SMT inductors

SIMID series, SIMID 1210-H100

Series/Type: **B82422H1*100**

Date: October 2012

SMD

High current version
Size 1210 (EIA) or 3225 (IEC)
Rated inductance 1 ... 100 µH
Rated current 90 ... 650 mA

Construction

- Ferrite core
- Laser-welded winding
- Flame-retardant encapsulation

Features

- Very high current handling capability
- Qualified to AEC-Q200
- Suitable for lead-free soldering as referenced in JEDEC J-STD 020
- RoHS-compatible

Applications

- Filtering of supply voltages, coupling, decoupling
- DC/DC converters
- Automotive electronics
- Telecommunications

Terminals

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

Marking

- Marking on component:
  Manufacturer and letter "H",
  L value (in nH) and 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

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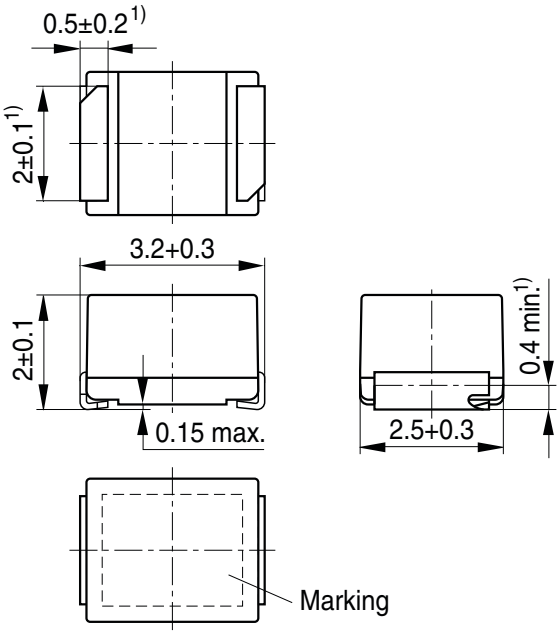
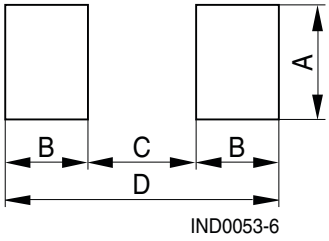
Dimensional drawing and layout recommendation





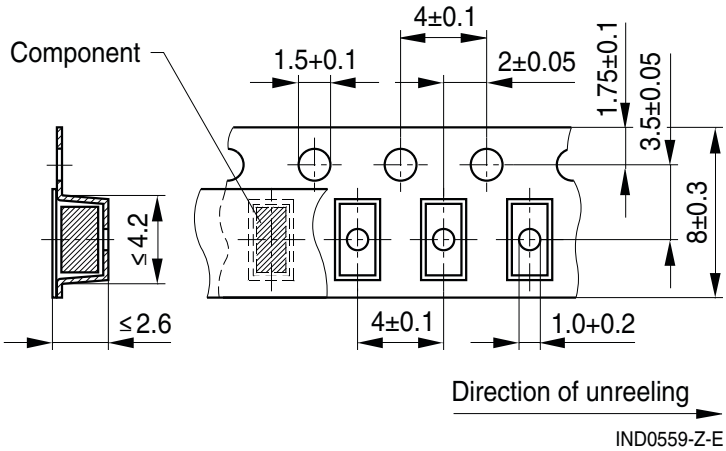
A	B	C	D
2.7	1.15	2.1	4.4

1) Soldering area IND0073-6-E

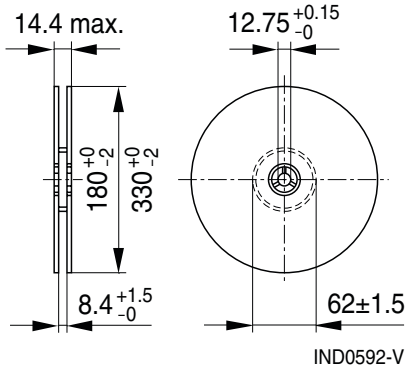
Dimensions in mm

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 and test fixture Agilent 16034H at frequency f_L, RMS voltage 0.1 V, +20 °C
Q factor Q_{min}	Measured with impedance analyzer Agilent 4294A and test fixture Agilent 16034H at frequency f_Q, RMS voltage 0.1 V, +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 RF impedance / material analyzer Agilent E4991A and network analyzer Agilent 8362B, +20 °C
DC resistance R_{max}	Measured with Burster Resistomat 2329, +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 020)
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	f_L MHz	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res, min}$ MHz	Ordering code (∅ 180-mm reel)
Core material: ferrite								
1.0	±10% ≙ K	1	10	7.96	650	0.22	200	B82422H1102K100
1.5		1	10	7.96	600	0.27	120	B82422H1152K100
2.2		1	10	7.96	560	0.33	85	B82422H1222K100
3.3		1	10	7.96	500	0.42	60	B82422H1332K100
4.7		1	10	7.96	430	0.48	46	B82422H1472K100
6.8		1	10	7.96	380	0.75	38	B82422H1682K100
10		1	15	2.52	300	1.20	30	B82422H1103K100
15		0.1	15	2.52	260	1.50	26	B82422H1153K100
22		0.1	15	2.52	220	2.40	22	B82422H1223K100
27		0.1	15	2.52	200	3.00	20	B82422H1273K100
33		0.1	15	2.52	180	3.30	17	B82422H1333K100
39		0.1	15	2.52	180	4.10	15	B82422H1393K100
47		0.1	15	2.52	140	4.70	14	B82422H1473K100
68		0.1	15	2.52	110	7.70	9	B82422H1683K100
100		0.1	27	2.52	65	11.5	7	B82422H1104K100

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

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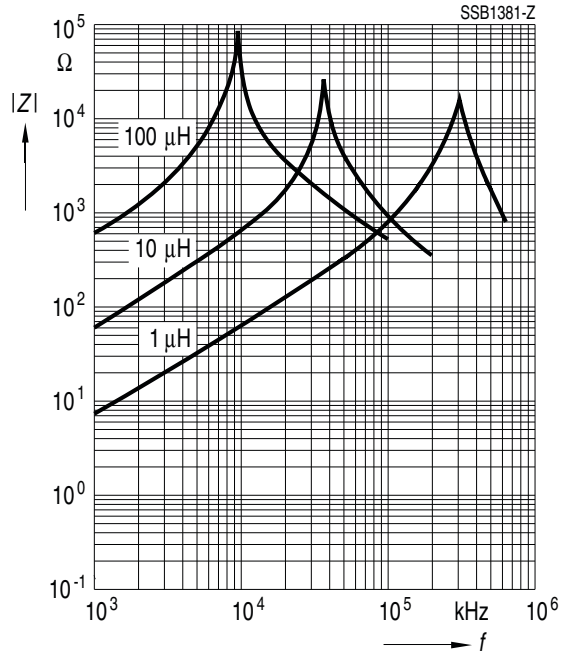
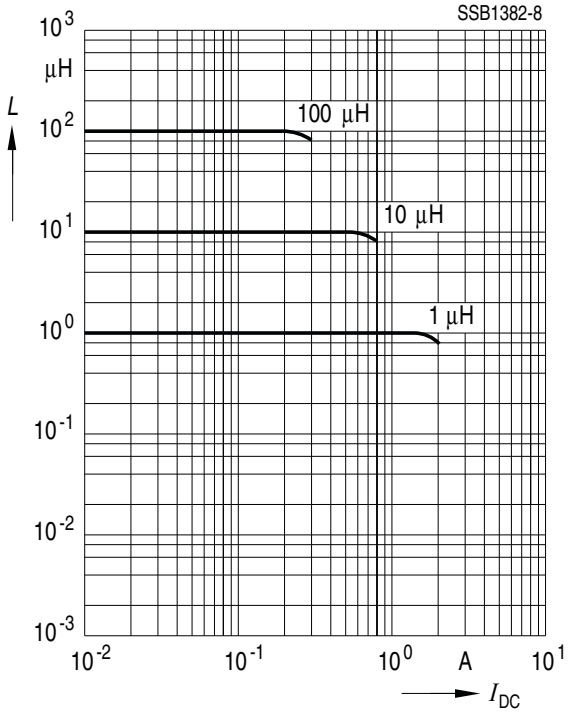
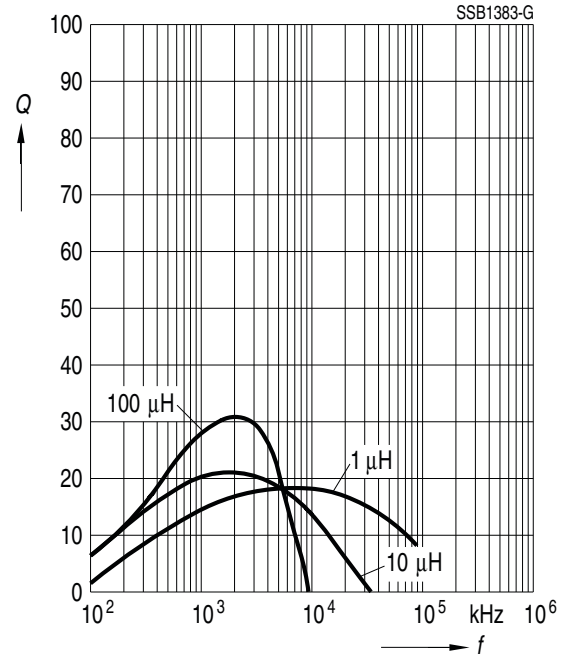
Impedance |Z| versus frequency f
measured with impedance /material analyzer Agilent E4991A, typical values at +20 °C



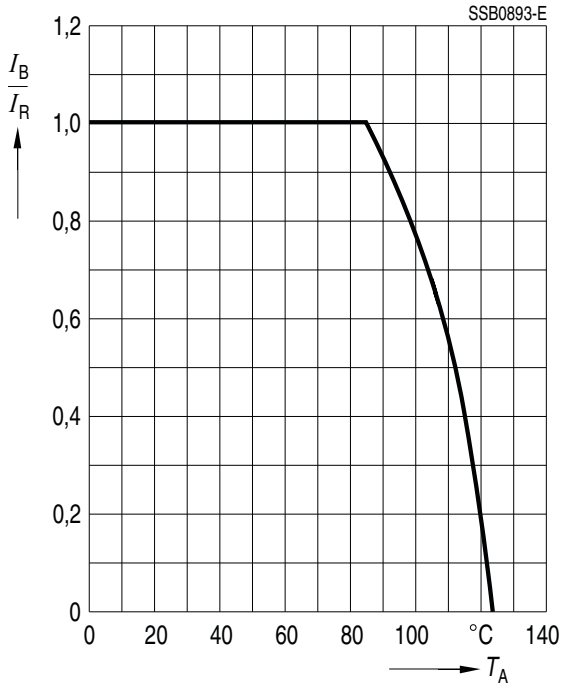
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4285A, typical values at +20 °C



Q factor versus frequency f
measured with impedance/material 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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