

## Power line chokes

Current-compensated ring core double chokes  
250 V AC, 0.3 ... 6 A, 0.2 ... 47 mH

**Series/Type:** B82721A/J/K

**Date:** July 2012

**Rated voltage 250 V AC**
**Rated current 0.3 ... 6 A**
**Rated inductance 0.2 ... 47 mH**
**Construction**

- Current-compensated ring core double choke
- Ferrite core with epoxy coating (UL 94 V-0)
- Polycarbonate case (UL 94 V-0)
- Polyurethane potting (UL 94 V-0)
- Sector winding


**B82721A**
**Features**

- High resonance frequency due to special winding technique
- Approx. 1% stray inductance for symmetrical interference suppression
- Suitable for wave soldering
- Design complies with EN 60938-2 (VDE 0565-2) and UL 1283
- UL<sup>1)</sup> and /or ENEC (VDE) approvals
- RoHS-compatible


**B82721J**
**Applications**

- Suppression of common-mode interferences
- Switch-mode power applications
- Electronic ballasts in lamps
- Power inverters


**B82721K**
**Terminals**

- Base material CuNi18Zn20
- Layer composition Ni, Sn
- Hot-dipped
- Pins 0.7 × 0.7 (mm)
- Lead spacing 10 × 5 (mm) or 10 × 15 (mm)

**Marking**

- Manufacturer, approval signs and/or VDE standard number, ordering code, graphic symbol, rated current, rated voltage, rated inductance, date of manufacture (YYWWDD.internal ID code)

**Delivery mode**

- Blister tray in cardboard box

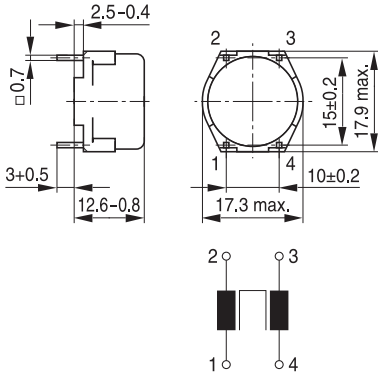
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1) UL approval with 300 V AC

**Power line chokes** **B82721A/J/K**  
**Current-compensated ring core double chokes**

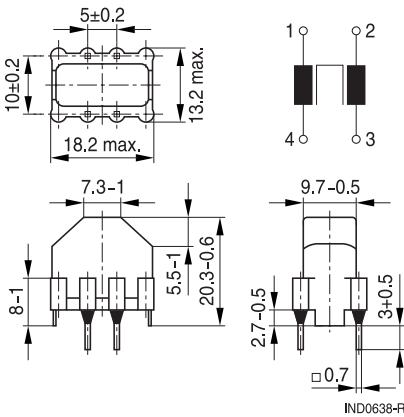
**Dimensional drawings and pin configurations**

**Horizontal version (B82721A)**

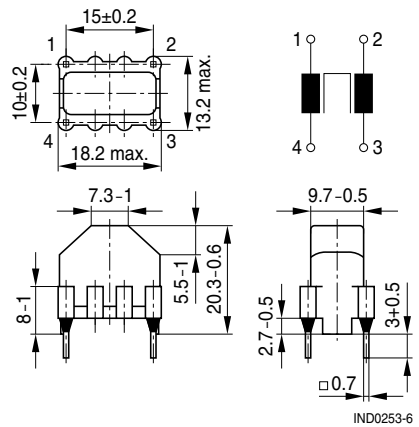


Tolerances to ISO 2768-C unless otherwise noted.  
 Dimensions in mm

**Vertical version (B82721J)**



**Vertical version (B82721K)**





Tolerances to ISO 2768-C unless otherwise noted.  
 Dimensions in mm.

**Technical data and measuring conditions**



Rated voltage $V_R$	250 V AC (50/60 Hz)
Test voltage $V_{\text{test}}$	1500 V AC, 2 s (line/line)
Rated temperature $T_R$	+40 °C / +50 °C / +60 °C / +70 °C
Rated current $I_R$	Referred to 50 Hz and rated temperature
Rated inductance $L_R$	Measured with Agilent 4284A at 0.1 mA, +20 °C Measuring frequency: $L_R \leq 1 \text{ mH} = 100 \text{ kHz}$ $L_R > 1 \text{ mH} = 10 \text{ kHz}$ Inductance is specified per winding.
Inductance tolerance	$\pm 30\%$ at +20 °C
Inductance decrease $\Delta L/L_0$	< 10% at DC magnetic bias with $I_R$ , +20 °C
Stray inductance $L_{\text{stray,typ}}$	Measured with Agilent 4284A at 5 mA, +20 °C, typical values Measuring frequency: $L_R \leq 1 \text{ mH} = 100 \text{ kHz}$ $L_R > 1 \text{ mH} = 10 \text{ kHz}$
DC resistance $R_{\text{typ}}$	Measured at +20 °C, typical values, specified per winding
Solderability (lead-free)	Sn96.5Ag3.0Cu0.5: +(245 $\pm$ 5) °C, (3 $\pm$ 0.3) s Wetting of soldering area $\geq 95\%$ (to IEC 60068-2-20, test Ta)
Resistance to soldering heat (wave soldering)	+(260 $\pm$ 5) °C, (10 $\pm$ 1) s (to IEC 60068-2-20, test Tb)
Climatic category	40/125/56 (to IEC 60068-1)
Storage conditions (packaged)	-25 °C ... +40 °C, $\leq 75\%$ RH
Weight	Approx. 5 g
Approvals	EN 60938-2, UL 1283

**Characteristics and ordering codes**

Horizontal version B82721A

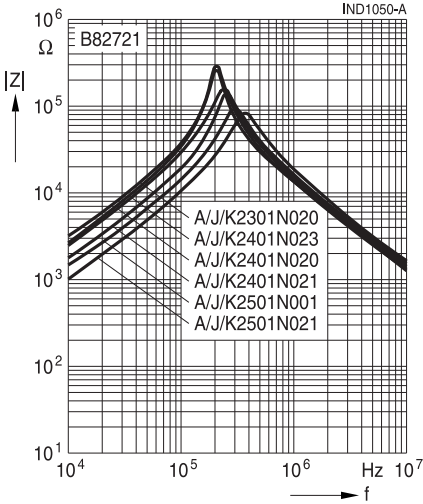
I <sub>R</sub> A	L <sub>R</sub> mH	L <sub>stray,typ</sub> μH	R <sub>typ</sub> mΩ	T <sub>R</sub> °C	Ordering code Horizontal version	Approvals	
							
0.3	47	500	2200	+50	B82721A2301N020	×	—
0.4	39	450	2000	+40	B82721A2401N020	×	×
0.4	27	300	1700	+40	B82721A2401N021	×	×
0.4	39	450	2000	+70	B82721A2401N023	—	—
0.5	27	290	1100	+60	B82721A2501N022	×	×
0.5	18	250	1400	+40	B82721A2501N001	×	×
0.5	15	160	800	+40	B82721A2501N021	×	×
0.6	15	170	700	+40	B82721A2601N020	×	×
0.7	10	110	550	+60	B82721A2701N020	×	×
1.2	6.8	80	280	+40	B82721A2122N020	×	×
1.5	3.3	37	180	+40	B82721A2152N001	×	×
2.0	1.0	13	80	+40	B82721A2202N001	×	×
2.5	0.6	8	60	+40	B82721A2252N020	×	×
2.6	0.4	6	55	+40	B82721A2262N001	×	×
3.6	0.4	6	35	+40	B82721A2362N001	×	×
4.0	0.7	7	30	+40	B82721A2402N020	×	×
6.0	0.2	2.5	15	+40	B82721A2602N020	×	×

Vertical versions B82721J, B82721K

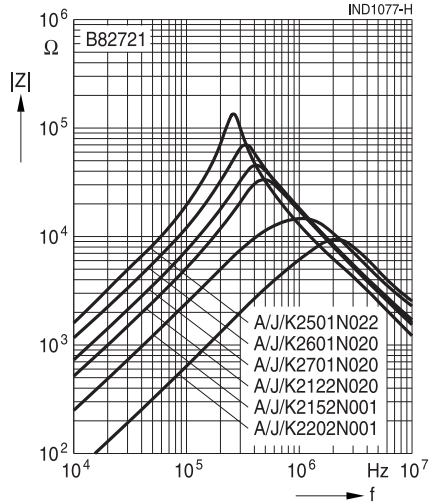
I <sub>R</sub> A	L <sub>R</sub> mH	L <sub>stray,typ</sub> μH	R <sub>typ</sub> mΩ	T <sub>R</sub> °C	Ordering code		Approvals	
					Vertical version (J)	Vertical version (K)		
0.3	47	500	2200	+50	B82721J2301N020	B82721K2301N020	×	×
0.4	39	450	2000	+40	B82721J2401N020	B82721K2401N020	×	×
0.4	27	300	1700	+40	B82721J2401N021	B82721K2401N021	×	×
0.4	39	450	2000	+70	B82721J2401N023	B82721K2401N023	–	–
0.5	27	290	1100	+60	B82721J2501N022	B82721K2501N022	×	×
0.5	18	250	1400	+40	B82721J2501N001	B82721K2501N001	×	×
0.5	15	160	800	+40	B82721J2501N021	B82721K2501N021	×	×
0.6	15	170	700	+40	B82721J2601N020	B82721K2601N020	×	×
0.7	10	110	550	+60	B82721J2701N020	B82721K2701N020	×	×
1.2	6.8	80	280	+40	B82721J2122N020	B82721K2122N020	×	×
1.5	3.3	37	180	+40	B82721J2152N001	B82721K2152N001	×	×
2.0	1.0	13	80	+40	B82721J2202N001	B82721K2202N001	×	×
2.5	0.6	8	60	+40	B82721J2252N020	B82721K2252N020	×	×
2.6	0.4	6	55	+40	B82721J2262N001	B82721K2262N001	×	×
3.6	0.4	6	35	+40	–	B82721K2362N001	×	×
4.0	0.7	7	30	+40	–	B82721K2402N020	×	×
6.0	0.2	2.5	15	+40	–	B82721K2602N020	×	×

× = approval granted

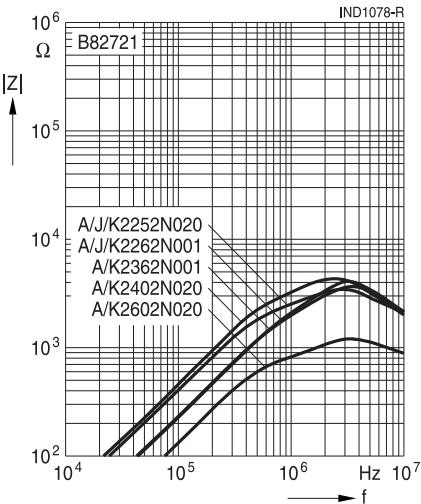
**Impedance  $|Z|$  versus frequency  $f$**   
 measured with windings in parallel at +20 °C,  
 typical values



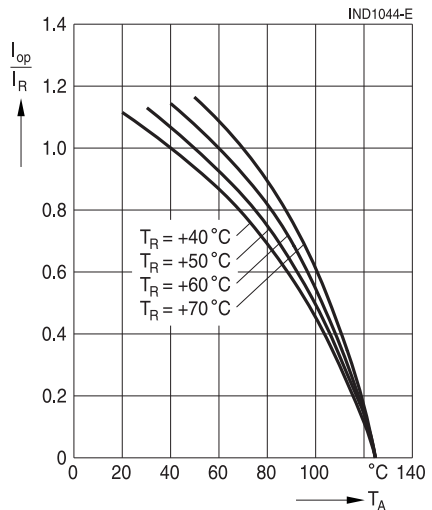
**Impedance  $|Z|$  versus frequency  $f$**   
 measured with windings in parallel at +20 °C,  
 typical values



**Impedance  $|Z|$  versus frequency  $f$**   
 measured with windings in parallel at +20 °C,  
 typical values



**Current derating  $I_{op}/I_R$**   
 versus temperature  $T_A$



## Cautions and warnings

### Current-compensated ring core double chokes

- 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. Derating must be applied in case the ambient temperature in the application exceeds the rated temperature of the component.
  - Ensure the operation temperature (which is the sum of the ambient temperature and the temperature rise caused by losses / self-heating) of the component in the application does not exceed the maximum value specified in the climatic category.
  - 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

### Current-compensated ring core double chokes

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, EPCOS is 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 an EPCOS 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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