Data and signal line chokes

Common-mode chokes, ring core
4.7 … 68 mH, 200 … 700 mA, 60 °C

Series/Type: B82794C0
Date: January 2010
### Data and signal line chokes

#### B82794C0

#### Common-mode chokes, ring core

**Rated voltage** 42 V AC/80 V DC  
**Rated inductance** 4.7 mH to 68 mH  
**Rated current** 200 mA to 700 mA

#### Construction
- Current-compensated ring core double choke  
- Ferrite core  
- LCP case (UL 94 V-0)  
- Silicone potting  
- Bifilar winding

#### Features
- Suitable for reflow soldering  
- RoHS-compatible

#### Function
Suppression of asymmetrical interference coupled in on lines, whereas data signals up to some MHz can pass unaffectedly.

#### Applications
- Telecom applications  
- RF equipment

#### Terminals
- Base material CuSn6  
- Layer composition Ni, Sn  
- Hot-dipped

#### Marking
- Marking on component:  
  - Manufacturer, ordering code, inductance, graphic symbol, date of manufacture (YYWWD)  
- Minimum data on reel:  
  - Manufacturer, ordering code, L value, current, quantity, date of packing

#### Delivery mode and packing unit
- 24-mm blister tape, wound on 330-mm Ø reel  
- Packing unit: 250 pcs./reel
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SMD

Dimensional drawing and pin configuration

Layout recommendation

Taping and packing

Blister tape

Dimensions in mm

1) Soldering area

Reel

Dimensions in mm

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>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage $V_R$</td>
<td>$42 , \text{V AC (50/60 Hz) / 80 V DC}$</td>
</tr>
<tr>
<td>Rated temperature $T_R$</td>
<td>$60 , ^\circ\text{C}$</td>
</tr>
<tr>
<td>Rated current $I_R$</td>
<td>Referred to 50 Hz and rated temperature</td>
</tr>
<tr>
<td>Rated inductance $L_R$</td>
<td>Measured with Agilent 4284A at 10 kHz, 50 mV, 20 °C, Inductance is specified per winding.</td>
</tr>
<tr>
<td>Inductance tolerance</td>
<td>$-30% / +50%$ at 20 °C</td>
</tr>
<tr>
<td>Inductance decrease $\Delta L/L_0$</td>
<td>$&lt; 10%$ at DC magnetic bias with $I_R$, 20 °C</td>
</tr>
<tr>
<td>Stray inductance $L_{\text{stray,typ}}$</td>
<td>Measured with Agilent 4284A at 10 kHz, 50 mV, 20 °C, typical values</td>
</tr>
<tr>
<td>DC resistance $R_{\text{typ}}$</td>
<td>Measured at 20 °C, typical values, specified per winding</td>
</tr>
<tr>
<td>Solderability (lead-free)</td>
<td>Sn96.5Ag3.0Cu0.5: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 95%</td>
</tr>
<tr>
<td>(to IEC 60068-2-58)</td>
<td></td>
</tr>
<tr>
<td>Resistance to soldering heat</td>
<td>$(260 \pm 5) , ^\circ\text{C}, (10 \pm 1) , \text{s}$ (to IEC 60068-2-58)</td>
</tr>
<tr>
<td>Climatic category</td>
<td>40/125/56 (to IEC 60068-1)</td>
</tr>
<tr>
<td>Storage conditions (packaged)</td>
<td>$-25 , ^\circ\text{C} \ldots +40 , ^\circ\text{C}, \leq 75% \text{RH}$</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 2.7 g</td>
</tr>
</tbody>
</table>

### Characteristics and ordering codes

<table>
<thead>
<tr>
<th>$L_R$ (mH)</th>
<th>$L_{\text{stray,typ}}$ (nH)</th>
<th>$I_R$ (mA)</th>
<th>$R_{\text{typ}}$ (mΩ)</th>
<th>$V_{\text{test}}$ (V DC, 2 s)</th>
<th>Ordering code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7</td>
<td>350</td>
<td>700</td>
<td>500</td>
<td>750</td>
<td>B82794C0475N465</td>
</tr>
<tr>
<td>10</td>
<td>450</td>
<td>600</td>
<td>700</td>
<td>750</td>
<td>B82794C0106N465</td>
</tr>
<tr>
<td>28</td>
<td>800</td>
<td>400</td>
<td>1200</td>
<td>750</td>
<td>B82794C0286N465</td>
</tr>
<tr>
<td>47</td>
<td>1200</td>
<td>300</td>
<td>2800</td>
<td>750</td>
<td>B82794C0476N465</td>
</tr>
<tr>
<td>68</td>
<td>1300</td>
<td>200</td>
<td>3400</td>
<td>750</td>
<td>B82794C0686N465</td>
</tr>
</tbody>
</table>
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**SMD**

**Insertion loss α** (typical values at |Z| = 50 Ω, 20 °C)

- — asymmetrical, all branches in parallel (common mode)
- •••• symmetrical (differential mode)

\[ L_R = 4.7 \text{ mH} \]  
\[ L_R = 28 \text{ mH} \]  
\[ L_R = 10 \text{ mH} \]  
\[ L_R = 47 \text{ mH} \]

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

**Insertion loss** $\alpha$ (typical values at $|Z| = 50 \ \Omega$, $20 \ ^\circ\mathrm{C}$)

- — asymmetrical, all branches in parallel (common mode)
-  symmetrical (differential mode)

$L_R = 68 \ \text{mH}$

![Graph showing insertion loss vs frequency](image)

**Current derating** $\frac{I_{\text{op}}}{I_R}$

versus ambient temperature

![Graph showing current derating vs temperature](image)

Please read *Cautions and warnings* and *Important notes* at the end of this document.
**Recommended reflow soldering curve**

Pb-free solder material (based on JEDEC J-STD 020C)

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<table>
<thead>
<tr>
<th>$T_1$ °C</th>
<th>$T_2$ °C</th>
<th>$T_3$ °C</th>
<th>$T_4$ °C</th>
<th>$t_1$ s</th>
<th>$t_2$ s</th>
<th>$t_3$ s</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>200</td>
<td>217</td>
<td>245</td>
<td>&lt; 110</td>
<td>&lt; 90</td>
<td>&lt; 30 @ $T_4 - 5$ °C</td>
</tr>
</tbody>
</table>

Time from 25 °C to $T_4$: max 300 s
Maximal numbers of reflow cycles: 3

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