SMT inductors

SIMID series, SIMID 1210-T

Series/Type: **B82422T**

Date: October 2012

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Size 1210 (EIA) or 3225 (IEC)
Rated inductance 0.010 ... 100 µH
Rated current 60 ... 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 020D
- 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

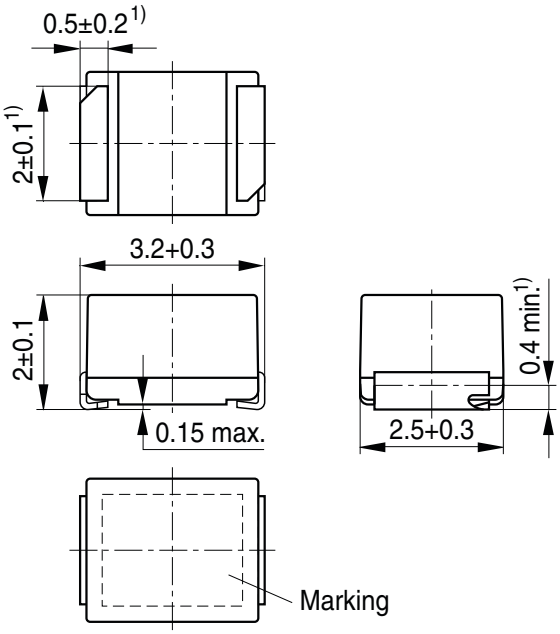
Delivery mode and packing units

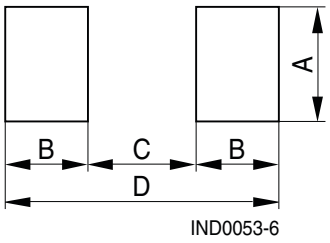
- 8-mm blister tape, wound on 180-mm or 330-mm ∅ reel
- Packing units:
  180-mm reel: 2000 pcs./reel
  330-mm reel: 8000 pcs./reel

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

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Dimensional drawing and layout recommendation





A	B	C	D
2.7	1.15	2.1	4.4

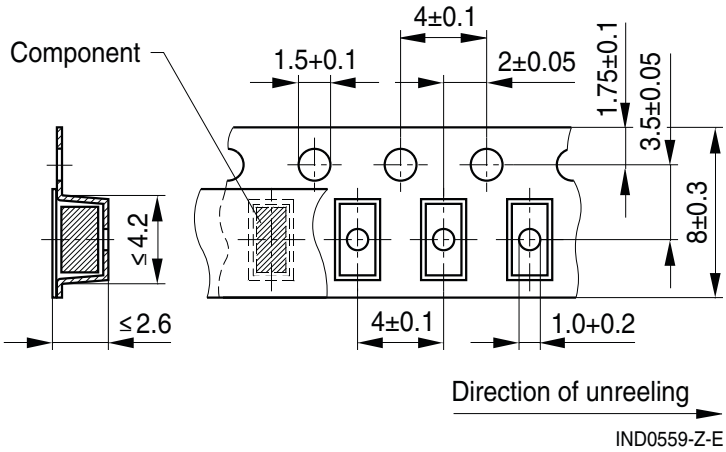
1) Soldering area

IND0073-6-E

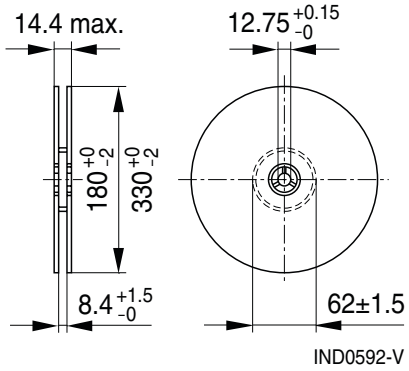
Dimensions in mm

Taping and packing

Blister tape



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 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 ≥ 90% (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. 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).

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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)
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

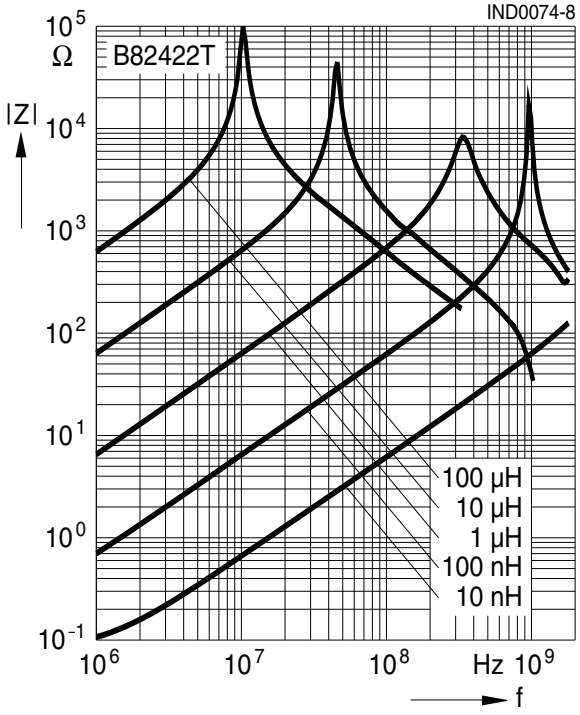
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For more information refer to chapter “Sample kits”.

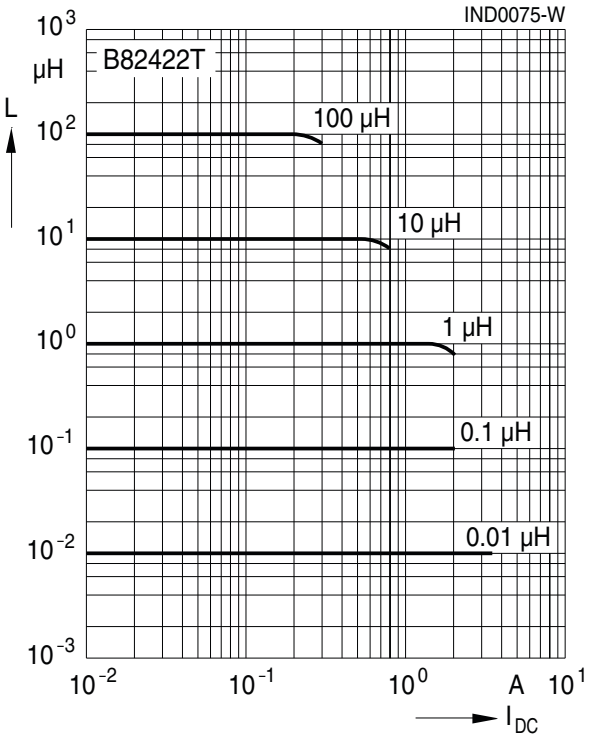
1) Replace the + by the code letter for the required inductance tolerance.
For reel size ∅ 330 mm the last digit has to be an »8«. Example: B82422T1104K008
2) For Ni-barrier-plated terminals replace the last two digits “00” by “50” (reel 180 mm) or “58” (reel 330 mm).

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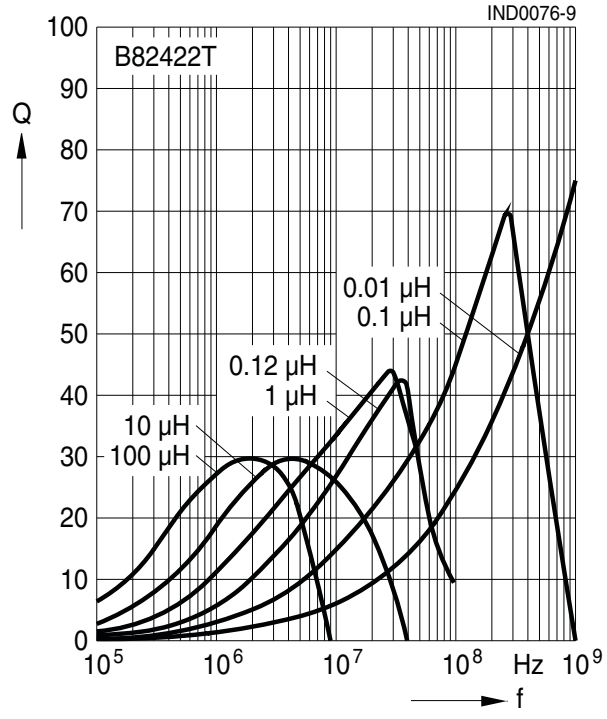
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent E4991A, typical values at +20 °C



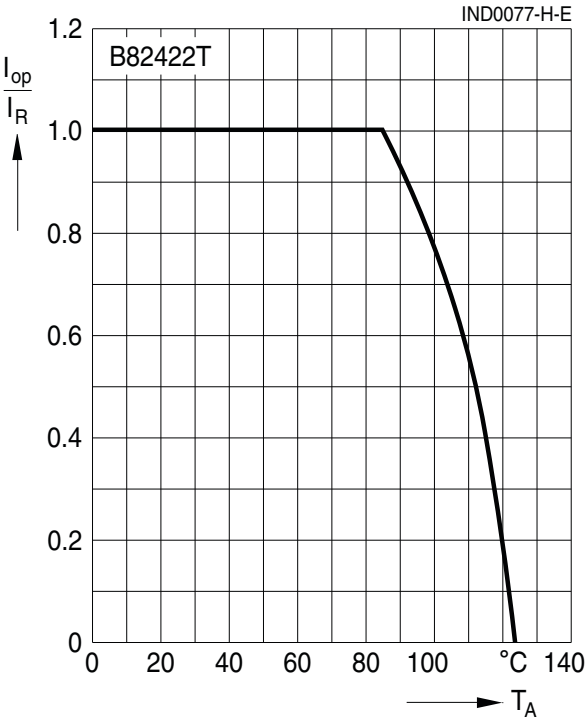
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4285A, typical values at +20 °C



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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