



Data and signal line chokes

SIMDAD 1210, common-mode chokes
42 V AC/80 V DC, 11 ... 100 μ H, 150 ... 300 mA

Series/Type: B82788C0/S0

Date: October 2008, March 2009

SIMDAD 1210, common-mode chokes

Preliminary data

SMD

Rated voltage 42 V AC/80 V DC
Rated inductance 11 μ H to 100 μ H
Rated current 150 mA to 300 mA



Construction

- Current-compensated double choke
- Ferrite I core
- Winding: Enamel copper wire
- Winding welded to terminals
- Bifilar winding (B82788C0...)
- Sector winding (B82788S0...)

Features

- Temperature range up to 150 °C
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020C
- RoHS-compatible

Function

- B82788C0:
Suppression of asymmetrical interference coupled in on lines, whereas data signals up to some MHz can pass unaffectedly.
- B82788S0:
Suppression of asymmetrical (by L_R) and symmetrical interference (by L_{stray}) coupled in on lines. The high-frequency portions of the symmetrical data signal are decreased so far that EMC problems can be significantly reduced.

Applications

- Automotive applications (CAN and FlexRay bus)
- Industrial field bus systems
- Line cards for telecommunications

Terminals

Tinned terminals (B82788*H052):

- Base material CuSn6
- Layer composition Ni, Sn
- Lead-free tinned

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Marking

- Marking on component:
Manufacturer, bifilar or sector winding (coded),
L value (in nH),
date of manufacture (YWWD), two last digits of production order
- Minimum data on reel:
Manufacturer, ordering code,
L value (in nH), quantity, date of packing

Delivery mode and packing unit

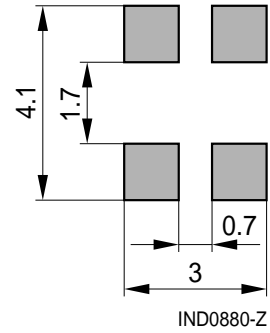
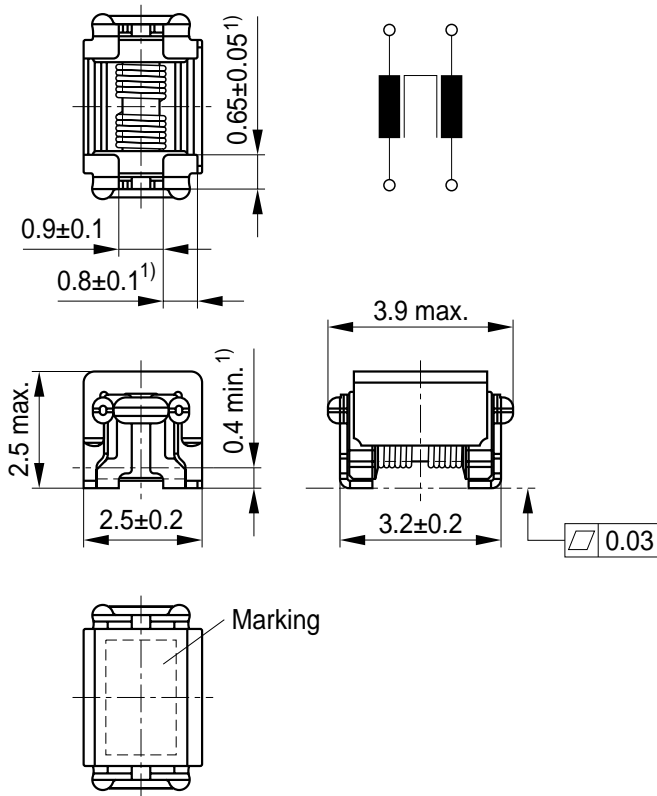
- 12-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 5000 pcs./reel

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Dimensional drawing and layout recommendation



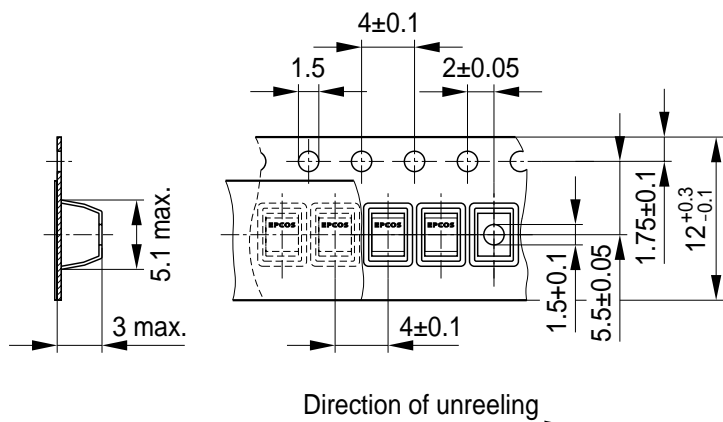
¹⁾ Soldering area

IND0758-W-E

Dimensions in mm

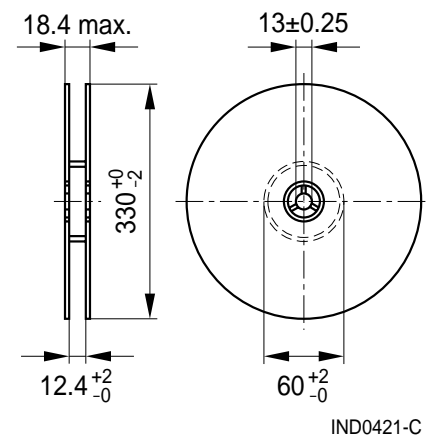
Taping and packing

Blister tape



IND0881-C-E

Reel



IND0421-C

Dimensions in mm

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Technical data and measuring conditions

Rated voltage V_R	42 V AC (50/60 Hz) / 80 V DC
Test voltage V_{test}	250 V DC, 2 s (line/line)
Rated temperature T_R	110 °C
Rated current I_R	Referred to 50 Hz and rated temperature
Rated inductance L_R	Measured with Agilent 4284A at 100 kHz, 0.1 mA, 20 °C Inductance is specified per winding.
Inductance tolerance	-30/+50% at 20 °C
Inductance decrease $\Delta L/L_0$	Common mode < 10% at DC magnetic bias with I_R , 20 °C
Stray inductance $L_{stray,typ}$	Measured with Agilent 4284A at 100 kHz, 5 mA, 20 °C, typical values
DC resistance R_{max}	Measured at 20 °C, specified per winding
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: (245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	260 °C, 40 s as referenced in JEDEC J-STD 020C
Climatic category	-55/+150/56 (to IEC 60068-1)
Storage conditions	Mounted: -55 °C ... +150 °C, Packaged: -25 °C ... +40 °C, ≤ 75% RH
Weight	Approx. 0.06 g

Characteristics and ordering codes

L_R μH	L_{stray} μH	I_R mA	R_{max} mΩ	Ordering code Tinned terminals
11	0.10	300	250	B82788C0113H052
22	0.10	250	450	B82788C0223H052
22	2.50	250	450	B82788S0223H052
51	0.15	150	1400	B82788C0513H052
100	0.20	150	1500	B82788C0104H052

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Preliminary data

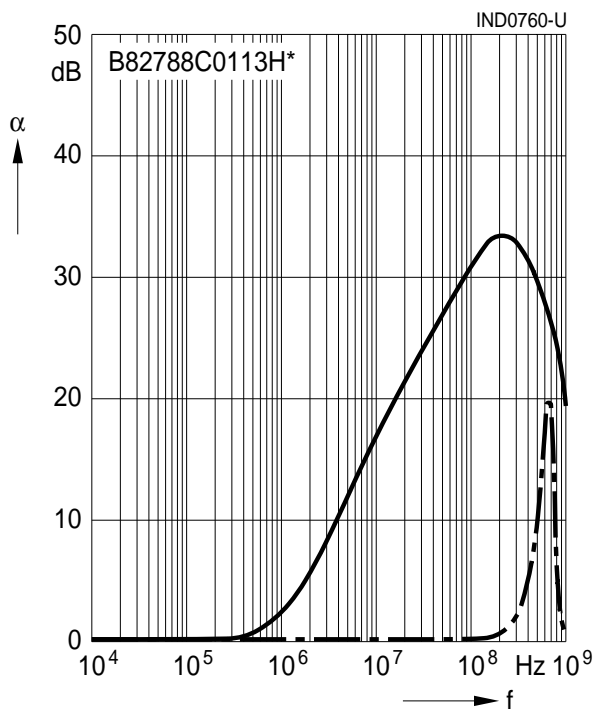
SMD

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

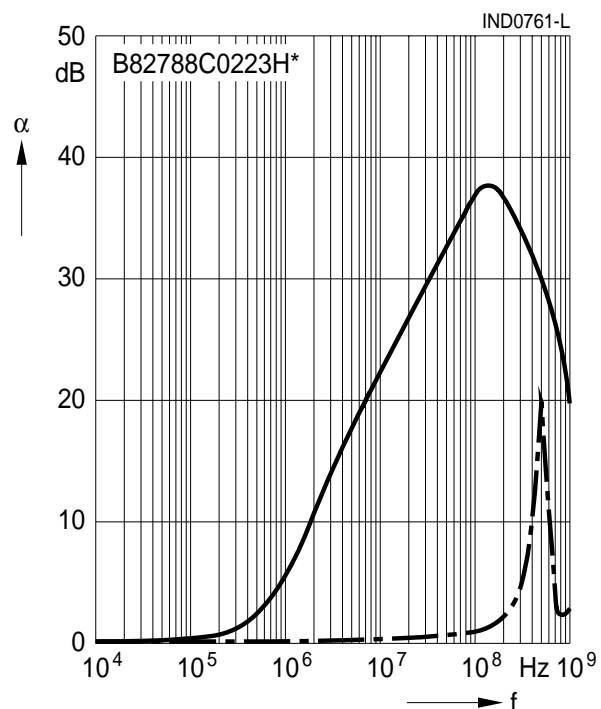
———— asymmetrical, both lines in parallel (common mode)

- - - - - symmetrical, both lines in series (differential mode)

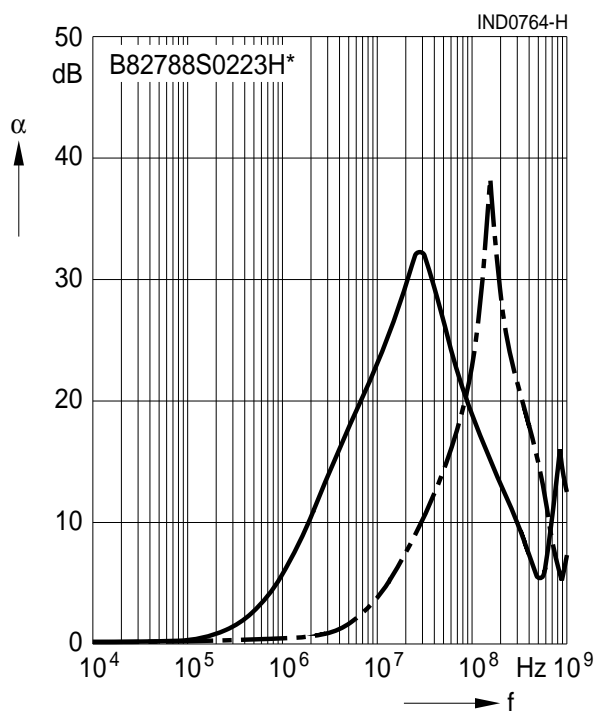
$L_R = 11 \mu\text{H}$



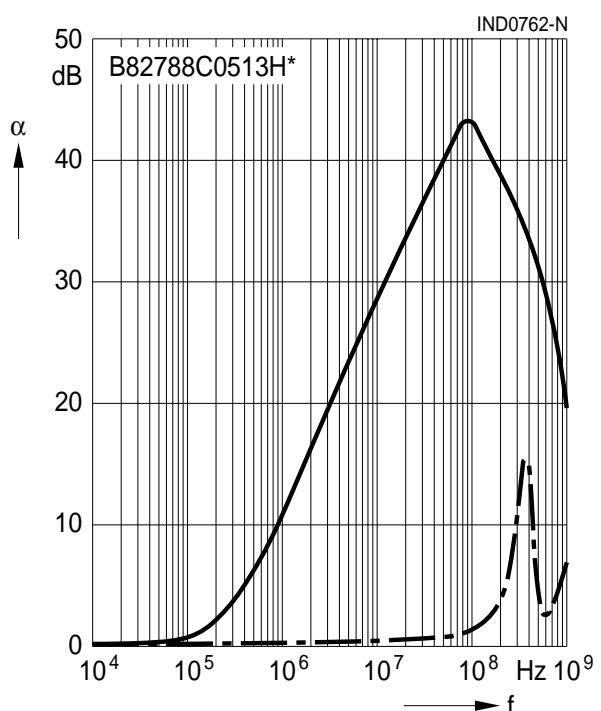
$L_R = 22 \mu\text{H}$ (low L_{stray})



$L_R = 22 \mu\text{H}$ (high L_{stray})



$L_R = 51 \mu\text{H}$



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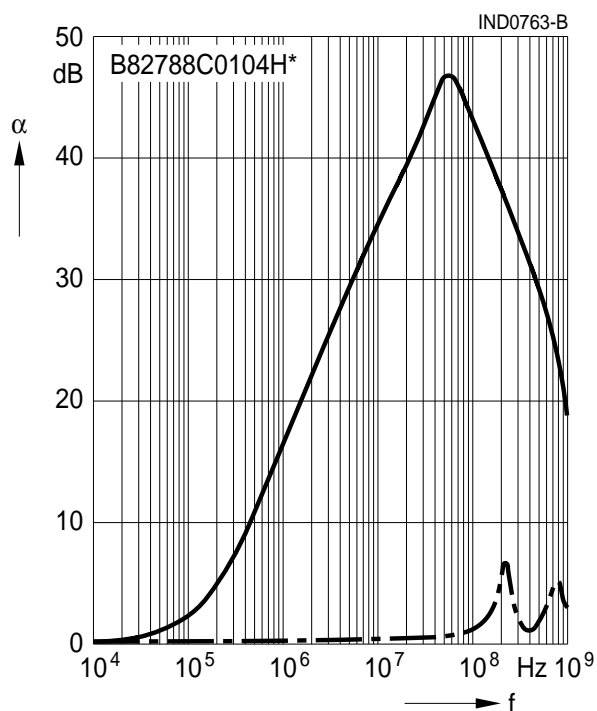
SMD

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

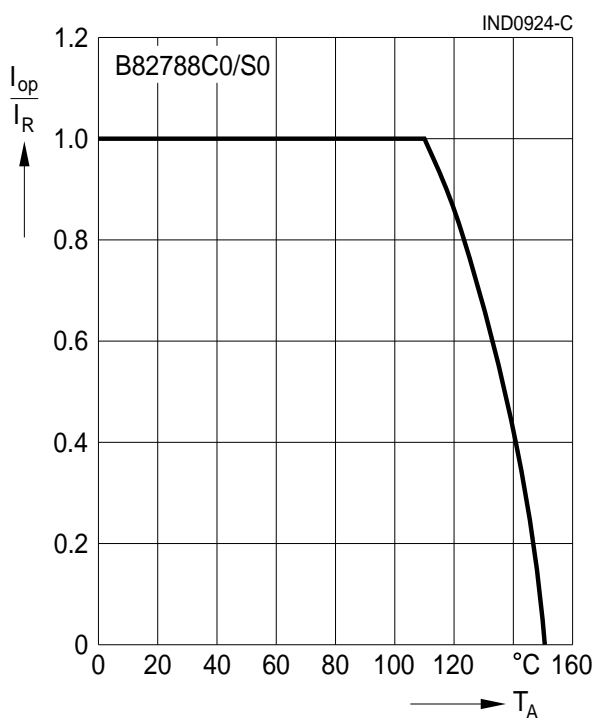
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$L_R = 100 \mu\text{H}$



Current derating I_{op}/I_R versus ambient temperature (rated temperature $T_R = 110 \text{ °C}$)



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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