.0	±5% ≙ J	1	20	7.96	380	0.34	320	B82422A1102+100
1.2	±10% ≙ K	1	20	7.96	370	0.37	300	B82422A1122+100
1.5		1	20	7.96	340	0.50	270	B82422A1152+100
1.8		1	25	7.96	290	0.60	250	B82422A1182+100
2.2		1	25	7.96	270	0.75	125	B82422A1222+100
2.7		1	25	7.96	240	0.88	110	B82422A1272+100
3.3		1	27	7.96	200	1.20	110	B82422A1332+100
3.9		1	27	7.96	190	1.40	110	B82422A1392+100
4.7		1	27	7.96	150	2.20	110	B82422A1472+100
5.6		1	27	7.96	140	2.60	100	B82422A1562+100
6.8		1	27	7.96	135	2.80	90	B82422A1682+100
8.2		1	27	7.96	130	3.00	90	B82422A1822+100
10		1	27	2.52	180	1.60	25	B82422A1103+100
12		0.1	27	2.52	175	1.65	23	B82422A1123+100
15		0.1	27	2.52	165	1.85	20	B82422A1153+100
18		0.1	27	2.52	155	2.00	17	B82422A1183+100
22		0.1	27	2.52	140	2.65	16	B82422A1223+100
27		0.1	27	2.52	120	3.70	15	B82422A1273+100
33		0.1	27	2.52	105	4.50	13	B82422A1333+100
39		0.1	27	2.52	90	6.30	12	B82422A1393+100
47		0.1	27	2.52	85	7.00	11	B82422A1473+100
56		0.1	27	2.52	85	6.75	9	B82422A1563+100
68		0.1	27	2.52	80	7.70	9	B82422A1683+100
82		0.1	27	2.52	70	10.0	8	B82422A1823+100
100		0.1	27	2.52	65	11.5	7	B82422A1104+100

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

Sample kit available. Ordering code: B82422X100
For more information refer to chapter “Sample kits”.

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: B82422A1104K108
2) For Ni-barrier-plated terminals replace the last three digits “100” by “150” (reel 180 mm) or “158” (reel 330 mm).

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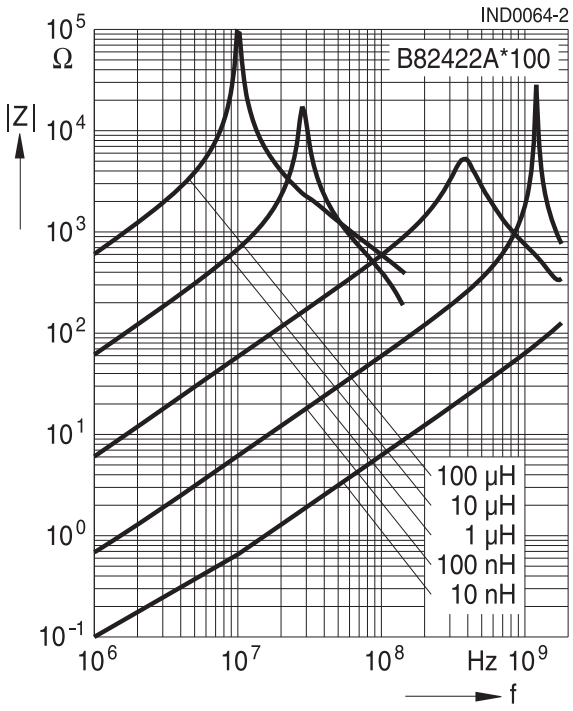
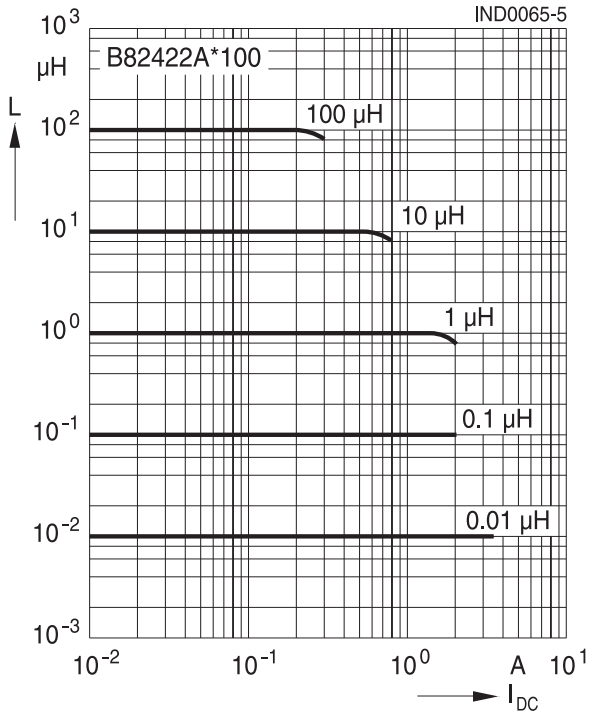
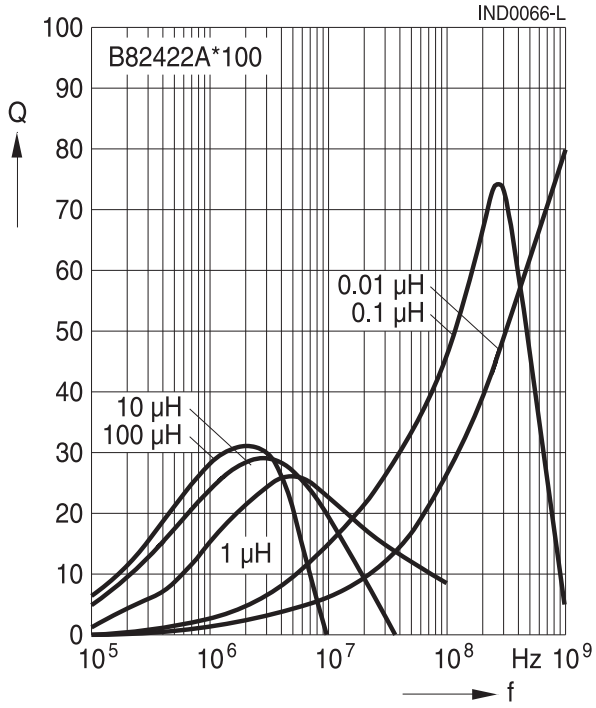
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent 4291A, typical values at 20 °C



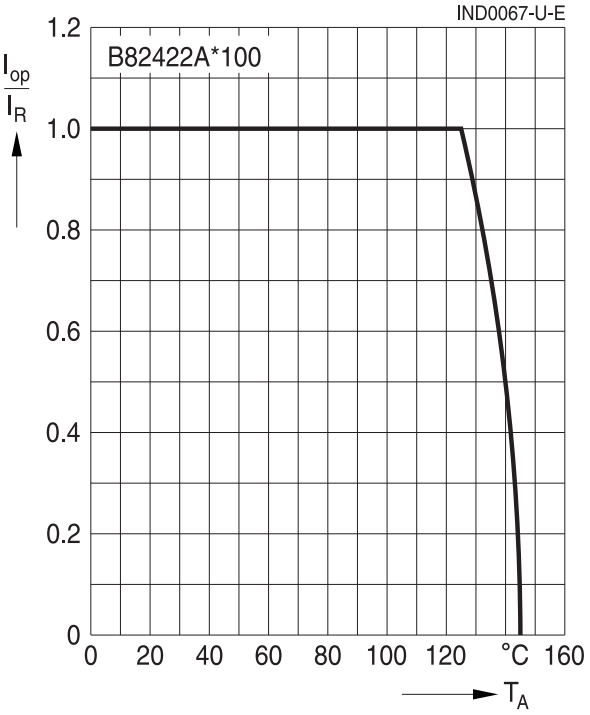
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A, typical values at 20 °C



Q factor versus frequency f
measured with impedance analyzer Agilent 4194A/4291A, typical values at 20 °C



Current derating I_{op}/I_R versus ambient temperature T_A
(rated temperature T_R = 125 °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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