SMT inductors

SIMID series, SIMID 1210-H

Series/Type: B82422H
Date: August 2013
SMT inductors, SIMID series

SIMID 1210-H

Size 1210 (EIA) or 3225 (IEC)
Rated inductance 1 ... 680 μH
Rated current 61 ... 1150 mA

Construction
- Ferrite drum core
- Laser-welded winding
- Flame-retardant molding

Features
- Temperature range up to +150 °C
- Very high current handling capability
- 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, switch-mode power supplies
- Automotive electronics (e.g. single wire bus systems)
- Telecommunications
- Consumer and data processing equipment
- Industrial electronics

Terminals
- Base material CuSn6
- Layer composition Cu, Ag, Sn (lead-free)\(^1\)
- Electro-plated

Marking
- Marking on component:
  - Manufacturer and letter “H”, L value (in μH), 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 \(\oplus\) reel
- Packing units:
  - 180-mm reel: 2000 pcs./reel
  - 330-mm reel: 7500 pcs./reel

\(^1\) Ni-barrier-plated terminals on request (B82422H*50).

Please read Cautions and warnings and Important notes at the end of this document.
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**SMD**

**Dimensional drawing and layout recommendation**

![Dimensional drawing](image1)

**Taping and packing**

**Blister tape**

![Blister tape](image2)

**Reel**

![Reel](image3)

Please read *Cautions and warnings* and *Important notes* at the end of this document.
## Technical data and measuring conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated inductance $L_R$</td>
<td>Measured with impedance analyzer Agilent 4294A and test fixture Agilent 16034H at frequency $f_L$, RMS voltage 0.1 V, +20 °C</td>
</tr>
<tr>
<td>Q factor $Q_{\text{min}}$</td>
<td>Measured with impedance analyzer Agilent 4294A and test fixture Agilent 16034H at frequency $f_L$, RMS voltage 0.1 V, +20 °C</td>
</tr>
<tr>
<td>Rated temperature $T_R$</td>
<td>+105 °C</td>
</tr>
<tr>
<td>Rated current $I_R$</td>
<td>Maximum permissible DC with inductance decrease $\Delta L/L_0 \leq 10%$ and temperature increase of $\leq 45$ K at rated temperature</td>
</tr>
<tr>
<td>Self-resonance frequency $f_{\text{res,min}}$</td>
<td>Measured with impedance analyzer Agilent 4294A / E4991A at +20 °C</td>
</tr>
<tr>
<td>DC resistance $R_{\text{max}}$</td>
<td>Measured with Burster Resitomat 2329 at +20 °C</td>
</tr>
<tr>
<td>Solderability (lead-free)</td>
<td>Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (5 ±0.3) s</td>
</tr>
<tr>
<td></td>
<td>Wetting of soldering area $\geq 90%$ (based on IEC 60068-2-58)</td>
</tr>
<tr>
<td>Resistance to soldering heat</td>
<td>+260 °C, 40 s (as referenced in JEDEC J-STD 020D)</td>
</tr>
<tr>
<td>Climatic category</td>
<td>55/150/56 (to IEC 60068-1)</td>
</tr>
<tr>
<td>Storage conditions</td>
<td>Mounted: $-55$ °C ... +150 °C</td>
</tr>
<tr>
<td></td>
<td>Packaged: $-25$ °C ... +40 °C, $\leq 75%$ RH</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 50 mg</td>
</tr>
<tr>
<td>$L_R$ (µH)</td>
<td>Tolerance</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>1.0</td>
<td>$±5% \triangleq J$</td>
</tr>
<tr>
<td>1.5</td>
<td>$±10% \triangleq K$</td>
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<tr>
<td>2.2</td>
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<td>3.3</td>
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<td>4.7</td>
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<td>6.8</td>
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<td>10</td>
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<td>470</td>
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<tr>
<td>680</td>
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</tbody>
</table>

Intermediate values and closer tolerances on request.
Higher currents possible at temperatures $< T_R$ on request.

Sample kit available. Ordering code: B82422X002
For more information refer to chapter "Sample kits".

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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: B82422H1102M008
2) For Ni-barrier-plated terminals replace the last two digits "00" by "50" (reel 180 mm) or "58" (reel 330 mm).
Impedance $|Z|$ versus frequency $f$
measured with impedance analyzer Agilent E4991A, typical values at +20 °C

Q factor versus frequency $f$
measured with impedance analyzer Agilent 4294A, typical values at +20 °C

Inductance $L$ versus DC load current $I_{DC}$
measured with LCR meter Agilent 4285A, 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.
Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.

2. We also point out that in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.

3. The warnings, cautions and product-specific notes must be observed.

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6. Unless otherwise agreed in individual contracts, all orders are subject to our General Terms and Conditions of Supply.

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