SMT power inductors

Size 7.3 × 7.3 × 3.5 (mm)

Series/Type: B82472G4
Date: June 2012
SMT power inductors

Rated inductance 1 ... 1000 μH
Rated current 0.18 ... 3.45 A

Construction
- Ferrite core
- Magnetically shielded
- Winding: enamel copper wire
- Winding soldered to terminals

Features
- Temperature range up to +125 °C
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications
- Filtering of supply voltages
- Coupling/decoupling
- DC/DC converters
- Industrial electronics
- Consumer electronics

Terminals
- Base material CuSn6P
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking
- Marking on component:
  L value (μH, coded),
  manufacturing date (YWWD)
- Minimum data on reel:
  Manufacturer, ordering code, L value,
  quantity, date of packing

Delivery mode and packing unit
- 16-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 1000 pcs./reel
SMT power inductors  
B8247G4
Size 7.3 x 7.3 x 3.5 (mm)

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Dimensional drawing and layout recommendation

Marking

1) Soldering area

Dimensions in mm
Component tolerances ±0.2 mm unless otherwise noted.

Taping and packing

Blister tape

Reel

Dimensions in mm

Please read Cautions and warnings and Important notes at the end of this document.
## SMT power inductors

**B82472G4**

**Size 7.3 x 7.3 x 3.5 (mm)**

### Technical data and measuring conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description / Measurement Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated inductance $L_R$</td>
<td>Measured with LCR meter Agilent 4284A at frequency $f_L$, 0.1 V, +20 °C</td>
</tr>
<tr>
<td>Rated temperature $T_R$</td>
<td>+85 °C</td>
</tr>
<tr>
<td>Rated current $I_R$</td>
<td>Max. permissible DC with temperature increase of $\leq 40$ K at rated temperature</td>
</tr>
<tr>
<td>Saturation current $I_{sat}$</td>
<td>Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 10%</td>
</tr>
<tr>
<td>DC resistance $R_{max}$</td>
<td>Measured at +20 °C</td>
</tr>
<tr>
<td>Solderability (lead-free)</td>
<td>Dip and look method Sn95.5Ag3.8Cu0.7: $+(245 \pm 5) °C$, $(5 \pm 0.3)$ s Wetting of soldering area $\geq 90%$ (based on IEC 60068-2-58)</td>
</tr>
<tr>
<td>Resistance to soldering heat</td>
<td>$+260$ °C, 10 s (based on IEC 60068-2-58)</td>
</tr>
<tr>
<td>Climatic category</td>
<td>55/125/56 (to IEC 60068-1)</td>
</tr>
<tr>
<td>Storage conditions</td>
<td>Mounted: $-55$ °C … +125 °C Packaged: $-25$ °C … +40 °C, $\leq 75%$ RH</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 1.5 g</td>
</tr>
</tbody>
</table>
### SMT power inductors

**B8247G4**

**Size 7.3 x 7.3 x 3.5 (mm)**

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#### Characteristics and ordering codes

<table>
<thead>
<tr>
<th>L_R (μH)</th>
<th>Tolerance</th>
<th>f_L (MHz)</th>
<th>I_R (A)</th>
<th>I_sat (A)</th>
<th>R_max (Ω)</th>
<th>Ordering code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>±20% ± M</td>
<td>0.1</td>
<td>3.45</td>
<td>2.90</td>
<td>0.018</td>
<td>B82472G4102M000</td>
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<tr>
<td>1.5</td>
<td>0.1</td>
<td>3.35</td>
<td>2.60</td>
<td>0.020</td>
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<tr>
<td>2.2</td>
<td>0.1</td>
<td>2.90</td>
<td>2.20</td>
<td>0.025</td>
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<tr>
<td>3.3</td>
<td>0.1</td>
<td>2.60</td>
<td>1.90</td>
<td>0.035</td>
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<tr>
<td>4.7</td>
<td>0.1</td>
<td>2.30</td>
<td>1.70</td>
<td>0.043</td>
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<tr>
<td>6.8</td>
<td>0.1</td>
<td>2.05</td>
<td>1.40</td>
<td>0.055</td>
<td>B82472G4682M000</td>
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<tr>
<td>10</td>
<td>0.1</td>
<td>1.70</td>
<td>1.34</td>
<td>0.080</td>
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<tr>
<td>15</td>
<td>0.1</td>
<td>1.40</td>
<td>1.10</td>
<td>0.120</td>
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<tr>
<td>22</td>
<td>0.1</td>
<td>1.10</td>
<td>0.90</td>
<td>0.200</td>
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<tr>
<td>33</td>
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<td>0.94</td>
<td>0.72</td>
<td>0.250</td>
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<tr>
<td>47</td>
<td>0.1</td>
<td>0.86</td>
<td>0.65</td>
<td>0.300</td>
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<tr>
<td>56</td>
<td>0.1</td>
<td>0.84</td>
<td>0.63</td>
<td>0.310</td>
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<tr>
<td>68</td>
<td>0.1</td>
<td>0.69</td>
<td>0.60</td>
<td>0.460</td>
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<tr>
<td>100</td>
<td>0.1</td>
<td>0.56</td>
<td>0.45</td>
<td>0.700</td>
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<tr>
<td>150</td>
<td>0.1</td>
<td>0.49</td>
<td>0.35</td>
<td>0.800</td>
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<tr>
<td>180</td>
<td>0.1</td>
<td>0.47</td>
<td>0.32</td>
<td>0.950</td>
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<tr>
<td>220</td>
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<td>0.30</td>
<td>1.100</td>
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<tr>
<td>330</td>
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<td>0.29</td>
<td>0.26</td>
<td>1.980</td>
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<tr>
<td>470</td>
<td>0.1</td>
<td>0.26</td>
<td>0.24</td>
<td>2.700</td>
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<tr>
<td>680</td>
<td>0.1</td>
<td>0.23</td>
<td>0.19</td>
<td>3.650</td>
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<tr>
<td>820</td>
<td>0.1</td>
<td>0.20</td>
<td>0.17</td>
<td>3.900</td>
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<tr>
<td>1000</td>
<td>0.1</td>
<td>0.18</td>
<td>0.13</td>
<td>4.780</td>
<td>B82472G4105M000</td>
<td></td>
</tr>
</tbody>
</table>

Sample kit available. Ordering code: B8247XX001
For more information refer to chapter “Sample kits”. 

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**Impedance \(|Z|\) versus frequency \(f\)**

Measured with impedance analyzer Agilent 4294A, typical values at +20 °C

![Impedance Graph](image1.png)

**Inductance \(L\) versus DC load current \(I_{DC}\)**

Measured with LCR meter Agilent 4275A, typical values at +20 °C

![Inductance Graph](image2.png)

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**Current derating \(I_{op}/I_{R}\)**

**versus ambient temperature \(T_A\)**

(Rated temperature \(T_R = +85 °C\))

![Current Derating Graph](image3.png)

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SMD

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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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