



## **SMT inductors**

SIMID series, SIMID 1210-100

**Series/Type:**            **B82422A\*100**

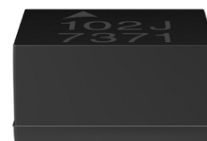
**Date:**                     June 2009

SMD

Size 1210 (EIA) or 3225 (IEC)

Rated inductance 0.0082  $\mu$ H to 100  $\mu$ H

Rated current 65 mA to 800 mA



**Construction**

- Ceramic or ferrite core
- Laser-welded winding
- Flame-retardant molding

**Features**

- Temperature range up to 145 °C
- High Q factor
- High resonance frequency
- 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
- Antenna systems
- Automotive electronics
- Telecommunications
- Consumer and data processing equipment
- Industrial electronics

**Terminals**

- Base material CuSn6
- Layer composition Cu, Ag, Sn (lead-free)<sup>1)</sup>
- 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

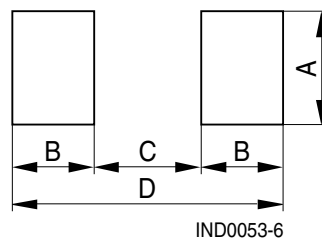
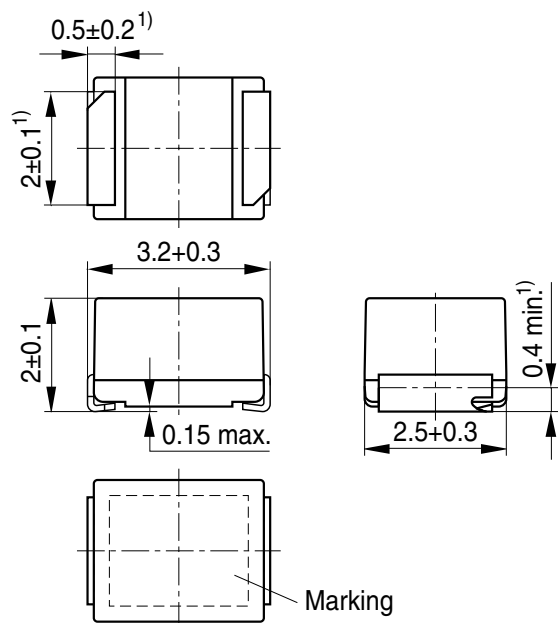
**Delivery mode and packing units**

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

<sup>1)</sup> Ni-barrier-plated terminals on request (B82422A\*150).

### SMD

## Dimensional drawing and layout recommendation



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

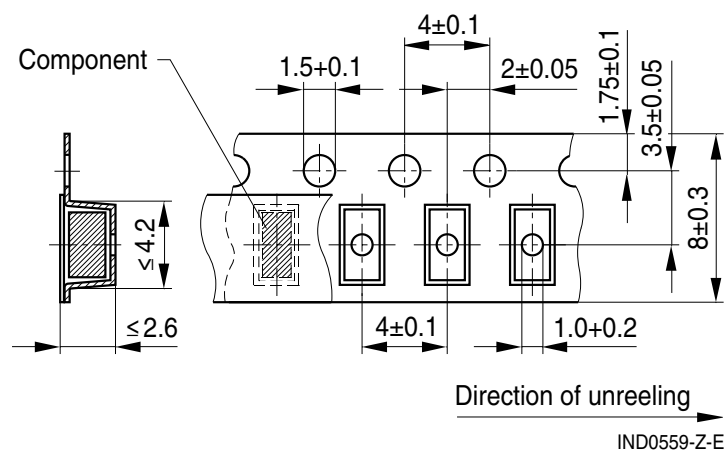
1) Soldering area

IND0073-6-E

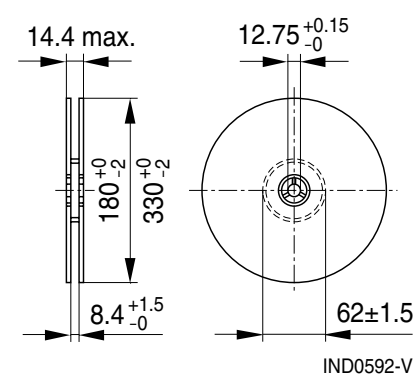
Dimensions in mm

## Taping and packing

### Blister tape



### Reel



Dimensions in mm

**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 $T_R$                        | 125 °C                                                                                                                                |
| Rated current $I_R$                            | Maximum permissible DC with inductance decrease $\Delta L/L_0 \leq 10\%$ and temperature increase of $\leq 20$ 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 $\pm$ 5) °C, (5 $\pm$ 0.3) s<br>Wetting of soldering area $\geq 90\%$<br>(based on IEC 60068-2-58)             |
| Resistance to soldering heat                   | 260 °C, 40 s (as referenced in JEDEC J-STD 020C)                                                                                      |
| Climatic category                              | 55/125/56 (to IEC 60068-1)                                                                                                            |
| Storage conditions                             | Mounted: -55 °C ... +125 °C<br>Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH                                                            |
| Weight                                         | Approx. 50 mg                                                                                                                         |

**Characteristics and ordering codes**

| $L_R$<br>$\mu H$       | Tolerance              | $f_L$<br>MHz | $Q_{min}$ | $f_Q$<br>MHz | $I_R$<br>mA | $R_{max}$<br>$\Omega$ | $f_{res, min}$<br>MHz | Ordering code <sup>1)2)</sup><br>( $\varnothing$ 180-mm reel) |
|------------------------|------------------------|--------------|-----------|--------------|-------------|-----------------------|-----------------------|---------------------------------------------------------------|
| Core material: ceramic |                        |              |           |              |             |                       |                       |                                                               |
| 0.0082                 | $\pm 5\% \triangle J$  | 10           | 20        | 100          | 800         | 0.08                  | 4000                  | B82422A3829+100                                               |
| 0.010                  | $\pm 10\% \triangle K$ | 10           | 20        | 100          | 750         | 0.09                  | 4000                  | B82422A3100+100                                               |
| 0.012                  |                        | 10           | 25        | 100          | 700         | 0.10                  | 3500                  | B82422A3120+100                                               |
| 0.015                  |                        | 10           | 27        | 100          | 640         | 0.12                  | 3000                  | B82422A3150+100                                               |
| 0.018                  |                        | 10           | 30        | 100          | 640         | 0.12                  | 2500                  | B82422A3180+100                                               |
| 0.022                  |                        | 10           | 30        | 100          | 600         | 0.14                  | 2500                  | B82422A3220+100                                               |
| 0.027                  |                        | 10           | 23        | 50           | 600         | 0.14                  | 1850                  | B82422A3270+100                                               |
| 0.033                  |                        | 10           | 20        | 50           | 540         | 0.17                  | 1700                  | B82422A3330+100                                               |
| 0.039                  |                        | 10           | 25        | 50           | 530         | 0.18                  | 1450                  | B82422A3390+100                                               |
| 0.047                  |                        | 10           | 26        | 50           | 510         | 0.19                  | 1350                  | B82422A3470+100                                               |
| 0.056                  |                        | 10           | 26        | 50           | 500         | 0.20                  | 1200                  | B82422A3560+100                                               |
| 0.068                  |                        | 10           | 27        | 50           | 480         | 0.21                  | 1150                  | B82422A3680+100                                               |
| 0.082                  |                        | 10           | 27        | 50           | 450         | 0.24                  | 1050                  | B82422A3820+100                                               |
| 0.10                   |                        | 10           | 25        | 50           | 440         | 0.26                  | 1000                  | B82422A3101+100                                               |
| 0.12                   |                        | 1            | 22        | 30           | 400         | 0.32                  | 880                   | B82422A3121+100                                               |
| 0.15                   |                        | 1            | 25        | 30           | 390         | 0.33                  | 850                   | B82422A3151+100                                               |
| 0.18                   |                        | 1            | 25        | 30           | 360         | 0.38                  | 800                   | B82422A3181+100                                               |
| 0.22                   |                        | 1            | 25        | 30           | 280         | 0.64                  | 700                   | B82422A3221+100                                               |
| 0.27                   |                        | 1            | 20        | 30           | 235         | 0.90                  | 650                   | B82422A3271+100                                               |
| 0.33                   |                        | 1            | 22        | 30           | 200         | 1.3                   | 580                   | B82422A3331+100                                               |
| 0.39                   |                        | 1            | 22        | 30           | 190         | 1.4                   | 540                   | B82422A3391+100                                               |
| 0.47                   |                        | 1            | 22        | 30           | 150         | 2.2                   | 480                   | B82422A3471+100                                               |
| 0.56                   |                        | 1            | 22        | 30           | 150         | 2.2                   | 400                   | B82422A3561+100                                               |
| 0.68                   |                        | 1            | 22        | 30           | 145         | 2.4                   | 280                   | B82422A3681+100                                               |
| 0.82                   |                        | 1            | 22        | 30           | 140         | 2.5                   | 240                   | B82422A3821+100                                               |

Closer tolerances and special versions on request.

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

Sample kit available. Ordering code: B82422X100

For more information refer to chapter "Sample kits".

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: B82422A3829K108

2) For Ni-barrier-plated terminals replace the last three digits "100" by "150" (reel 180 mm) or "158" (reel 330 mm).

# Characteristics and ordering codes

| L <sub>R</sub><br>μH   | Tolerance | f <sub>L</sub><br>MHz | Q <sub>min</sub> | f <sub>Q</sub><br>MHz | I <sub>R</sub><br>mA | R <sub>max</sub><br>Ω | f <sub>res, min</sub><br>MHz | Ordering code <sup>1)2)</sup><br>(Ø 180-mm reel) |
|------------------------|-----------|-----------------------|------------------|-----------------------|----------------------|-----------------------|------------------------------|--------------------------------------------------|
| Core material: ferrite |           |                       |                  |                       |                      |                       |                              |                                                  |
| 1.0                    | ±5% △ J   | 1                     | 20               | 7.96                  | 380                  | 0.34                  | 320                          | B82422A1102+100                                  |
| 1.2                    | ±10% △ K  | 1                     | 20               | 7.96                  | 370                  | 0.37                  | 300                          | B82422A1122+100                                  |
| 1.5                    |           | 1                     | 20               | 7.96                  | 340                  | 0.50                  | 270                          | B82422A1152+100                                  |
| 1.8                    |           | 1                     | 25               | 7.96                  | 290                  | 0.60                  | 250                          | B82422A1182+100                                  |
| 2.2                    |           | 1                     | 25               | 7.96                  | 270                  | 0.75                  | 125                          | B82422A1222+100                                  |
| 2.7                    |           | 1                     | 25               | 7.96                  | 240                  | 0.88                  | 110                          | B82422A1272+100                                  |
| 3.3                    |           | 1                     | 27               | 7.96                  | 200                  | 1.20                  | 110                          | B82422A1332+100                                  |
| 3.9                    |           | 1                     | 27               | 7.96                  | 190                  | 1.40                  | 110                          | B82422A1392+100                                  |
| 4.7                    |           | 1                     | 27               | 7.96                  | 150                  | 2.20                  | 110                          | B82422A1472+100                                  |
| 5.6                    |           | 1                     | 27               | 7.96                  | 140                  | 2.60                  | 100                          | B82422A1562+100                                  |
| 6.8                    |           | 1                     | 27               | 7.96                  | 135                  | 2.80                  | 90                           | B82422A1682+100                                  |
| 8.2                    |           | 1                     | 27               | 7.96                  | 130                  | 3.00                  | 90                           | B82422A1822+100                                  |
| 10                     |           | 1                     | 27               | 2.52                  | 180                  | 1.60                  | 25                           | B82422A1103+100                                  |
| 12                     |           | 0.1                   | 27               | 2.52                  | 175                  | 1.65                  | 23                           | B82422A1123+100                                  |
| 15                     |           | 0.1                   | 27               | 2.52                  | 165                  | 1.85                  | 20                           | B82422A1153+100                                  |
| 18                     |           | 0.1                   | 27               | 2.52                  | 155                  | 2.00                  | 17                           | B82422A1183+100                                  |
| 22                     |           | 0.1                   | 27               | 2.52                  | 140                  | 2.65                  | 16                           | B82422A1223+100                                  |
| 27                     |           | 0.1                   | 27               | 2.52                  | 120                  | 3.70                  | 15                           | B82422A1273+100                                  |
| 33                     |           | 0.1                   | 27               | 2.52                  | 105                  | 4.50                  | 13                           | B82422A1333+100                                  |
| 39                     |           | 0.1                   | 27               | 2.52                  | 90                   | 6.30                  | 12                           | B82422A1393+100                                  |
| 47                     |           | 0.1                   | 27               | 2.52                  | 85                   | 7.00                  | 11                           | B82422A1473+100                                  |
| 56                     |           | 0.1                   | 27               | 2.52                  | 85                   | 6.75                  | 9                            | B82422A1563+100                                  |
| 68                     |           | 0.1                   | 27               | 2.52                  | 80                   | 7.70                  | 9                            | B82422A1683+100                                  |
| 82                     |           | 0.1                   | 27               | 2.52                  | 70                   | 10.0                  | 8                            | B82422A1823+100                                  |
| 100                    |           | 0.1                   | 27               | 2.52                  | 65                   | 11.5                  | 7                            | B82422A1104+100                                  |

Closer tolerances and special versions on request.

Higher currents possible at temperatures <T<sub>R</sub> on request.

Sample kit available. Ordering code: B82422X100

For more information refer to chapter "Sample kits".

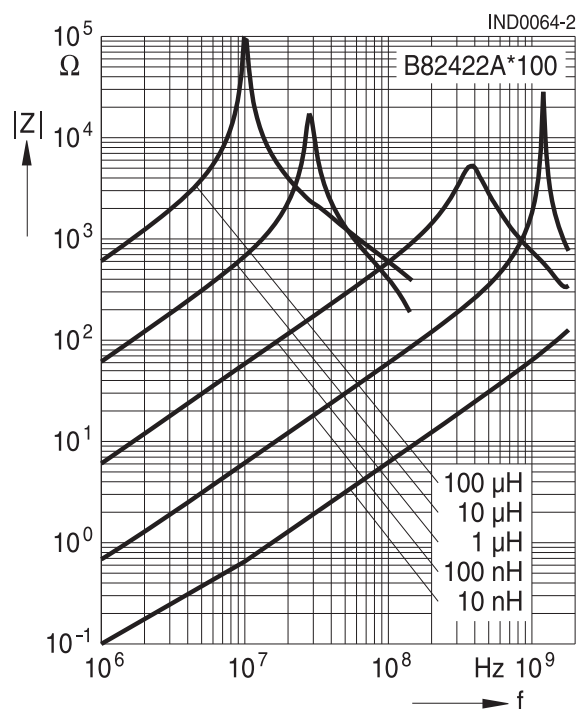
1) Replace the + by the code letter for the required inductance tolerance.

For reel size Ø 330 mm the last digit has to be an »8«. Example: B82422A1104K108

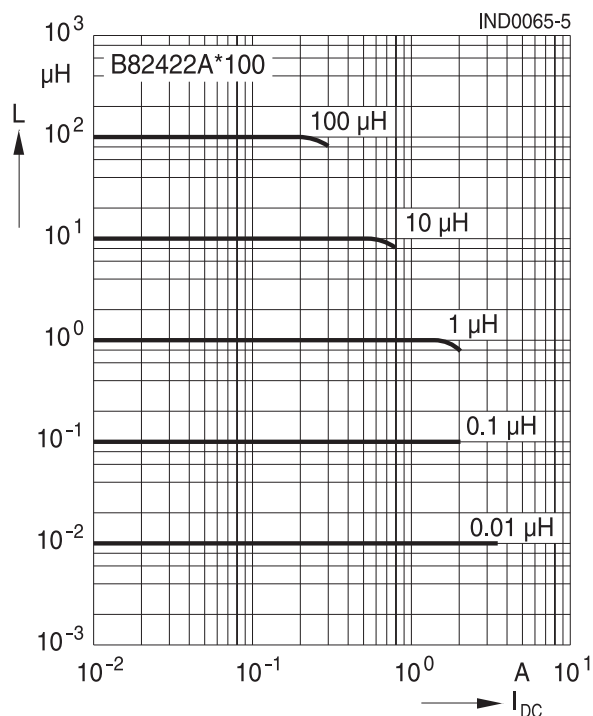
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### SMD

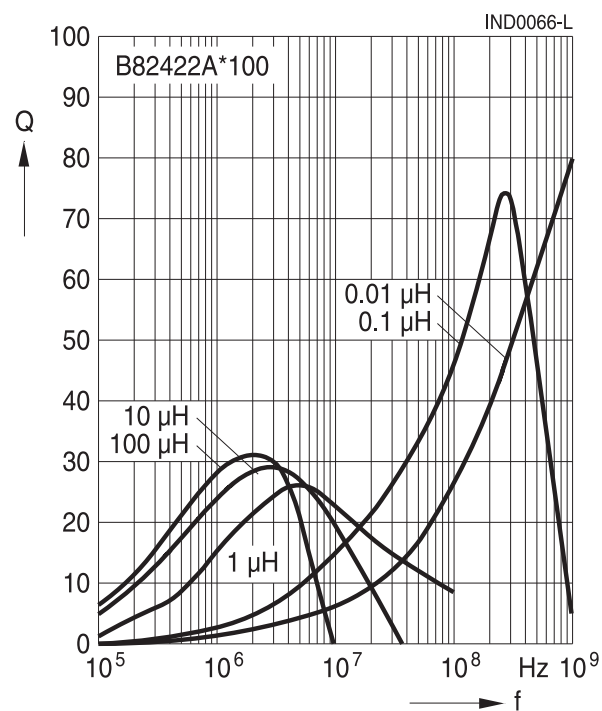
**Impedance  $|Z|$  versus frequency  $f$**   
measured with impedance analyzer  
Agilent 4291A, typical values at 20 °C



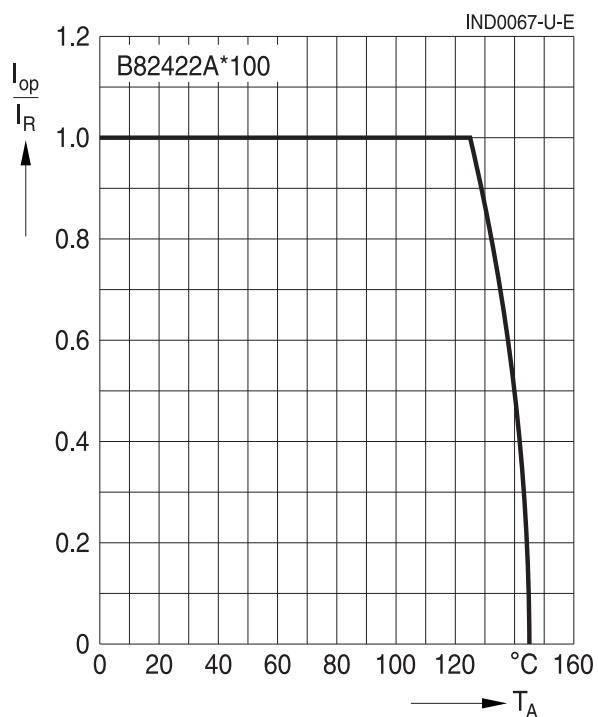
**Inductance  $L$  versus DC load current  $I_{DC}$**   
measured with LCR meter Agilent 4275A,  
typical values at 20 °C



**Q factor versus frequency  $f$**   
measured with impedance analyzer Agilent  
4194A/4291A, typical values at 20 °C



**Current derating  $I_{op}/I_R$**   
**versus ambient temperature  $T_A$**   
(rated temperature  $T_R = 125$  °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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