SMT inductors

SIMID series, SIMID 1812-C

Series/Type: **B82432C**

Date: June 2019

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Size 1812 (EIA) or 4532 (IEC)
Rated inductance 1 ... 1000 µH
Rated current 55 ... 600 mA

Construction

- Upright ferrite drum core
- Laser-welded winding
- Flame-retardant molding

Features

- Temperature range up to +150 °C
- High Q factor
- Qualified to AEC-Q200
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020D
- RoHS-compatible

Applications

- Filtering of supply voltages, coupling, decoupling
- Antenna systems
- Automotive electronics
- Telecommunications
- Industrial electronics

Terminals

- Base material CuSn6
- Layer composition Cu, Ag, Sn (lead-free)[1)]
- Electro-plated

Marking

- Marking on component:
  Manufacturer and letter “C”,
  L value (in nH), tolerance of L value (coded),
  date of manufacture (YWWD)
- Minimum data on reel:
  Manufacturer, ordering code, L value, quantity, date of packing

Delivery mode and packing unit

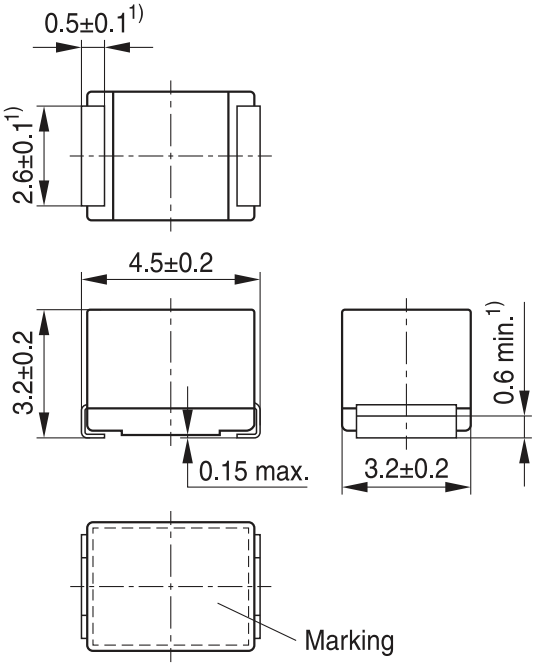
- 12-mm blister tape, wound on 330-mm ∅ reel
- Packing unit: 2500 pcs./reel

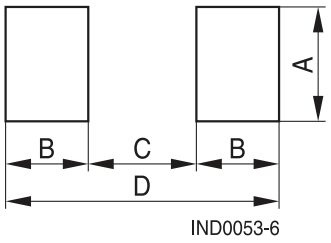
1) Ni-barrier-plated terminals on request (B82432C*50).

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Dimensional drawing and layout recommendation





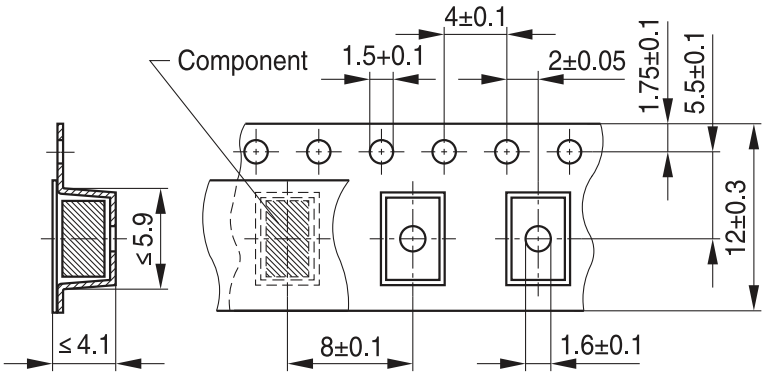
A	B	C	D
3.6	1.3	3.2	5.8

1) Soldering area IND0083-T-E

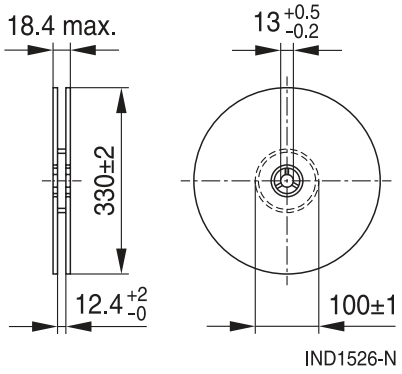
Dimensions in mm

Taping and packing

Blister tape



Reel



IND0561-L-E Dimensions in mm

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Technical data and measuring conditions

Rated inductance L_R	Measured with impedance analyzer Agilent 4294A or equivalent at frequency f_L, 0.1 V, +20 °C
Q factor Q_{min}	Measured with impedance analyzer Agilent 4294A or equivalent at frequency f_Q, +20 °C
Rated temperature T_R	+85 °C
Rated current I_R	Maximum permissible DC with inductance decrease $\Delta L/L_0 \leq 10\%$ and temperature increase of ≤ 30 K at rated temperature
Self-resonance frequency $f_{res,min}$	Measured with impedance analyzer Agilent 4294A/E4991A or equivalent, +20 °C
DC resistance R_{max}	Measured at +20 °C
Solderability (lead-free)	Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (5 ±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 020D)
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. 130 mg

Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code[1)]
1.0	±10% ≙ K	1	40	7.96	600	0.28	200	B82432C1102K000
1.2		1	40	7.96	560	0.32	160	B82432C1122K000
1.5		1	40	7.96	535	0.35	120	B82432C1152K000
1.8		1	40	7.96	490	0.41	100	B82432C1182K000
2.2		1	40	7.96	480	0.43	90	B82432C1222K000
2.7		1	40	7.96	450	0.49	75	B82432C1272K000
3.3		1	40	7.96	425	0.55	60	B82432C1332K000
3.9		1	40	7.96	410	0.59	50	B82432C1392K000
4.7		1	40	7.96	390	0.65	40	B82432C1472K000
5.6		1	40	7.96	375	0.71	40	B82432C1562K000
6.8		1	40	7.96	360	0.78	35	B82432C1682K000
8.2		1	40	7.96	330	0.92	30	B82432C1822K000

1) For Ni-barrier-plated terminals replace the last two digits “00” by “50”.

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Characteristics and ordering codes

L_R µH	Tolerance	f_L MHz	Q_{min}	f_Q MHz	I_R mA	R_{max} Ω	$f_{res,min}$ MHz	Ordering code[1)2)]
10	±10% ≙ K	1	40	7.96	320	0.98	28	B82432C1103K000
12		0.1	30	2.52	300	1.10	24	B82432C1123K000
15		0.1	30	2.52	280	1.25	21	B82432C1153K000
18		0.1	30	2.52	270	1.35	18	B82432C1183K000
22		0.1	30	2.52	260	1.45	16	B82432C1223K000
27		0.1	30	2.52	245	1.65	13	B82432C1273K000
33	±5% ≙ J	0.1	30	2.52	230	1.85	13	B82432C1333+000
39	±10% ≙ K	0.1	30	2.52	220	2.05	12	B82432C1393+000
47		0.1	30	2.52	210	2.3	12	B82432C1473+000
56		0.1	30	2.52	200	2.5	11	B82432C1563+000
68		0.1	30	2.52	190	2.8	10	B82432C1683+000
82		0.1	30	2.52	175	3.2	9	B82432C1823+000
100		0.1	30	0.796	145	4.7	8	B82432C1104+000
120		0.1	30	0.796	140	5.2	8	B82432C1124+000
150		0.1	30	0.796	130	6.1	7	B82432C1154+000
180		0.1	30	0.796	120	6.9	6	B82432C1184+000
220		0.1	30	0.796	115	7.5	6	B82432C1224+000
270		0.1	30	0.796	90	12.5	5	B82432C1274+000
330		0.1	30	0.796	85	14.1	4.5	B82432C1334+000
390		0.1	30	0.796	80	15.3	4.2	B82432C1394+000
470		0.1	30	0.796	75	17.5	4.0	B82432C1474+000
560		0.1	30	0.796	70	23.0	3.5	B82432C1564+000
680		0.1	30	0.796	65	25.0	3.3	B82432C1684+000
820		0.1	30	0.796	60	28.0	3.0	B82432C1824+000
1000		0.1	30	0.796	55	32.0	2.8	B82432C1105+000

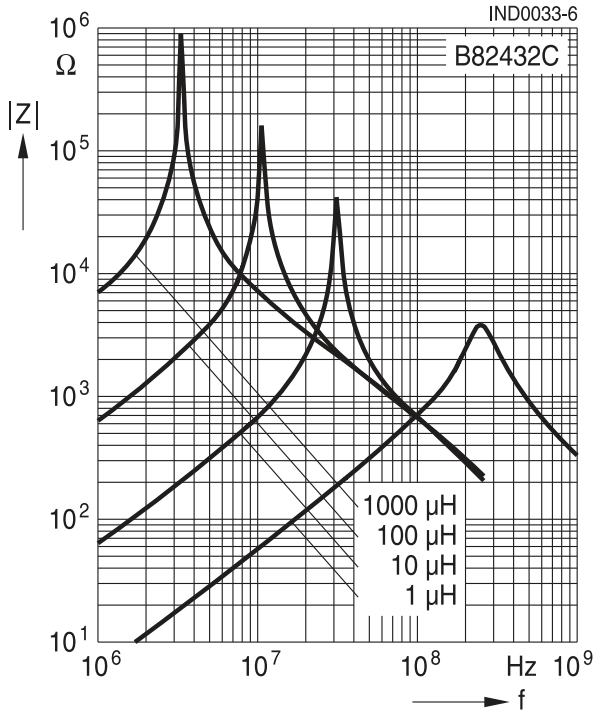
Closer tolerances on request.
Higher currents possible at temperatures $<T_R$ on request.

1) Replace the + by the code letter for the required inductance tolerance.
2) For Ni-barrier-plated terminals replace the last two digits “00” by “50”.

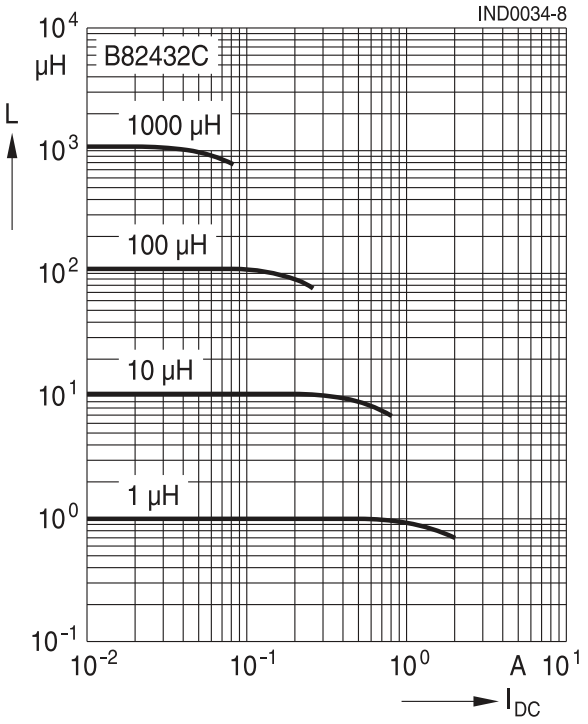
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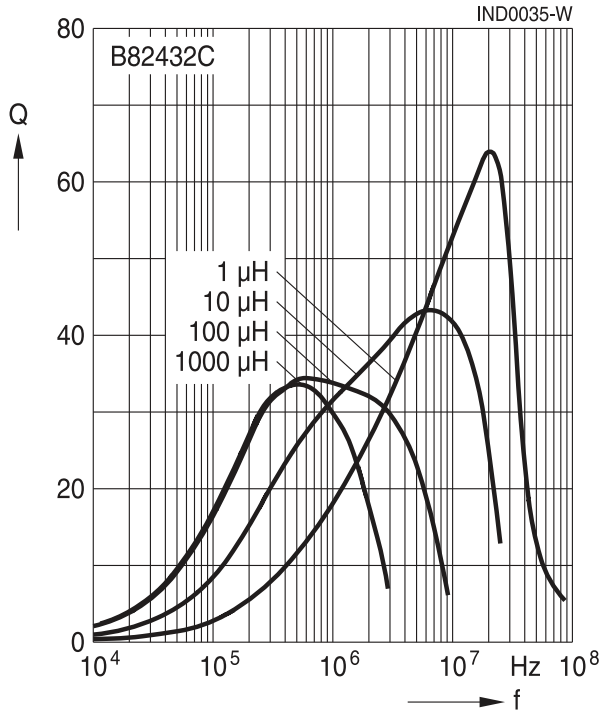
Impedance |Z| versus frequency f
measured with impedance analyzer Agilent E4991A, typical values at +20 °C



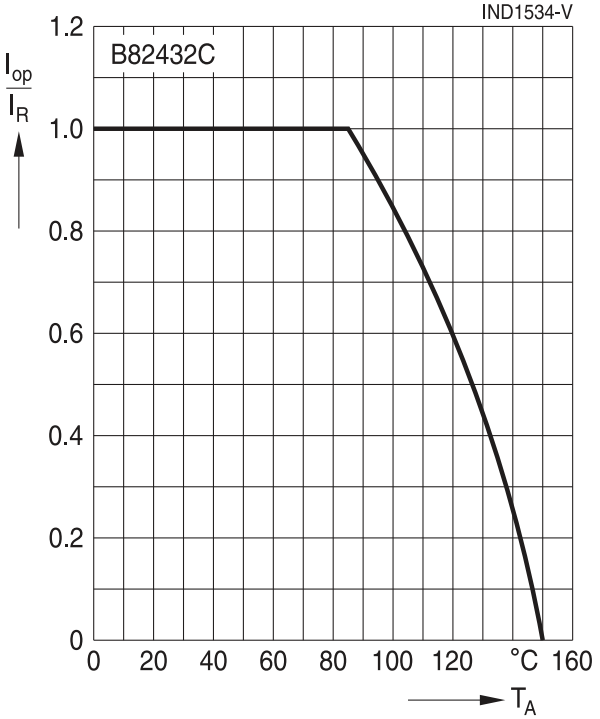
Inductance L versus DC load current I_{DC}
measured with LCR meter Agilent 4285A, typical values at +20 °C



Q factor versus frequency f
measured with impedance analyzer Agilent 4294A, typical values at +20 °C



Current derating I_{op}/I_R versus ambient temperature T_A
(rated temperature T_R = +85 °C)



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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.
  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, wire insulation, plastics or glue.
  - The effect of the potting material can change the high-frequency behaviour of the components.
  - Many coating materials have a negative effect (chemically and mechanically) on the winding wires, insulation materials and connecting points. Customers are always obligated to determine whether and to what extent their coating materials influence the component.
    Customers are responsible and bear all risk for the use of the coating material. TDK Electronics does not assume any liability for failures of our components that are caused by the coating material.
- 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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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.

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