



## **SMT inductors**

SIMID series, SIMID 0603-C

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

**SIMID 0603-C**

**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 Al<sub>2</sub>O<sub>3</sub> 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

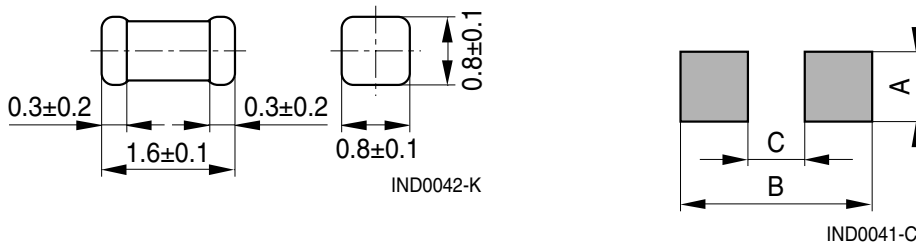
**Delivery mode and packing unit**

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

**SIMID 0603-C**

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**Dimensional drawing and layout recommendation**

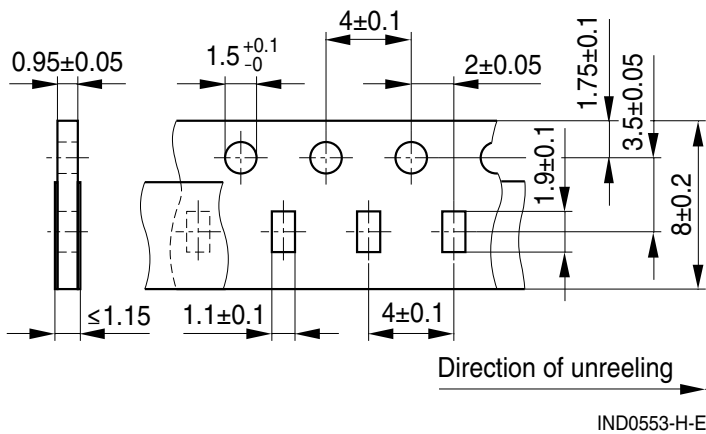


A	B	C
0.8 ± 0.1	2.3 ± 0.3	0.9 ± 0.1

Dimensions in mm

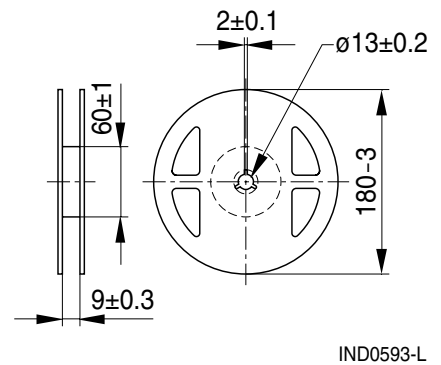
**Taping and packing**

Cardboard tape



Dimensions in mm

Reel



**SMD**
**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 $Q_{\min}$ , $Q_{\text{typ}}$	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 $\leq 15$ K at rated temperature
Self-resonance frequency $f_{\text{res},\min}$	Measured with network analyzer Agilent 8720D, 20 °C
DC resistance $R_{\text{max}}$	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

**Characteristics and ordering codes**

$L_R$ nH	Tolerance	$Q_{\min}$	$Q_{\text{typ}}$ (at 800 MHz)	$f_L; f_Q$ MHz	$I_R$ mA	$R_{\max}$ $\Omega$	$f_{\text{res,min}}$ GHz	Ordering code <sup>1)2)</sup> (reel packing)
1.0	$\pm 0.3 \text{ nH} \triangleq \text{A}$	7	60	100	1800	0.02	16	B82496C3109+000
1.2	$\pm 0.2 \text{ nH} \triangleq \text{Z}$	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		$\pm 5\% \triangleq \text{J}$ $\pm 0.2 \text{ nH} \triangleq \text{Z}$	14	40	100	1100	0.065	8
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	$\pm 5\% \triangleq \text{J}$ $\pm 2\% \triangleq \text{G}$		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.

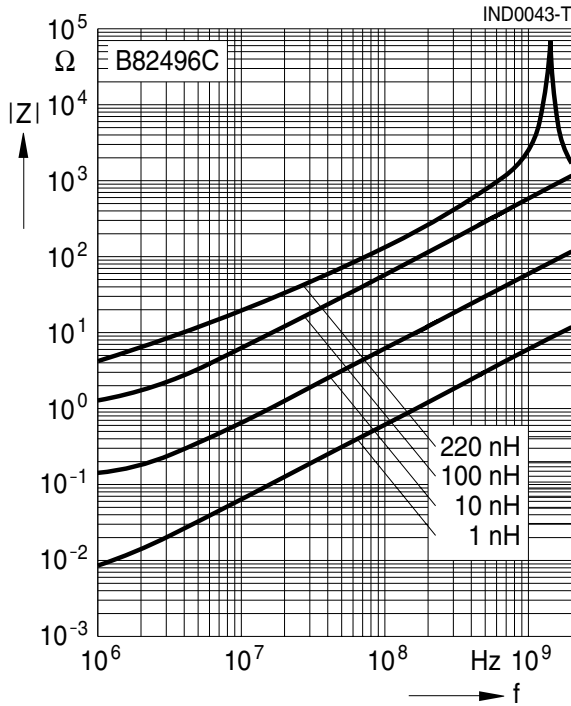
Sample kit available (see also chapter "Sample kits". Ordering code: B82496X001

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

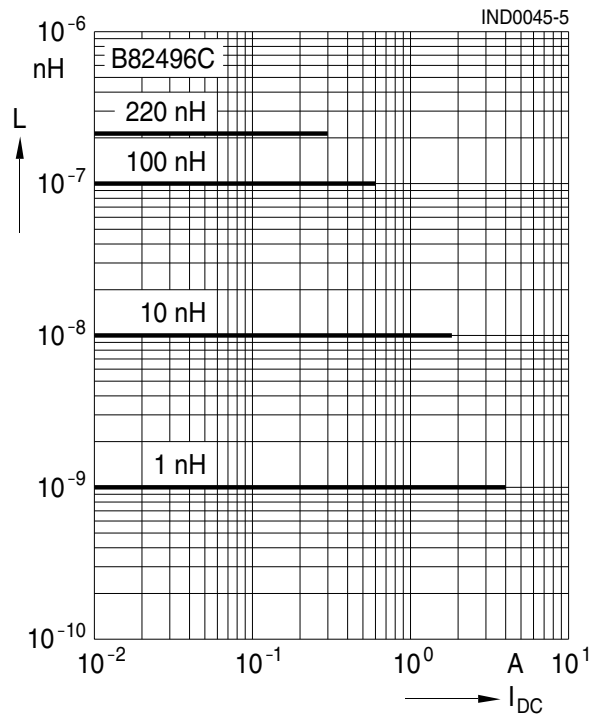
2) For bulk case the last digit has to be a »1«. Example: B82496C3109A001

**SMD**

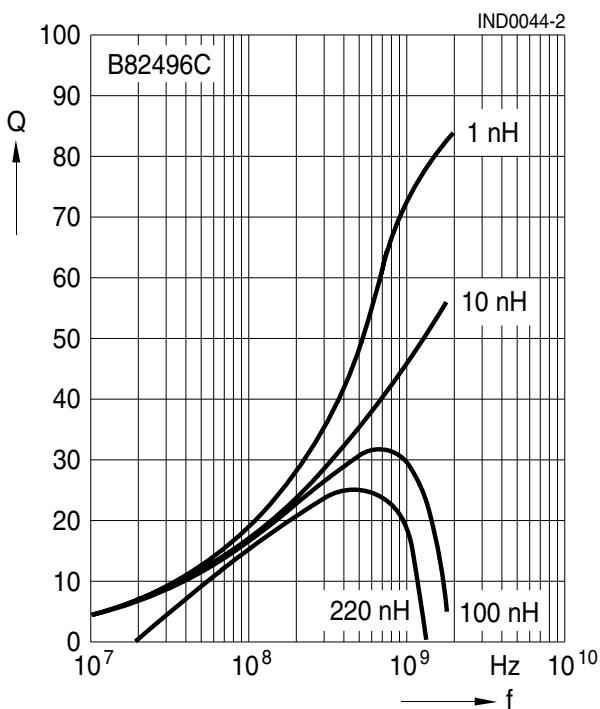
**Impedance  $|Z|$  versus frequency  $f$**   
 measured with impedance analyzer  
 Agilent 4291A/16196A, typical values at 20 °C



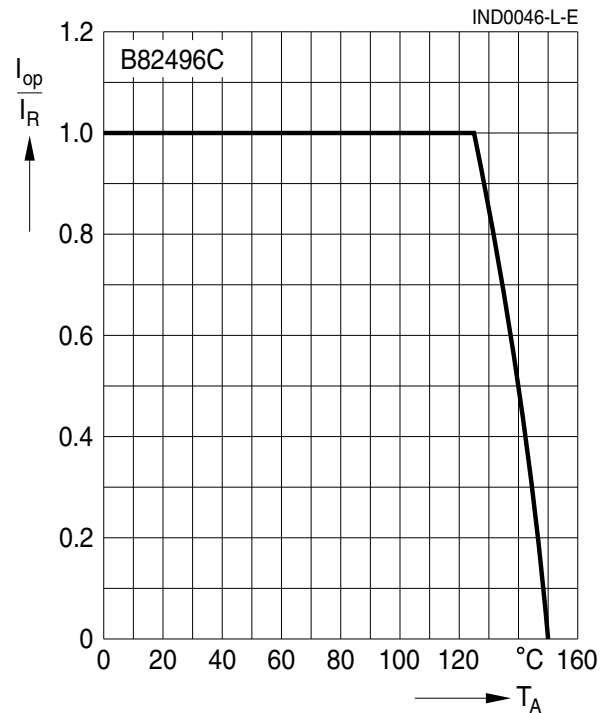
**Inductance  $L$  versus DC load current  $I_{DC}$**   
 measured with LCR meter Agilent 4275A,  
 typical values at 20 °C



**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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