



SMT inductors

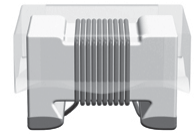
SIMID series, SIMID 0805-F

Series/Type: **B82498F**

Date: September 2019

SMD

Size 0805 (EIA) and/or 2012 (IEC)
Rated inductance 2.7 ... 6800 nH
Rated current 80 ... 1000 mA



Construction

- Cubic coil with ceramic or ferrite core
- Epoxy-molded flat top for vacuum pickup
- Winding ends welded to terminals

Features

- High resonance frequency
- Narrow inductance tolerance
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications

Resonant circuits, impedance matching for

- Antenna amplifiers
- Multimedia
- Wireless communication systems

Terminals

- Base material Al₂O₃ ceramic and ferrite
- Thick-film coating of Ag/Pd/Pt

Marking

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

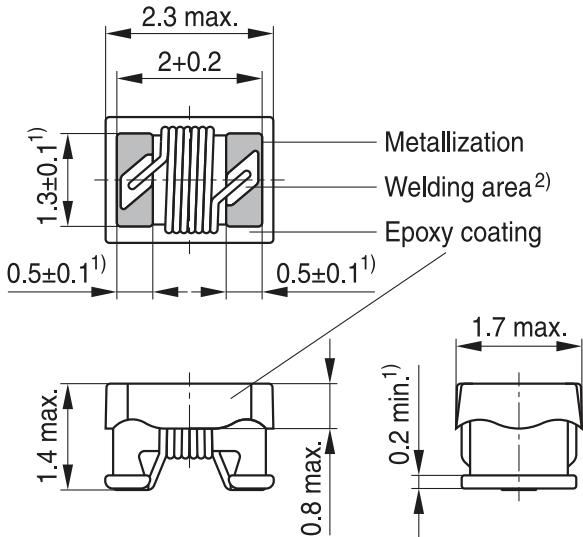
Delivery mode and packing unit

- 8-mm blister tape, wound on 180-mm reel
- Packing unit: 3000 pcs./reel

SIMID 0805-F

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Dimensional drawing and layout recommendation



| A | B | C |
|----------|----------|----------|
| 1.5 ±0.2 | 3.2 ±0.4 | 1.0 ±0.1 |

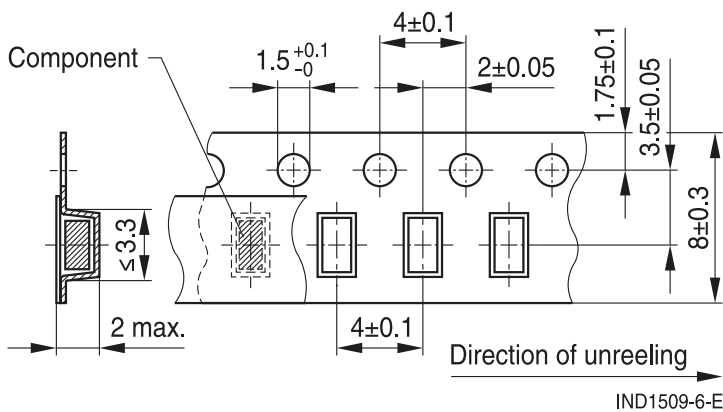
- 1) Soldering area
- 2) This area (30% of contact area) should not be used to assess solderability

IND0542-S-E

Dimensions in mm

Taping and packing

Blister tape



Reel



Dimensions in mm

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Technical data and measuring conditions

| | |
|--|---|
| Rated inductance L_R | Measured with impedance analyzer Agilent E4991A or equivalent at frequency f_L , 0.1 V, +20 °C |
| Q factor Q_{\min} | Measured with impedance analyzer Agilent E4991A or equivalent at frequency f_Q , +20 °C |
| Rated temperature T_R | +105 °C |
| Rated current I_R | Maximum permissible DC with inductance decrease $\Delta L/L_0 \leq 10\%$ and temperature increase of ≤ 20 K at rated temperature |
| Self-resonance frequency $f_{\text{res},\min}$ | Measured with network analyzer Agilent E8362B and/or Agilent 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 $\geq 90\%$ (based on IEC 60068-2-58) |
| Resistance to soldering heat | +260 °C, 20 s |
| Climatic category | 55/125/56 (to IEC 60068-1) |
| Storage conditions | Mounted: -55 °C ... +125 °C Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH |
| Weight | Approx. 10 mg |

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Characteristics and ordering codes

| L_R nH | Tolerance | f_L MHz | Q_{min} | f_Q MHz | I_R mA | R_{max} Ω | $f_{res,min}$ MHz | Ordering code ¹⁾ |
|------------------------|--|--------------|-----------|--------------|-------------|-----------------------|----------------------|-----------------------------|
| Core material: ceramic | | | | | | | | |
| 2.7 | $\pm 10\% \triangleq K$ | 250 | 50 | 1500 | 1000 | 0.03 | 9000 | B82498F3279K000 |
| 5.6 | | 250 | 50 | 1000 | 900 | 0.04 | 7000 | B82498F3569K000 |
| 6.8 | | 250 | 50 | 1000 | 800 | 0.05 | 6000 | B82498F3689K000 |
| 8.2 | | 250 | 50 | 1000 | 700 | 0.09 | 5000 | B82498F3829K000 |
| 10 | $\pm 2\% \triangleq G$ $\pm 5\% \triangleq J$ | 250 | 50 | 500 | 700 | 0.09 | 5000 | B82498F3100+000 |
| 12 | | 250 | 50 | 500 | 700 | 0.09 | 4000 | B82498F3120+000 |
| 15 | | 250 | 50 | 500 | 650 | 0.13 | 3300 | B82498F3150+000 |
| 18 | | 250 | 60 | 500 | 700 | 0.08 | 3300 | B82498F3180+000 |
| 22 | | 250 | 60 | 500 | 700 | 0.08 | 2500 | B82498F3220+000 |
| 27 | | 250 | 60 | 500 | 700 | 0.09 | 2500 | B82498F3270+000 |
| 33 | | 250 | 65 | 500 | 600 | 0.11 | 2200 | B82498F3330+000 |
| 39 | | 250 | 65 | 500 | 600 | 0.12 | 2100 | B82498F3390+000 |
| 47 | | 200 | 65 | 500 | 600 | 0.13 | 2000 | B82498F3470+000 |
| 56 | | 200 | 60 | 500 | 600 | 0.14 | 1700 | B82498F3560+000 |
| 68 | | 200 | 60 | 500 | 500 | 0.18 | 1600 | B82498F3680+000 |
| 82 | | 150 | 60 | 500 | 500 | 0.19 | 1500 | B82498F3820+000 |
| 100 | | 150 | 55 | 500 | 450 | 0.28 | 1350 | B82498F3101+000 |
| 120 | | 150 | 50 | 250 | 440 | 0.31 | 1250 | B82498F3121+000 |
| 150 | | 100 | 45 | 250 | 400 | 0.42 | 1150 | B82498F3151+000 |
| 180 | | 100 | 45 | 250 | 340 | 0.53 | 1050 | B82498F3181+000 |
| 220 | | 100 | 45 | 250 | 320 | 0.70 | 950 | B82498F3221+000 |
| 270 | 100 | 45 | 250 | 270 | 1.0 | 900 | B82498F3271+000 | |
| 330 | 100 | 45 | 250 | 220 | 1.5 | 800 | B82498F3331+000 | |
| 390 | 100 | 40 | 250 | 210 | 1.6 | 700 | B82498F3391+000 | |
| 470 | 50 | 30 | 100 | 190 | 1.9 | 650 | B82498F3471+000 | |
| 560 | 25 | 23 | 50 | 230 | 1.3 | 400 | B82498F3561+000 | |
| 680 | 25 | 23 | 50 | 190 | 1.7 | 300 | B82498F3681+000 | |
| 820 | 25 | 23 | 50 | 180 | 1.9 | 300 | B82498F3821+000 | |

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

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Characteristics and ordering codes

| L_R nH | Tolerance | f_L MHz | Q_{min} | f_Q MHz | I_R mA | R_{max} Ω | $f_{res,min}$ MHz | Ordering code |
|------------------------|------------------------|--------------|-----------|--------------|-------------|-----------------------|----------------------|-----------------|
| Core material: ferrite | | | | | | | | |
| 1000 | $\pm 5\% \triangleq J$ | 7.96 | 20 | 7.96 | 240 | 0.55 | 440 | B82498F1102J000 |
| 1200 | | 7.96 | 20 | 7.96 | 220 | 0.65 | 420 | B82498F1122J000 |
| 1500 | | 7.96 | 20 | 7.96 | 200 | 0.70 | 380 | B82498F1152J000 |
| 1800 | | 7.96 | 20 | 7.96 | 190 | 0.98 | 350 | B82498F1182J000 |
| 2200 | | 7.96 | 20 | 7.96 | 130 | 1.60 | 330 | B82498F1222J000 |
| 2700 | | 7.96 | 20 | 7.96 | 120 | 2.0 | 270 | B82498F1272J000 |
| 3300 | | 7.96 | 20 | 7.96 | 100 | 3.3 | 250 | B82498F1332J000 |
| 3900 | | 7.96 | 20 | 7.96 | 95 | 3.6 | 230 | B82498F1392J000 |
| 4700 | | 7.96 | 20 | 7.96 | 90 | 3.8 | 210 | B82498F1472J000 |
| 5600 | | 7.96 | 20 | 7.96 | 85 | 4.3 | 180 | B82498F1562J000 |
| 6800 | | 7.96 | 20 | 7.96 | 80 | 4.7 | 140 | B82498F1682J000 |

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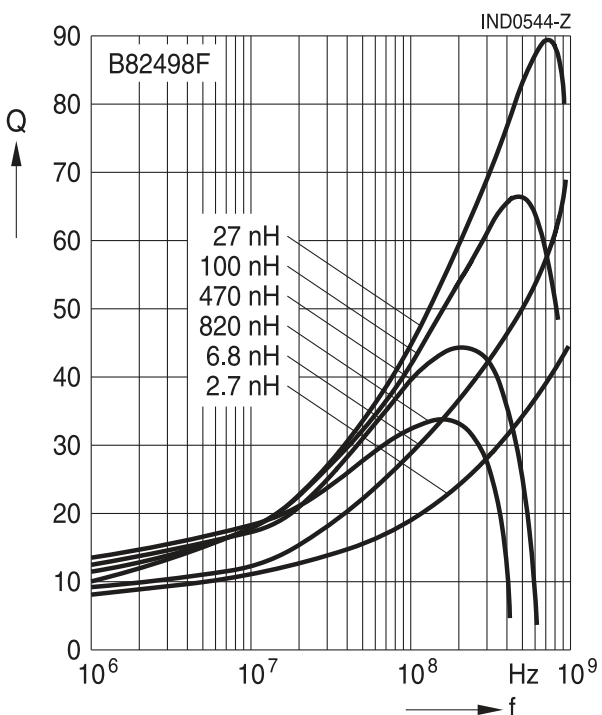
Impedance $|Z|$ vs. frequency f (ceramic core)
 measured with impedance analyzer
 Agilent E4991A, typical values at +20 °C



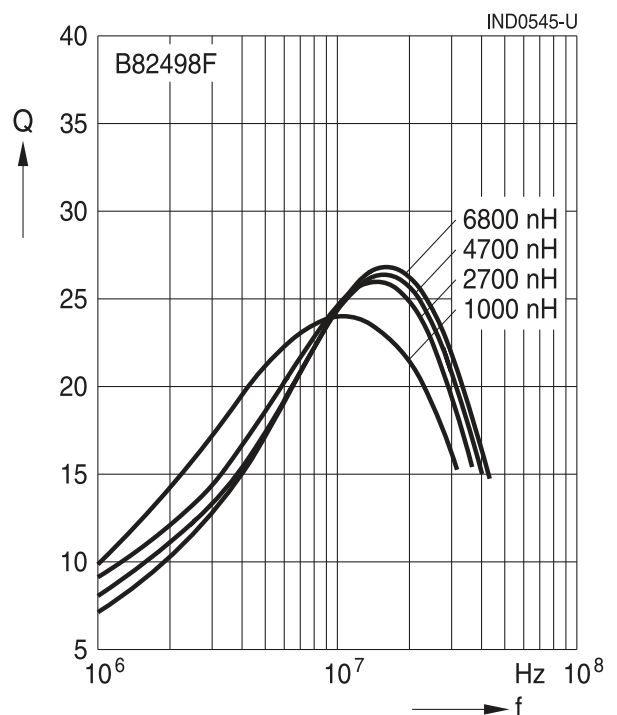
Impedance $|Z|$ vs. frequency f (ferrite core)
 measured with impedance analyzer
 Agilent E4991A, typical values at +20 °C



Q factor versus frequency f (ceramic core)
 measured with impedance analyzer
 Agilent E4991A, typical values at +20 °C

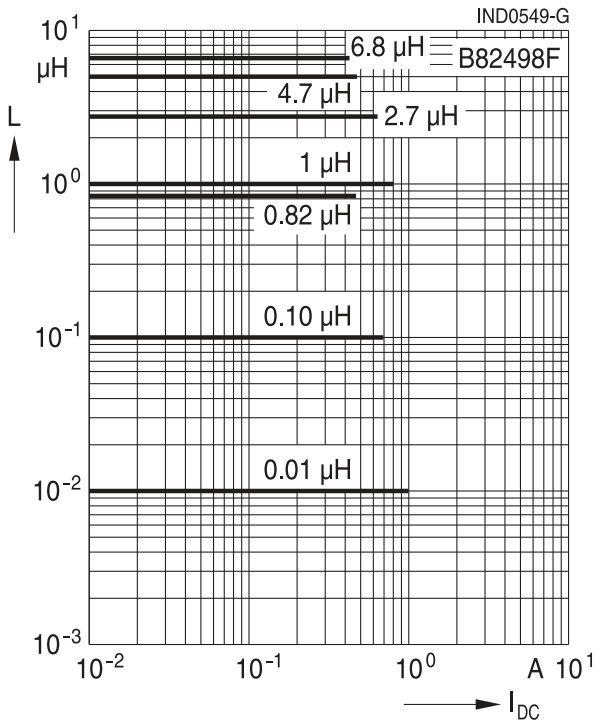


Q factor versus frequency f (ferrite core)
 measured with impedance analyzer
 Agilent E4991A, typical values at +20 °C



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



Current derating I_{op}/I_R
 versus ambient temperature T_A
 (rated temperature $T_R = +105\text{ °C}$)



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.
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.
- Ceramics / 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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Release 2018-10

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