

Data and signal line chokes

Common-mode chokes, ring core
0.005 ... 4.7 mH, 0.4 ... 1.2 A, 60 °C

Series/Type: **B82796C0/S0**

Date: October 2008

Rated voltage 42 V AC/80 V DC
Rated inductance 0.005 mH to 4.7 mH
Rated current 0.4 A to 1.2 A

Construction

- Current-compensated ring core double choke
- Ferrite core
- Polycarbonate case (UL 94 V-0)
- Silicone potting
- Bifilar winding (B82796C0)
- Sector winding (B82796S0)



Features

- Suitable for automatic insertion
- Suitable for wave soldering
- RoHS-compatible

Applications

- B82796C0:
Suppression of asymmetrical interference coupled in on lines, whereas data signals up to some MHz can pass unaffectedly.
- B82796S0:
Suppression of asymmetrical and symmetrical interference coupled in on lines. The high-frequency portions of the symmetrical data signal are decreased so far that EMC problems can be significantly reduced.

Terminals

- Base material CuNi18Zn20
- Layer composition Ni, Sn
- Hot-dipped
- Lead spacing 6 × 2.5 (mm)

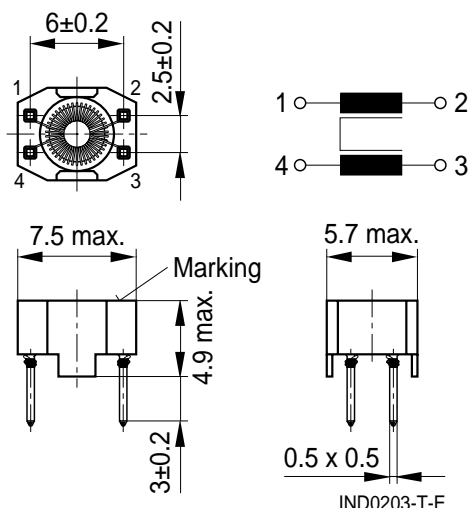
Marking

Manufacturer, ordering code (short form),
 date of manufacture (YWWD)

Packing

Cardboard box

Dimensional drawing and pin configuration



Tolerances to ISO 2768-M
unless otherwise noted.

Dimensions in mm

Technical data and measuring conditions

Rated voltage V_R	42 V AC (50/60 Hz) / 80 V DC
Rated temperature T_R	60 °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	−30%/+50% 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: $L_R \leq 11 \mu\text{H} = 1 \text{ MHz}$ $L_R > 11 \mu\text{H} = 100 \text{ kHz}$
DC resistance R_{typ}	Measured at 20 °C, typical values, specified per winding
Solderability (lead-free)	Sn96.5Ag3.0Cu0.5: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 95% (to IEC 60068-2-20, test Ta)
Resistance to soldering heat (wave soldering)	(260 ±5) °C, (10 ±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, ≤ 75% RH
Weight	Approx. 0.25 g

Characteristics and ordering codes

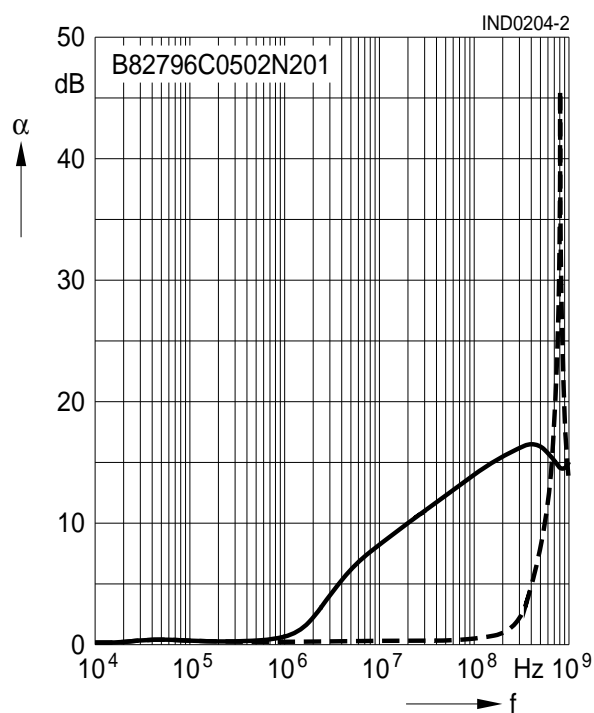
L_R mH	$L_{\text{stray, typ}}$ nH	$I_R^{1)}$ mA	R_{typ} m Ω	V_{test} V DC, 2 s	Ordering code
0.005	40	1200	60	250	B82796C0502N201
0.011	50	800	70	250	B82796C0113N201
0.025	1400	800	100	250	B82796S0253N201
0.051	2000	800	140	250	B82796S0513N201
0.470	120	700	170	750	B82796C0474N215
1.0	100	700	160	750	B82796C0105N265
2.2	150	500	420	750	B82796C0225N265
4.7	200	400	520	750	B82796C0475N265

Insertion loss α (typical values at $|Z| = 50 \Omega$, 20 °C)

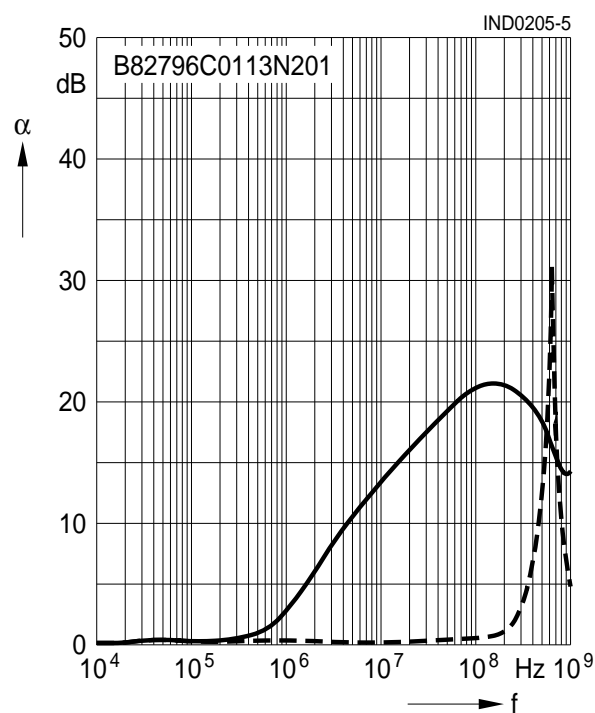
———— asymmetrical, all branches in parallel (common mode)

- - - - - symmetrical (differential mode)

$L_R = 0.005 \text{ mH}$



$L_R = 0.011 \text{ mH}$



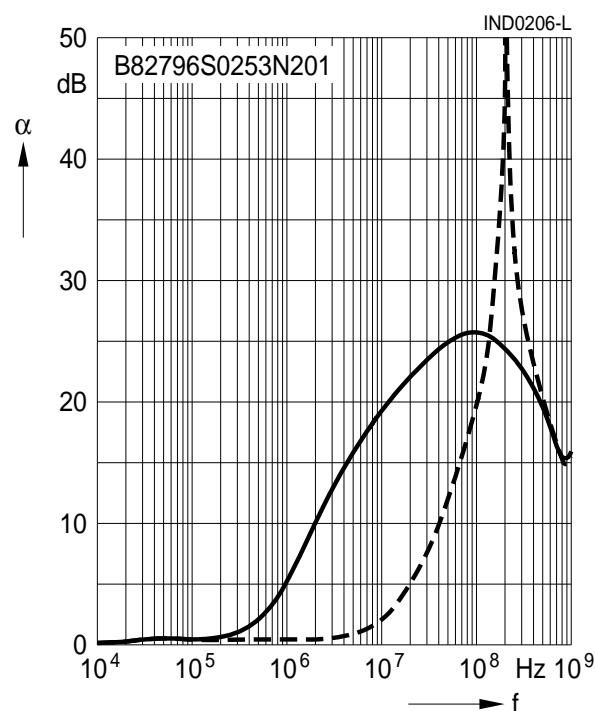
1) Types with higher rated current on request.

Insertion loss α (typical values at $|Z| = 50 \Omega$, 20°C)

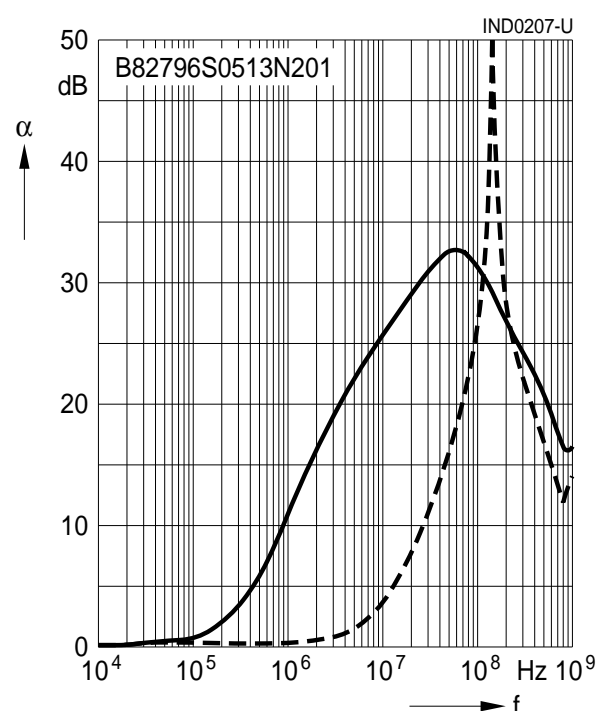
———— asymmetrical, all branches in parallel (common mode)

- - - - - symmetrical (differential mode)

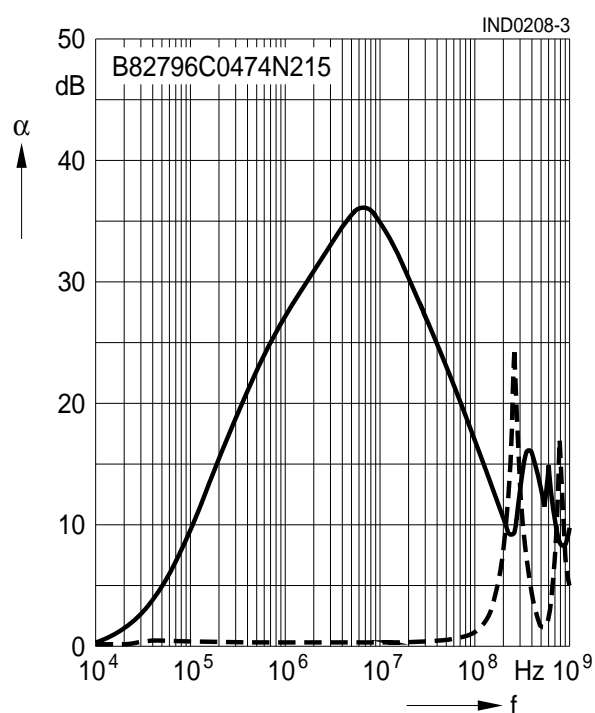
$L_R = 0.025 \text{ mH}$



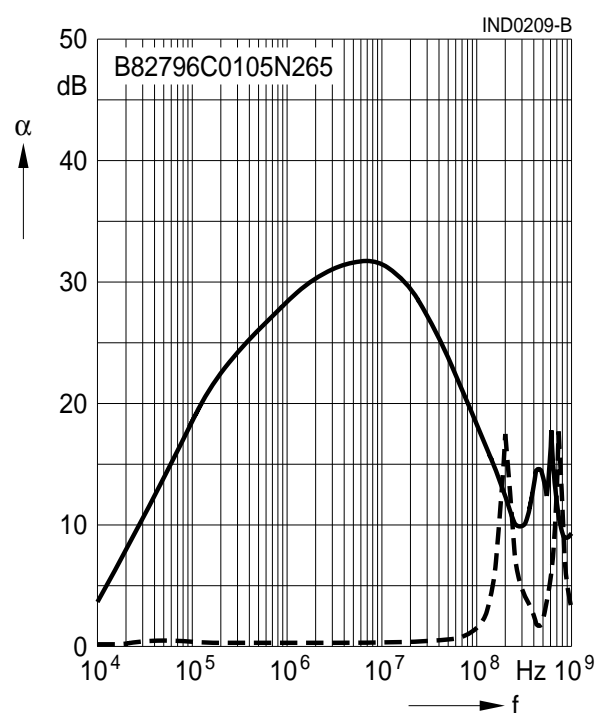
$L_R = 0.051 \text{ mH}$



$L_R = 0.47 \text{ mH}$



$L_R = 1.0 \text{ mH}$

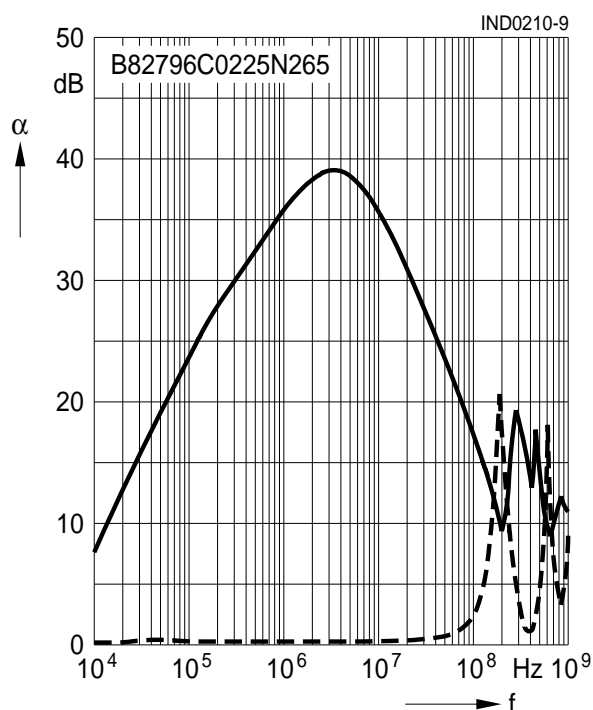


Insertion loss α (typical values at $|Z| = 50 \Omega$, 20°C)

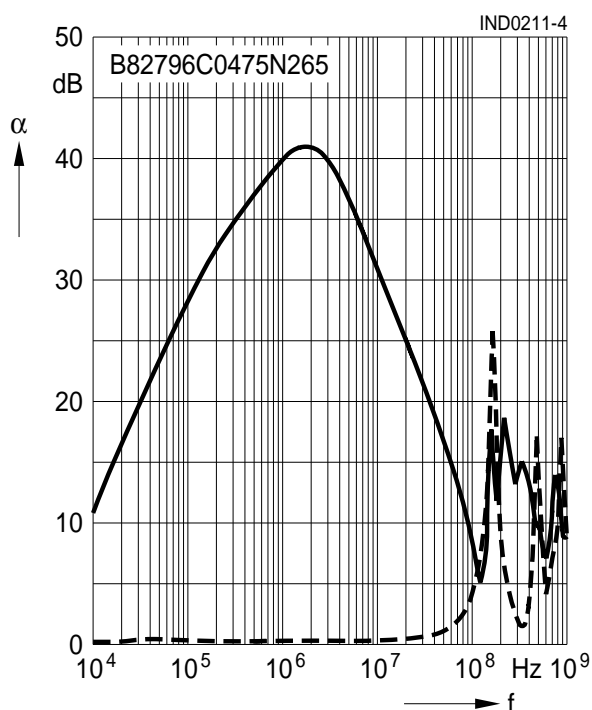
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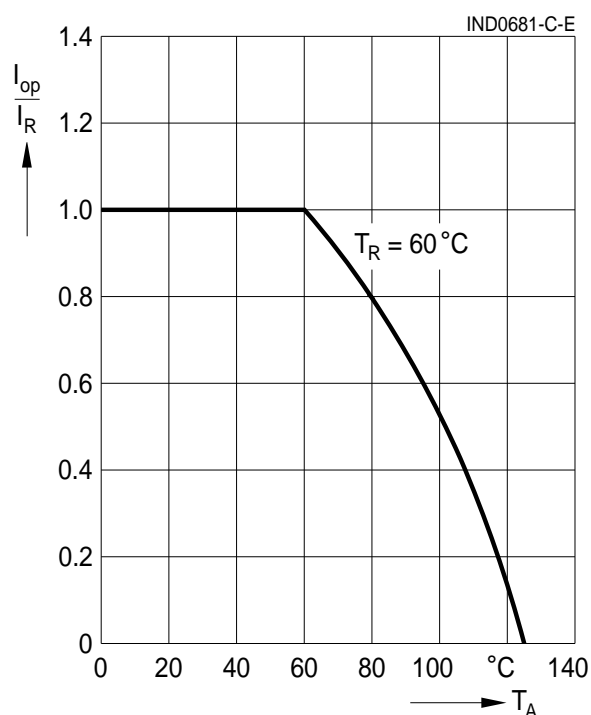
$L_R = 2.2 \text{ mH}$



$L_R = 4.7 \text{ mH}$



Current derating I_{op}/I_R
versus ambient temperature



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.
- 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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