



SMT inductors

SIMID series, SIMID 0603-C

Series/Type: **B82496C**
Date: October 2008

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SMD

Size 0603 (EIA) and/or 1608 (IEC)
Rated inductance 1 nH to 220 nH
Rated current 110 mA to 1800 mA



Construction

- Copper-plated ceramic core
- Laser-cut winding, epoxy-coated

Features

- Temperature range up to 150 °C
- High resonance frequency
- Close inductance tolerance
- Free of polarization effect
- High mechanical stability
- Qualified to AEC-Q200
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020C
- RoHS-compatible

Applications

Resonant circuits, impedance matching for

- Multimedia
- Car access systems
- Wireless communication systems
- TPMS (Tire Pressure Monitoring System)
- GPS (Global Positioning System)
- Digital cameras

Terminals

- Base material Al₂O₃ ceramic with Cu layer
- Layer composition Ni, Sn (lead-free)
- Electro-plated

Marking

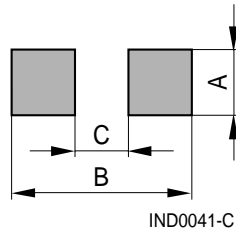
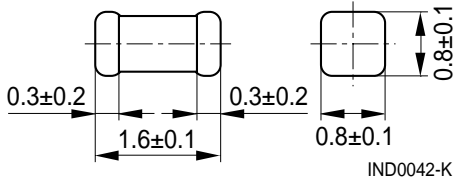
- No marking on component
- Minimum data on reel:
Manufacturer, ordering code, L value,
quantity, date of packing

Delivery mode and packing unit

- 8-mm cardboard tape, wound on 180-mm Ø reel
- Bulk case on request
- Packing unit: 4000 pcs./reel

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Dimensional drawing and layout recommendation

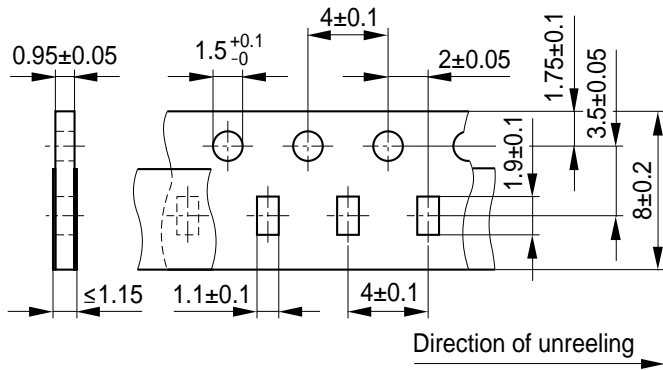


A	B	C
0.8 ±0.1	2.3 ±0.3	0.9 ±0.1

Dimensions in mm

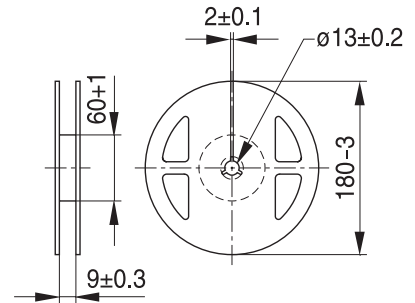
Taping and packing

Cardboard tape



Dimensions in mm

Reel



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Technical data and measuring conditions

Rated inductance L_R	Measured with impedance analyzer Agilent 4291A and test fixture Agilent 16196A at frequency f_L , 0.1 V, 20 °C
Q factor Q_{min} , Q_{typ}	Measured with impedance analyzer Agilent 4291A and test fixture Agilent 16196A, Q_{min} measured at frequency f_Q , 20 °C
Rated temperature T_R	125 °C
Rated current I_R	Maximum permissible DC with a temperature increase of ≤ 15 K at rated temperature
Self-resonance frequency $f_{res,min}$	Measured with network analyzer Agilent 8720D, 20 °C
DC resistance R_{max}	Measured at 20 °C
Solderability (lead-free)	Sn95.5Ag3.8Cu0.7: (245 \pm 5) °C, (5 \pm 0.3) s Wetting of soldering area $\geq 95\%$ (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, $\leq 75\%$ RH
Weight	Approx. 4 mg

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Characteristics and ordering codes

L_R nH	Tolerance	Q_{min}	Q_{typ} (at 800 MHz)	$f_L; f_Q$ MHz	I_R mA	R_{max} Ω	$f_{res,min}$ GHz	Ordering code ¹⁾²⁾ (reel packing)
1.0	$\pm 0.3 \text{ nH} \triangleq A$ $\pm 0.2 \text{ nH} \triangleq Z$	7	60	100	1800	0.02	16	B82496C3109+000
1.2		8	60	100	1800	0.025	15	B82496C3129+000
1.5		8	50	100	1500	0.03	13	B82496C3159+000
1.8		12	50	100	1500	0.033	12	B82496C3189+000
2.2		14	50	100	1500	0.035	10	B82496C3229+000
2.7		14	40	100	1400	0.04	10	B82496C3279+000
3.3		14	40	100	1200	0.06	9	B82496C3339+000
3.9	$\pm 5\% \triangleq J$ $\pm 0.2 \text{ nH} \triangleq Z$	14	40	100	1100	0.065	8	B82496C3399+000
4.7		14	40	100	800	0.10	7	B82496C3479+000
5.6		14	40	100	700	0.15	6	B82496C3569+000
6.8		14	40	100	700	0.15	6	B82496C3689+000
8.2		14	40	100	650	0.18	6	B82496C3829+000
10		$\pm 5\% \triangleq J$ $\pm 2\% \triangleq G$	14	40	100	600	0.20	5
12	14		40	100	450	0.35	5	B82496C3120+000
15	14		40	100	420	0.40	4.5	B82496C3150+000
18	14		40	100	400	0.45	4.0	B82496C3180+000
22	14		40	100	380	0.50	4.0	B82496C3220+000
27	14		35	100	360	0.55	3.0	B82496C3270+000
33	14		35	100	350	0.60	3.0	B82496C3330+000
39	14		35	100	300	0.80	2.5	B82496C3390+000
47	14		35	100	270	0.95	2.5	B82496C3470+000
56	14		35	100	250	1.2	2.5	B82496C3560+000
68	14		35	100	230	1.3	2.0	B82496C3680+000
82	14		35	100	220	1.5	2.0	B82496C3820+000
100	14		30	100	200	1.8	1.8	B82496C3101+000
120	5		30	25.2	160	3.0	1.8	B82496C3121+000
150	5	30	25.2	130	5.0	1.6	B82496C3151+000	
180	4	25	25.2	120	6.0	1.4	B82496C3181+000	
220	4	25	25.2	110	7.0	1.3	B82496C3221+000	

Special versions on request.

Higher currents possible at temperatures $< T_R$ on request.

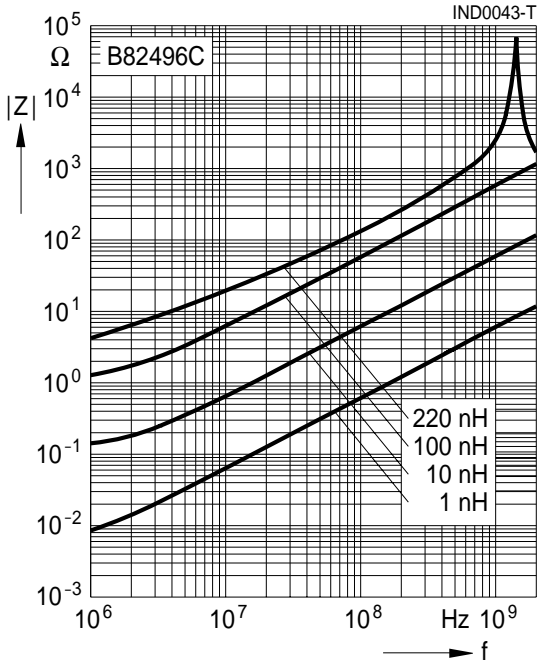
Sample kit available (see also chapter "Sample kits". Ordering code: B82496X001

1) Replace the + by the code letter for the required inductance tolerance.

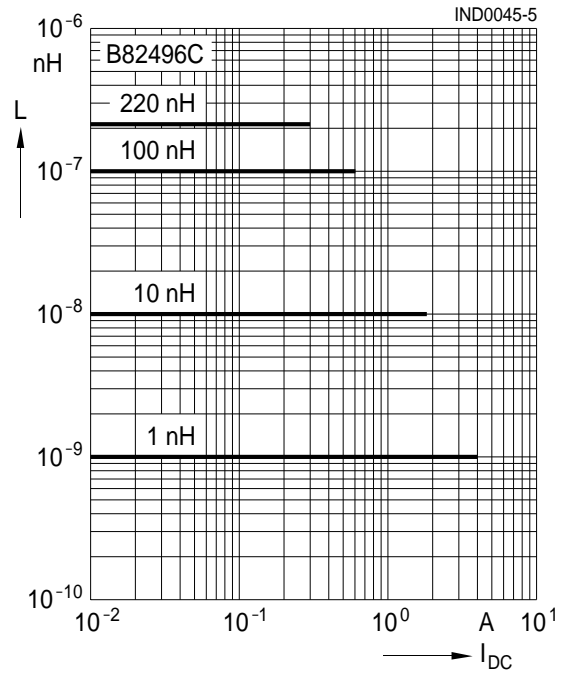
2) For bulk case the last digit has to be a »1«. Example: B82496C3109A001

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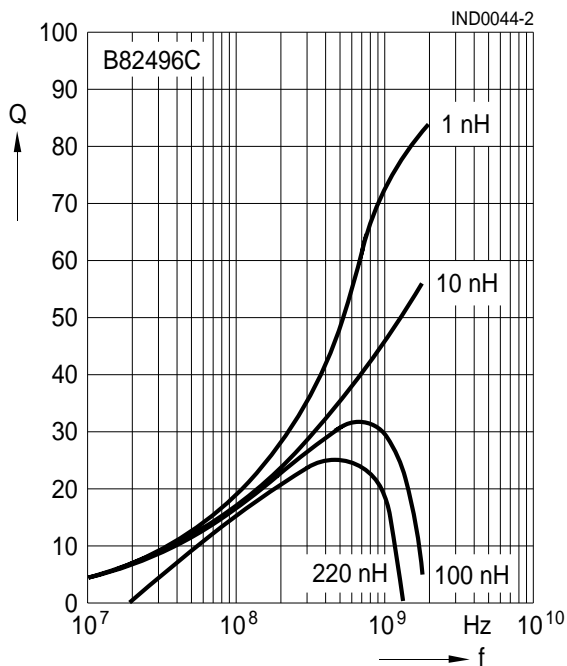
Impedance $|Z|$ versus frequency f
 measured with impedance analyzer
 Agilent 4291A/16196A, typical values at 20 °C



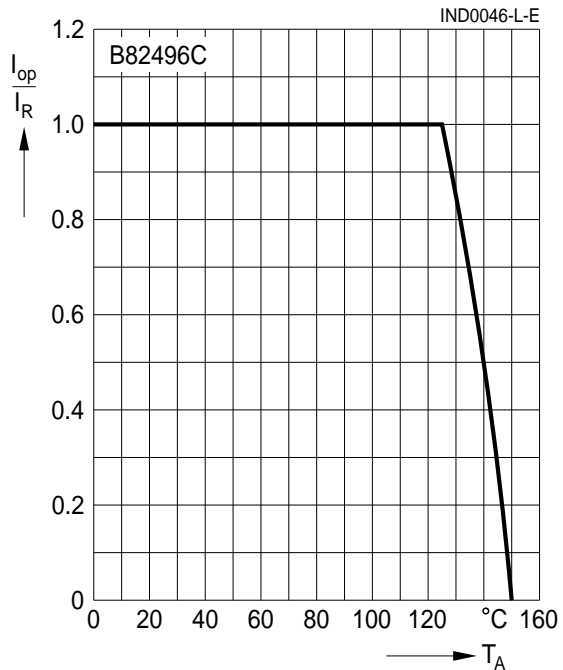
Inductance L versus DC load current I_{DC}
 measured with LCR meter Agilent 4275A,
 typical values at 20 °C



Q factor versus frequency f
 measured with impedance analyzer
 Agilent 4291A/16196A, typical values at 20 °C



Current derating I_{op}/I_R
versus ambient temperature T_A
 (rated temperature $T_R = 125$ °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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