



SMT inductors

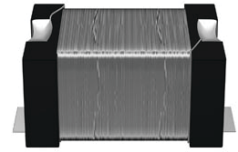
SIMID series, SIMID 1210-01

Series/Type: B82412A

Date: October 2012

SMD

Size 1210 (EIA) or 3225 (IEC)
Rated inductance 0.010 ... 10 μ H
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

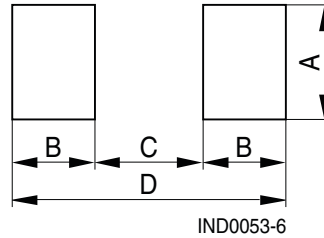
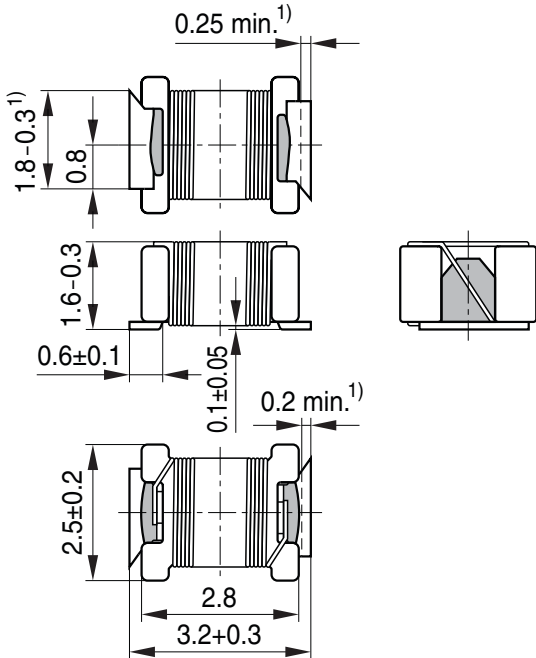
Delivery mode and packing units

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

SIMID 1210-01

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Dimensional drawing and layout recommendation



| A | B | C | D |
|-----|------|-----|-----|
| 2.7 | 1.15 | 2.1 | 4.4 |

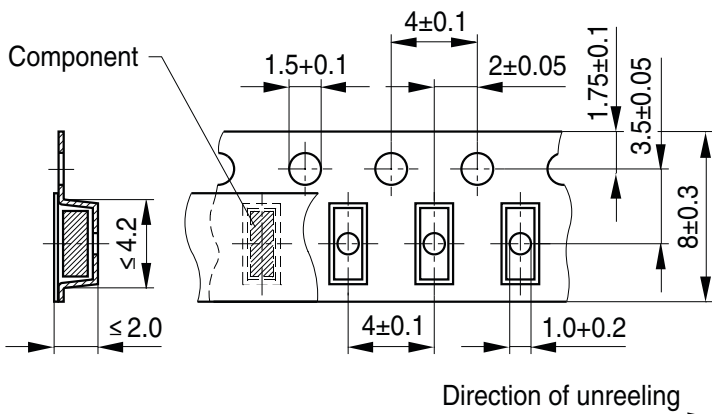
1) Soldering area

IND0052-V-E

Dimensions in mm

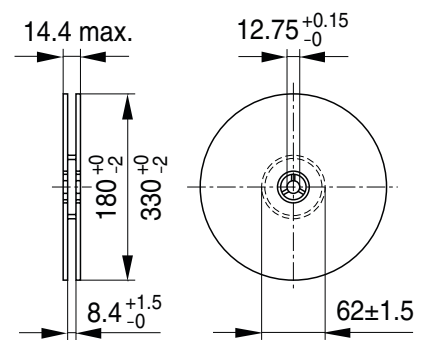
Taping and packing

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 $f_{\text{res},\min}$ | 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 $\geq 95\%$ (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, $\leq 75\%$ RH |
| Weight | Approx. 40 mg |

Characteristics and ordering codes

| L_R μH | Tolerance | f_L MHz | Q_{\min} | f_Q MHz | I_R mA | R_{\max} Ω | $f_{\text{res,min}}$ MHz | Ordering code ¹⁾ (\varnothing 180-mm reel) |
|------------------------|---|--------------|------------|--------------|-------------|------------------------|-----------------------------|---|
| Core material: ceramic | | | | | | | | |
| 0.010 | $\pm 20\% \triangleq M$ | 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 | $\pm 5\% \triangleq J$ $\pm 10\% \triangleq K$ | 10 | 30 | 100 | 600 | 0.12 | 2400 | B82412A3220+000 |
| 0.027 | | 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 \varnothing 330 mm the last digit has to be an »8«. Example: B82412A3100M008

Characteristics and ordering codes

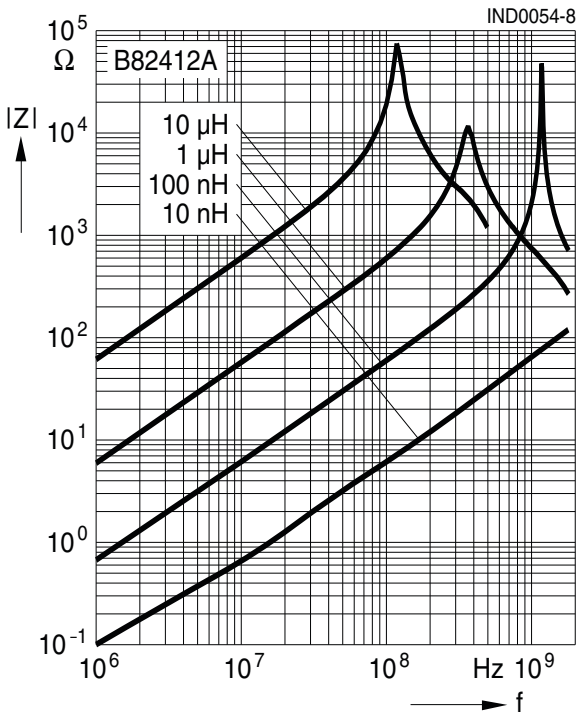
| L_R μH | Tolerance | f_L MHz | Q_{\min} | f_Q MHz | I_R mA | R_{\max} Ω | $f_{\text{res,min}}$ MHz | Ordering code ¹⁾ (\varnothing 180-mm reel) |
|------------------------|-------------------------|--------------|------------|--------------|-------------|------------------------|-----------------------------|---|
| Core material: ferrite | | | | | | | | |
| 1.0 | $\pm 5\% \triangleq J$ | 1 | 30 | 7.96 | 330 | 0.45 | 300 | B82412A1102+000 |
| 1.2 | $\pm 10\% \triangleq K$ | 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.

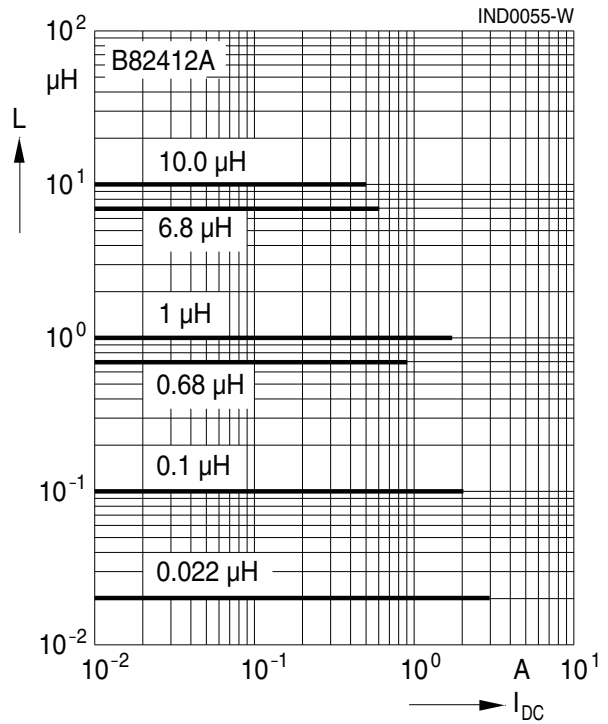
1) Replace the + by the code letter for the required inductance tolerance.
For reel size \varnothing 330 mm the last digit has to be an »8«. Example: B82412A1102M008

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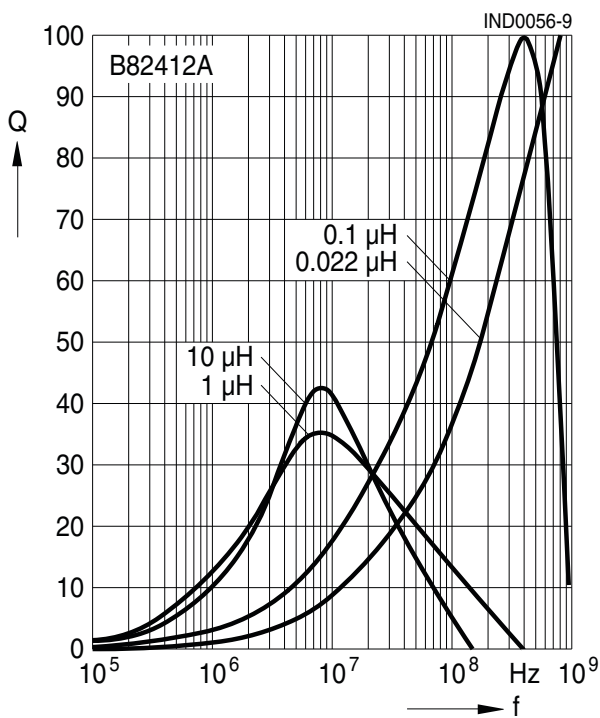
Impedance $|Z|$ versus frequency f
measured with impedance analyzer
Agilent E4991A, typical values at +20 °C



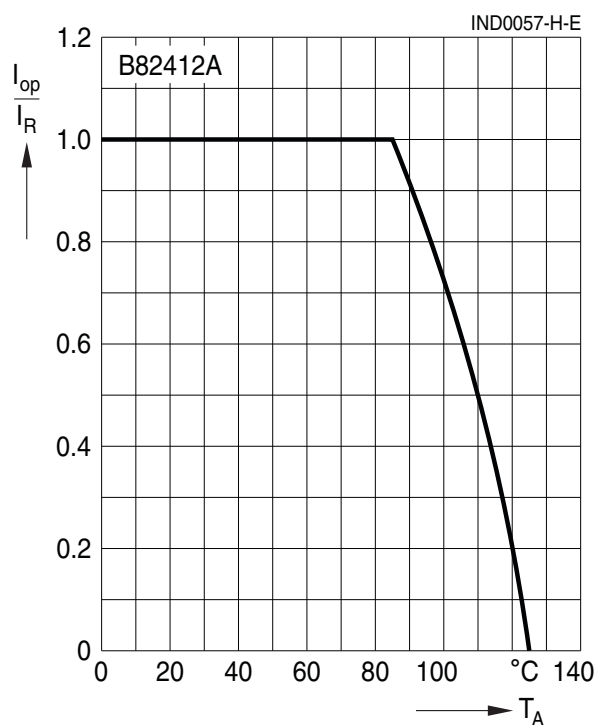
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4285A,
typical values at +20 °C



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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