SMT power inductors

Size 12.3 × 12.3 × 6.0 (mm)

Series/Type: B82477G2
Date: June 2012
SMT power inductors

Size 12.3 x 12.3 x 6.0 (mm)

Rated inductance 1 ... 1000 μH
Rated current 0.4 ... 9 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
- EDP (Electronic Data Processing)
- Consumer electronics

Terminals
- Base material
  - Cu (L ≤ 10 μH), CuSn6P (L ≥ 15 μH)
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking
- Marking on component:
  - Manufacturer, 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
- 24-mm blister tape, wound on 330-mm Ø reel.
- Packing unit: 600 pcs./reel
SMT power inductors

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**SMD**

**Dimensional drawing and layout recommendation**

**Marking**

1) Soldering area

**Taping and packing**

Blister tape

**Reel**

Dimensions in mm

Please read *Cautions and warnings* and *Important notes* at the end of this document.
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**SMT power inductors**  
**B82477G2**  
**Size 12.3 x 12.3 x 6.0 (mm)**  

**SMD**

**Technical data and measuring conditions**

<table>
<thead>
<tr>
<th>Rated inductance $L_R$</th>
<th>Measured with LCR meter Agilent 4284A at frequency $f_L$, 0.1 V, +20 °C</th>
</tr>
</thead>
<tbody>
<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>DC resistance $R_{\text{max}}$</td>
<td>Measured at +20 °C</td>
</tr>
</tbody>
</table>
| Solderability (lead-free) | Dip and look method 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, 10 s (based on IEC 60068-2-58) |
| Climaticcategory | 55/125/56 (to IEC 60068-1) |
| Storage conditions | Mounted: –55 °C ... +125 °C  
  Packaged: –25 °C ... +40 °C, $\leq 75\%$ RH |
| Weight | Approx. 3.6 g |

**Characteristics and ordering codes**

<table>
<thead>
<tr>
<th>$L_R$</th>
<th>$R_{\text{max}}$</th>
<th>$I_R$</th>
<th>$f_L$</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mu H$</td>
<td>$\Omega$</td>
<td>A</td>
<td>MHz</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>1.0</td>
<td>0.009</td>
<td>9.0</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>1.3</td>
<td>0.010</td>
<td>8.7</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>2.2</td>
<td>0.014</td>
<td>7.0</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>3.3</td>
<td>0.017</td>
<td>6.0</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>4.7</td>
<td>0.020</td>
<td>5.0</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>6.8</td>
<td>0.022</td>
<td>4.4</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>7.5</td>
<td>0.023</td>
<td>4.2</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>10</td>
<td>0.025</td>
<td>4.0</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>12</td>
<td>0.027</td>
<td>3.5</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>15</td>
<td>0.030</td>
<td>3.3</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>22</td>
<td>0.036</td>
<td>2.8</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
<tr>
<td>33</td>
<td>0.057</td>
<td>2.1</td>
<td>0.001</td>
<td>±20% ± M</td>
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<tr>
<td>47</td>
<td>0.075</td>
<td>1.8</td>
<td>0.001</td>
<td>±20% ± M</td>
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<tr>
<td>68</td>
<td>0.120</td>
<td>1.5</td>
<td>0.001</td>
<td>±20% ± M</td>
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<tr>
<td>100</td>
<td>0.160</td>
<td>1.3</td>
<td>0.001</td>
<td>±20% ± M</td>
</tr>
</tbody>
</table>

$^*$

B82477G2SMT power inductors  
Size 12.3 x 12.3 x 6.0 (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>$R_{max}$ (Ω)</th>
<th>Ordering code</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>±20% ± M</td>
<td>0.001</td>
<td>1.0</td>
<td>0.23</td>
<td>B82477G2154M000</td>
</tr>
<tr>
<td>220</td>
<td></td>
<td>0.001</td>
<td>0.80</td>
<td>0.40</td>
<td>B82477G2224M000</td>
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<tr>
<td>330</td>
<td></td>
<td>0.001</td>
<td>0.68</td>
<td>0.51</td>
<td>B82477G2334M000</td>
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<tr>
<td>470</td>
<td></td>
<td>0.001</td>
<td>0.58</td>
<td>0.77</td>
<td>B82477G2474M000</td>
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<tr>
<td>680</td>
<td></td>
<td>0.001</td>
<td>0.48</td>
<td>1.20</td>
<td>B82477G2684M000</td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td>0.001</td>
<td>0.40</td>
<td>1.53</td>
<td>B82477G2105M000</td>
</tr>
</tbody>
</table>

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

Current derating $I_{op}/I_R$ versus ambient temperature $T_A$
(rated temperature $T_R = +85$ °C)

![Graph depicting the relationship between $I_{op}/I_R$ and $T_A$]
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.

Please read Cautions and warnings and Important notes at the end of this document.
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Release 2018-10