



SMT inductors

SIMID series, SIMID 2220-A

Series/Type: **B82422A**
Date: **March 2008**

SIMID 2220-A

SMD

Size 2220 (EIA) or 5650 (IEC)
Rated inductance 1 μ H to 10000 μ H
Rated current 25 mA to 1800 mA



Construction

- Upright ferrite drum core
- Laser-welded winding
- Flame-retardant molding

Features

- Temperature range up to 150 °C
- Current handling capability up to 1.8 A
- High inductance ratings
- 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
- DC/DC converters
- Automotive electronics
- Telecommunications
(e.g. blocking filter for 12- and 16-kHz counting pulses)
- Consumer electronics
- 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 unit

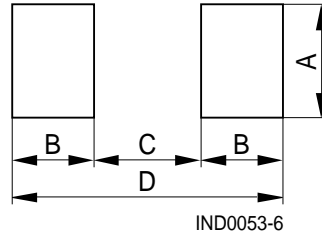
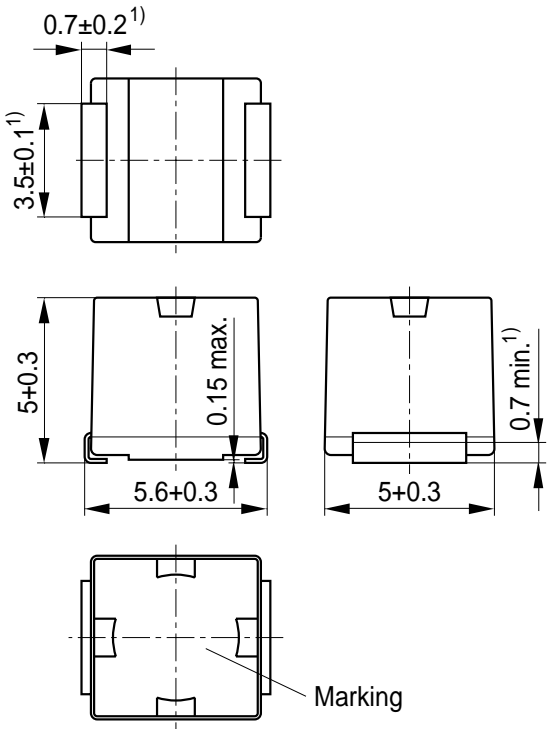
- 12-mm blister tape, wound on 330-mm \varnothing reel
- Packing unit: 1500 pcs./reel

1) Ni-barrier-plated terminals on request (B82442A*50).

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Dimensional drawing and layout recommendation



| A | B | C | D |
|-----|-----|-----|-----|
| 4.5 | 2.0 | 4.0 | 8.0 |

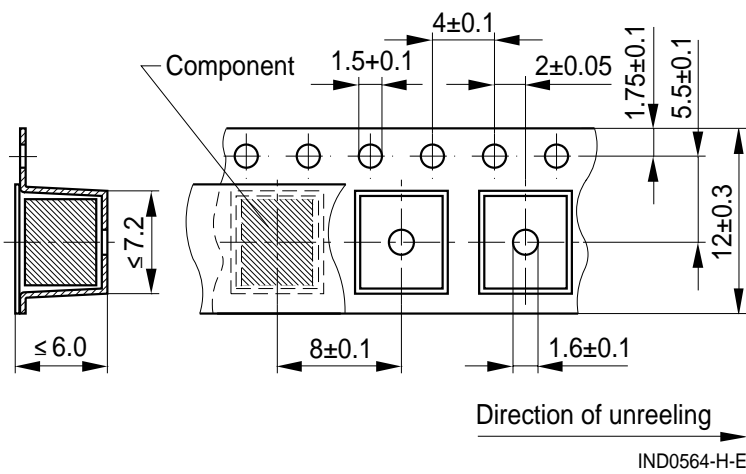
1) Soldering area

IND0088-3-E

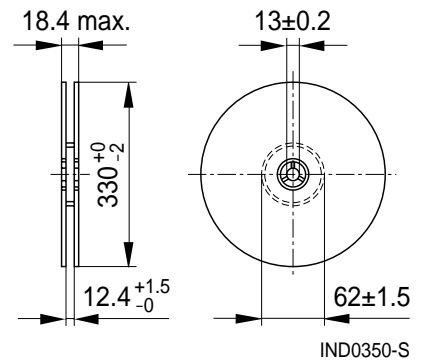
Dimensions in mm

Taping and packing

Blister tape



Reel



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 | 105 °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 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 $\geq 90\%$ (based on IEC 60068-2-58) |
| Resistance to soldering heat | 260 °C, 40 s (as referenced in JEDEC J-STD 020C) |
| Climatic category | 55/150/56 (to IEC 60068-1) |
| Storage conditions | Mounted: -55 °C ... +150 °C Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH |
| Weight | Approx. 0.4 g |

Characteristics and ordering codes

| L_R μH | Tolerance | Q_{\min} | $f_L; f_Q$ MHz | I_R mA | R_{\max} Ω | $f_{\text{res,min}}$ MHz | Ordering code ¹⁾²⁾ |
|------------------------|-------------------------|------------|-------------------|-------------|------------------------|-----------------------------|-------------------------------|
| 1.0 | $\pm 10\% \triangleq K$ | 10 | 7.96 | 1800 | 0.024 | 95 | B82442A1102K000 |
| 1.2 | | 10 | 7.96 | 1700 | 0.028 | 70 | B82442A1122K000 |
| 1.5 | | 10 | 7.96 | 1600 | 0.032 | 55 | B82442A1152K000 |
| 1.8 | | 10 | 7.96 | 1400 | 0.040 | 47 | B82442A1182K000 |
| 2.2 | | 10 | 7.96 | 1300 | 0.048 | 42 | B82442A1222K000 |
| 2.7 | | 10 | 7.96 | 1200 | 0.056 | 37 | B82442A1272K000 |
| 3.3 | | 10 | 7.96 | 1120 | 0.064 | 34 | B82442A1332K000 |
| 3.9 | | 10 | 7.96 | 1050 | 0.072 | 32 | B82442A1392K000 |
| 4.7 | | 10 | 7.96 | 950 | 0.088 | 29 | B82442A1472K000 |
| 5.6 | | 10 | 7.96 | 880 | 0.104 | 26 | B82442A1562K000 |
| 6.8 | | 10 | 7.96 | 810 | 0.120 | 24 | B82442A1682K000 |
| 8.2 | | 10 | 7.96 | 750 | 0.144 | 22 | B82442A1822K000 |
| 10 | | 10 | 2.52 | 690 | 0.168 | 19 | B82442A1103K000 |
| 12 | | 10 | 2.52 | 630 | 0.20 | 17 | B82442A1123K000 |
| 15 | | 10 | 2.52 | 580 | 0.24 | 16 | B82442A1153K000 |
| 18 | 10 | 2.52 | 530 | 0.29 | 14 | B82442A1183K000 | |
| 22 | 10 | 2.52 | 480 | 0.35 | 13 | B82442A1223K000 | |
| 27 | 10 | 2.52 | 440 | 0.42 | 11.5 | B82442A1273K000 | |
| 33 | $\pm 5\% \triangleq J$ | 10 | 2.52 | 400 | 0.50 | 10.5 | B82442A1333+000 |
| 39 | $\pm 10\% \triangleq K$ | 10 | 2.52 | 370 | 0.58 | 9.5 | B82442A1393+000 |
| 47 | | 10 | 2.52 | 340 | 0.68 | 8.5 | B82442A1473+000 |
| 56 | | 10 | 2.52 | 310 | 0.80 | 7.8 | B82442A1563+000 |
| 68 | 10 | 2.52 | 290 | 0.96 | 7.0 | B82442A1683+000 | |
| 82 | 10 | 2.52 | 270 | 1.12 | 6.4 | B82442A1823+000 | |
| 100 | | 20 | 0.796 | 250 | 1.28 | 6.0 | B82442A1104+000 |
| 120 | | 20 | 0.796 | 230 | 1.52 | 5.4 | B82442A1124+000 |
| 150 | | 20 | 0.796 | 210 | 1.76 | 4.8 | B82442A1154+000 |
| 180 | | 20 | 0.796 | 190 | 2.24 | 4.4 | B82442A1184+000 |

Closer tolerances on request.

Higher currents possible at temperatures $< T_R$ on request.

Sample kit available. Ordering code: B82442X001

For more information refer to chapter "Sample kits".

1) Replace the + by the code letter for the required inductance tolerance.

2) For Ni-barrier-plated terminals replace the last two digits "00" by "50".

Characteristics and ordering codes

| L_R μH | Tolerance | Q_{\min} | $f_L; f_Q$ MHz | I_R mA | R_{\max} Ω | $f_{\text{res,min}}$ MHz | Ordering code ¹⁾²⁾ |
|------------------------|-------------------------|------------|-------------------|-------------|------------------------|-----------------------------|-------------------------------|
| 220 | $\pm 5\% \triangleq J$ | 20 | 0.796 | 170 | 2.72 | 3.9 | B82442A1224+000 |
| 270 | $\pm 10\% \triangleq K$ | 20 | 0.796 | 155 | 3.36 | 3.6 | B82442A1274+000 |
| 330 | | 20 | 0.796 | 140 | 3.92 | 3.2 | B82442A1334+000 |
| 390 | | 20 | 0.796 | 130 | 4.64 | 2.9 | B82442A1394+000 |
| 470 | | 20 | 0.796 | 120 | 5.60 | 2.6 | B82442A1474+000 |
| 560 | | 20 | 0.796 | 110 | 6.80 | 2.4 | B82442A1564+000 |
| 680 | | 20 | 0.796 | 100 | 8.00 | 2.2 | B82442A1684+000 |
| 820 | | 20 | 0.796 | 90 | 10.4 | 2.0 | B82442A1824+000 |
| 1000 | | 30 | 0.252 | 85 | 12.0 | 1.8 | B82442A1105+000 |
| 1200 | | 30 | 0.252 | 75 | 13.6 | 1.5 | B82442A1125+000 |
| 1500 | | 30 | 0.252 | 70 | 16.0 | 1.4 | B82442A1155+000 |
| 1800 | | 30 | 0.252 | 60 | 24.0 | 1.3 | B82442A1185+000 |
| 2200 | | 30 | 0.252 | 55 | 28.0 | 1.2 | B82442A1225+000 |
| 2700 | | 30 | 0.252 | 45 | 44.0 | 1.1 | B82442A1275+000 |
| 3300 | | 30 | 0.252 | 40 | 48.0 | 1.0 | B82442A1335+000 |
| 3900 | | 30 | 0.252 | 38 | 56.0 | 1.0 | B82442A1395+000 |
| 4700 | | 30 | 0.252 | 36 | 62.4 | 0.9 | B82442A1475+000 |
| 5600 | | 30 | 0.252 | 33 | 68.0 | 0.8 | B82442A1565+000 |
| 6800 | | 30 | 0.252 | 30 | 88.0 | 0.7 | B82442A1685+000 |
| 8200 | | 30 | 0.252 | 28 | 100 | 0.6 | B82442A1825+000 |
| 10000 | | 30 | 0.0796 | 25 | 120 | 0.5 | B82442A1106+000 |

For telecommunications in blocking filter for 12- and 16-kHz counting pulses

| | | | | | | | |
|------|------------------------|---|-------|----|----|-----|-----------------|
| 980 | $\pm 3\% \triangleq A$ | 8 | 0.016 | 85 | 15 | 1.8 | B82442A1984A000 |
| 1450 | | 8 | 0.016 | 70 | 20 | 1.4 | B82442A1145A500 |
| 2600 | | 6 | 0.012 | 45 | 43 | 1.1 | B82442A1265A000 |
| 3050 | | 8 | 0.016 | 45 | 45 | 0.9 | B82442A1305A500 |
| 5330 | | 6 | 0.012 | 34 | 66 | 0.8 | B82442A1535A300 |

Closer tolerances on request.

Higher currents possible at temperatures $< T_R$ on request.

Sample kit available. Ordering code: B82442X001

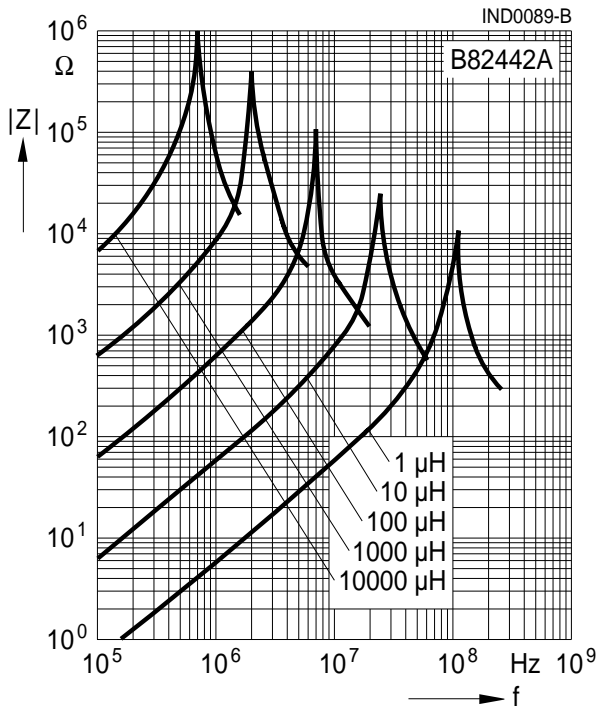
For more information refer to chapter "Sample kits".

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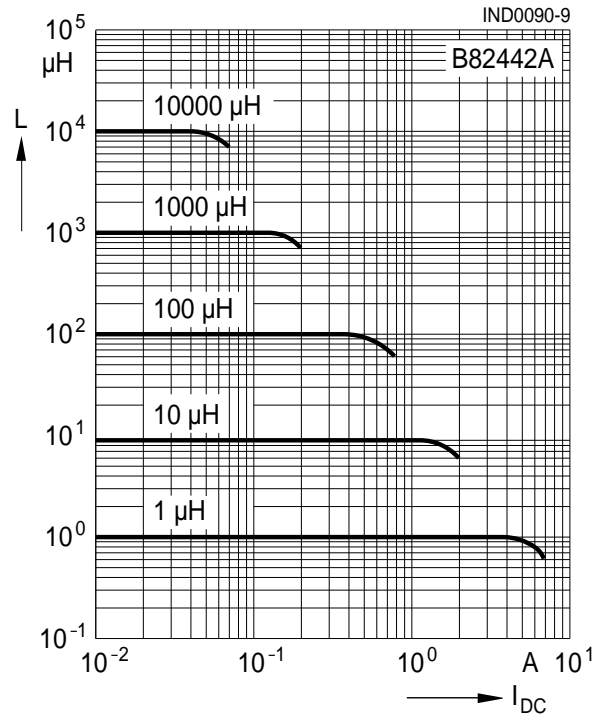
2) For Ni-barrier-plated terminals replace the last two digits "00" by "50".

SMD

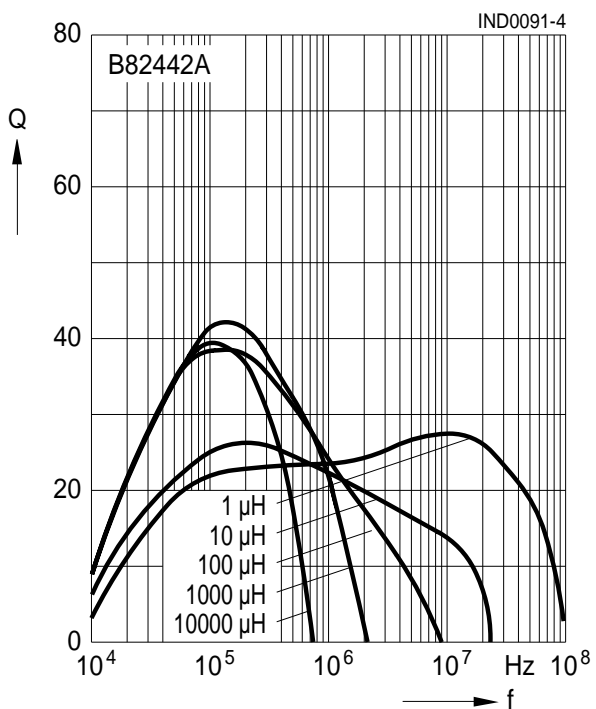
Impedance $|Z|$ versus frequency f
 measured with impedance analyzer
 Agilent 4191A/4194A, typical values at 20 °C



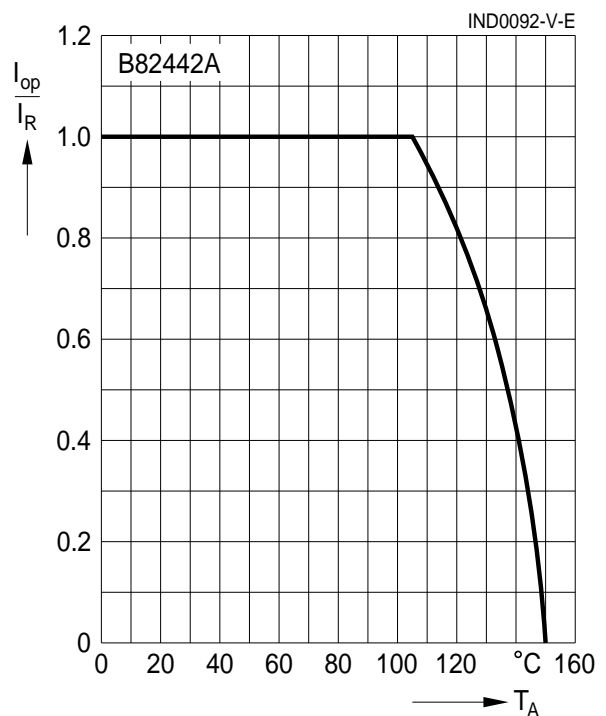
Inductance L versus DC load current I_{DC}
 measured with LCR meter Agilent 4275A,
 typical values at 20 °C



Q factor versus frequency f
 measured with impedance analyzer
 Agilent 4191A/4194A, typical values at 20 °C



Current derating I_{op}/I_R
versus ambient temperature T_A
 (rated temperature $T_R = 105$ °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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