



SMT inductors

SIMID series, SIMID 2220-A

Series/Type: B82442A

Date: October 2012

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SMD

Size 2220 (EIA) or 5650 (IEC)
Rated inductance 1 ... 10000 μ H
Rated current 25 ... 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 020D
- 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

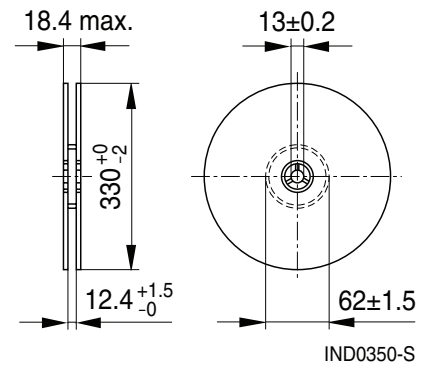
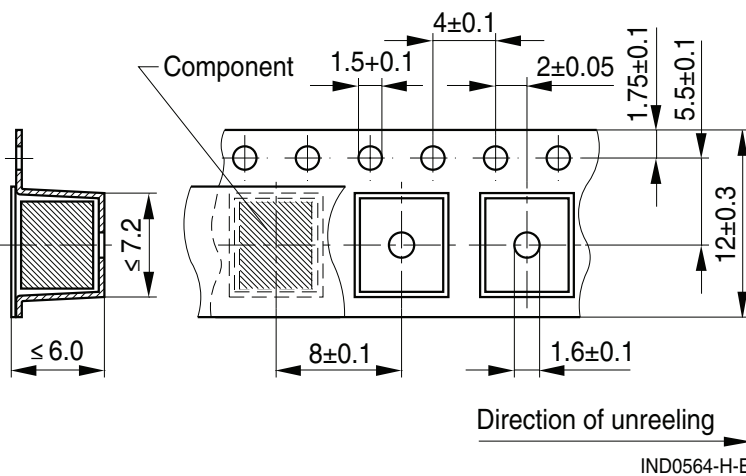
IND0088-3-E

Dimensions in mm

Taping and packing

Blister tape

Reel



Dimensions in mm

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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 | +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 impedance analyzer Agilent 4294A, +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 020D) |
| 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 |

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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 | $f_{\text{res,min}}$ 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".

SMD
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".

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

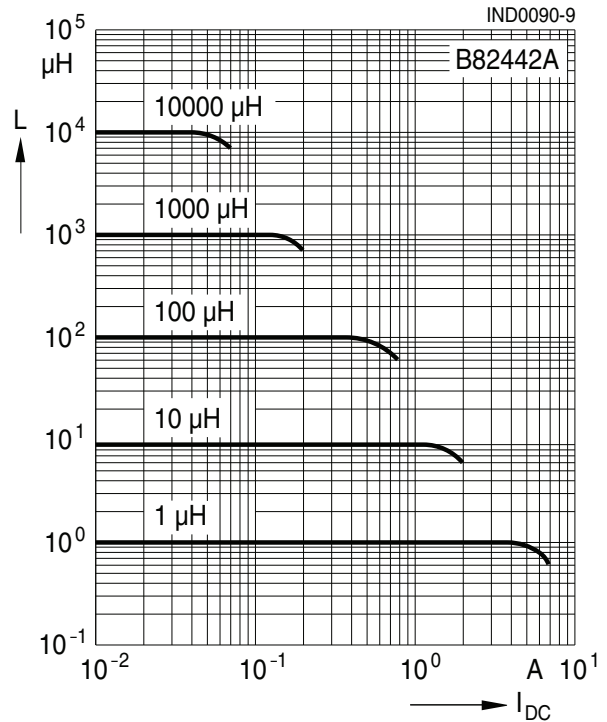
2) For Ni-barrier-plated terminals replace the last two digits "00" by "50".

SMD

Impedance |Z| versus frequency f
 measured with impedance analyzer
 Agilent 4294A/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 4294A/E4991A, 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.
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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Release 2018-10

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