SMT inductors

SIMID series, SIMID 1210-T

Series/Type: **B82422T**

Date: June 2009

SMD

Size 1210 (EIA) or 3225 (IEC)
Rated inductance 0.010 µH to 100 µH
Rated current 60 mA to 450 mA

Construction

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

Features

- High Q factor
- High resonance frequency
- High L value
- 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 and letter “T”, L value (in µH),
  tolerance of L value (coded), date of manufacture (YWWD)
- Minimum data on reel:
  Manufacturer, ordering code, L value, quantity, date of packing

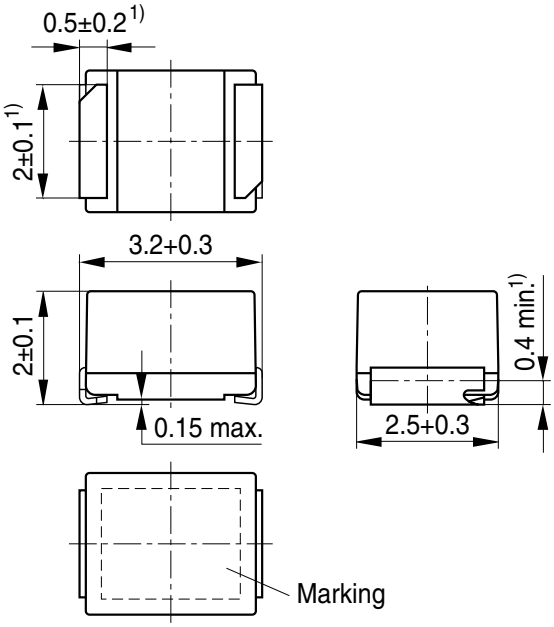
Delivery mode and packing units

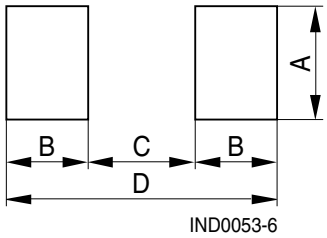
- 8-mm blister tape, wound on 180-mm or 330-mm ∅ reel
- Packing units:
  180-mm reel: 2000 pcs./reel
  330-mm reel: 8000 pcs./reel

1) Ni-barrier-plated terminals (NiSn) on request (B82422T*50).

SMD

Dimensional drawing and layout recommendation





IND0053-6

A	B	C	D
2.7	1.15	2.1	4.4

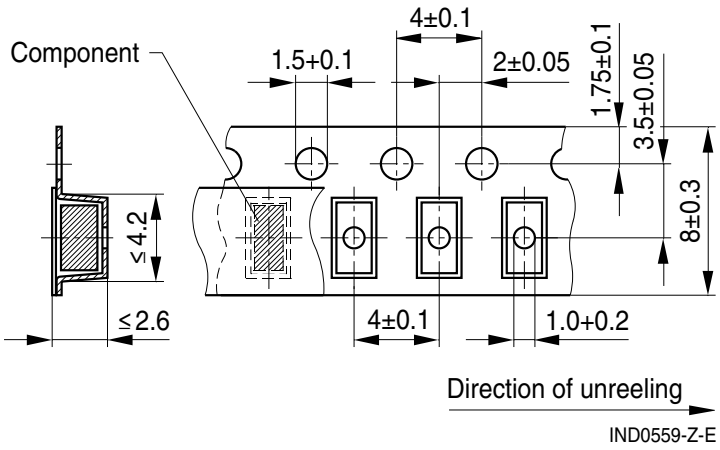
1) Soldering area

IND0073-6-E

Dimensions in mm

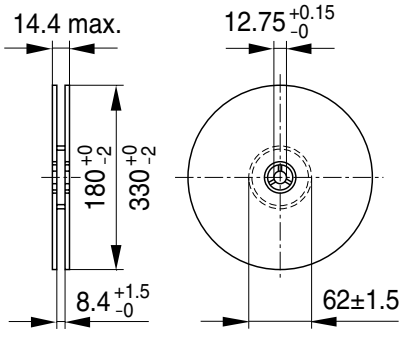
Taping and packing

Blister tape



IND0559-Z-E

Reel



IND0592-V

Dimensions in mm

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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 ≥ 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

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Characteristics and ordering codes

L_R µH	Tolerance	Q_{min}	f_L; f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code[1)2)] (∅ 180-mm reel)
Core material: ceramic							
0.010	±5% ≙ J	15	100	450	0.10	4000	B82422T3100+000
0.012	±10% ≙ K	17	100	450	0.11	3500	B82422T3120+000
0.015		19	100	450	0.13	3000	B82422T3150+000
0.018		21	100	450	0.14	2000	B82422T3180+000
0.022		23	100	450	0.16	2000	B82422T3220+000
0.027		23	100	450	0.17	1700	B82422T3270+000
0.033		25	100	450	0.18	1700	B82422T3330+000
0.039		25	100	450	0.19	1300	B82422T3390+000
0.047		26	100	450	0.20	1300	B82422T3470+000
0.056		26	100	450	0.21	1100	B82422T3560+000
0.068		27	100	450	0.23	1000	B82422T3680+000
0.082		27	100	450	0.26	1000	B82422T3820+000
0.10		28	100	450	0.31	900	B82422T3101+000
Core material: ferrite							
0.12	±5% ≙ J	30	25.2	450	0.15	900	B82422T1121+000
0.15	±10% ≙ K	30	25.2	450	0.18	700	B82422T1151+000
0.18		30	25.2	450	0.19	500	B82422T1181+000
0.22		30	25.2	450	0.20	500	B82422T1221+000
0.27		30	25.2	450	0.21	500	B82422T1271+000
0.33		30	25.2	450	0.23	500	B82422T1331+000
0.39		30	25.2	450	0.25	400	B82422T1391+000
0.47		30	25.2	450	0.30	400	B82422T1471+000
0.56		30	25.2	450	0.31	300	B82422T1561+000
0.68		30	25.2	450	0.34	300	B82422T1681+000
0.82		30	25.2	450	0.38	300	B82422T1821+000
1.0		30	7.96	400	0.6	300	B82422T1102+000
1.2		30	7.96	390	0.7	250	B82422T1122+000

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

Sample kit available. Ordering code: B82422X001
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: B82422T3100K008
2) For Ni-barrier-plated terminals replace the last two digits “00” by “50” (reel 180 mm) or “58” (reel 330 mm).

Characteristics and ordering codes

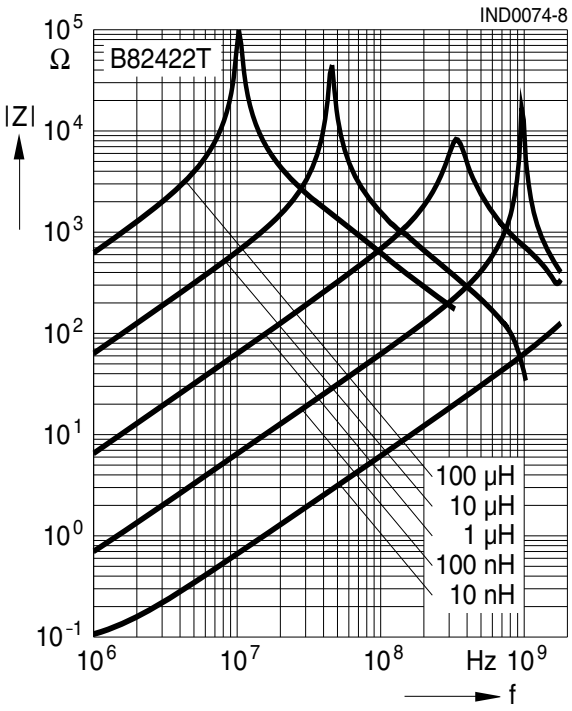
L_R µH	Tolerance	Q_{min}	f_L; f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code[1)2)] (∅ 180-mm reel)
1.5	±5% ≙ J	30	7.96	370	0.7	200	B82422T1152+000
1.8	±10% ≙ K	30	7.96	350	0.8	140	B82422T1182+000
2.2		30	7.96	320	0.8	100	B82422T1222+000
2.7		30	7.96	290	0.9	70	B82422T1272+000
3.3		30	7.96	260	1.2	60	B82422T1332+000
3.9		30	7.96	250	1.3	60	B82422T1392+000
4.7		30	7.96	220	1.5	50	B82422T1472+000
5.6		27	7.96	200	1.6	45	B82422T1562+000
6.8		27	7.96	180	1.8	40	B82422T1682+000
8.2		27	7.96	170	2.0	35	B82422T1822+000
10		27	2.52	150	2.1	30	B82422T1103+000
12		27	2.52	140	2.5	25	B82422T1123+000
15		27	2.52	130	2.8	20	B82422T1153+000
18		27	2.52	120	3.0	20	B82422T1183+000
22		27	2.52	110	3.5	20	B82422T1223+000
27		27	2.52	80	4.5	20	B82422T1273+000
33		27	2.52	70	5.6	17	B82422T1333+000
39		27	2.52	65	6.4	16	B82422T1393+000
47		27	2.52	60	7.0	15	B82422T1473+000
56		27	2.52	60	8.0	12	B82422T1563+000
68		27	2.52	60	9.0	9	B82422T1683+000
82		25	2.52	60	10	9	B82422T1823+000
100		20	0.796	60	11	8	B82422T1104+000

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

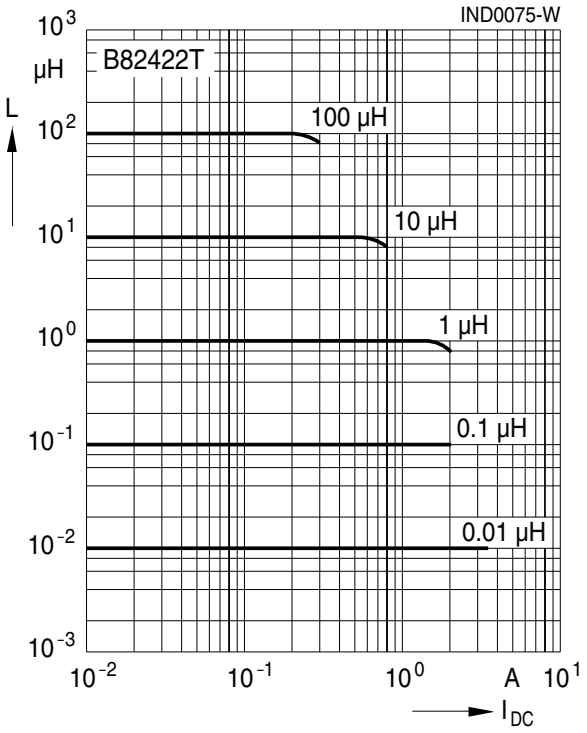
Sample kit available. Ordering code: B82422X001
For more information refer to chapter “Sample kits”.

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: B82422T1104K008
2) For Ni-barrier-plated terminals replace the last two digits “00” by “50” (reel 180 mm) or “58” (reel 330 mm).

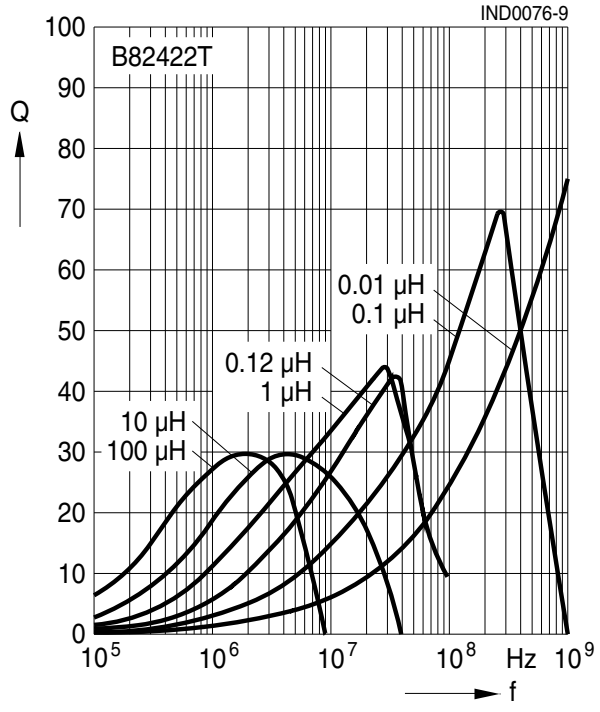
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent 4291A, typical values at 20 °C



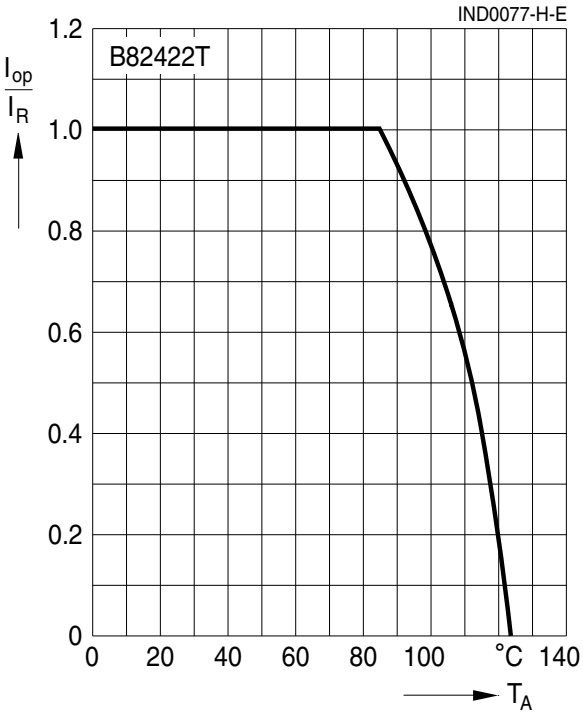
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4275A, typical values at 20 °C



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 = 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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The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application.**

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