



## **SMT inductors**

SIMID series, SIMID 0805-F3

**Series/Type:**            **B82498F3\*001**

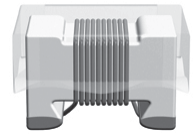
**Date:**                    September 2019

### SMD

**Size 0805 (EIA) and/or 2012 (IEC)**

**Rated inductance 2.7 ... 820 nH**

**Rated current 180 ... 1000 mA**



#### **Construction**

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

#### **Features**

- Temperature range up to +125 °C
- High resonance frequency
- Narrow inductance tolerance
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020D
- RoHS-compatible
- Qualified to AEC-Q200

#### **Applications**

Resonant circuits, impedance matching for

- Antenna amplifiers
- Multimedia
- Wireless communication systems
- Automotive electronics
- GPS (Global Positioning System)
- Low-pass filters for data lines

#### **Terminals**

- Base material Al<sub>2</sub>O<sub>3</sub> ceramic
- Layer composition W/Ni/Au
- Electro-plated

#### **Marking**

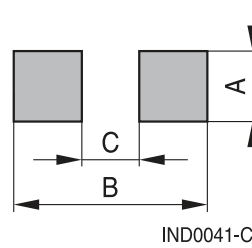
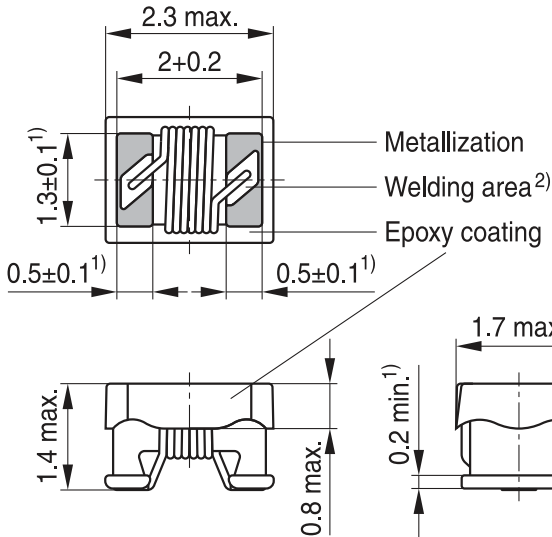
- No marking on component
- Minimum data on reel:  
Manufacturer, ordering code, L value, quantity, date of packing

#### **Delivery mode and packing unit**

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

**SMD**

**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

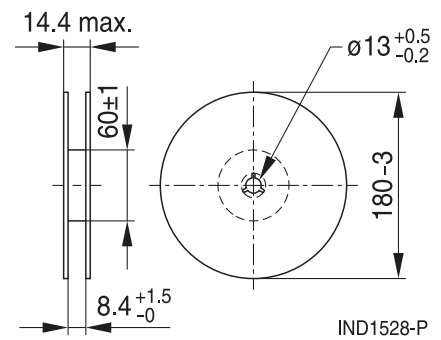
Dimensions in mm

**Taping and packing**

**Blister tape**



**Reel**



Dimensions in mm

**SMD**
**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 $\leq 20$ 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<br>Wetting of soldering area $\geq 90\%$<br>(based on IEC 60068-2-58)                      |
| Resistance to soldering heat                   | +260 °C, 40 s (as referenced in JEDEC J-STD 020D)                                                                                     |
| Climatic category                              | 55/125/56 (to IEC 60068-1)                                                                                                            |
| Storage conditions                             | Mounted: -55 °C ... +125 °C<br>Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH                                                            |
| Weight                                         | Approx. 10 mg                                                                                                                         |

**SMD**
**Characteristics and ordering codes**

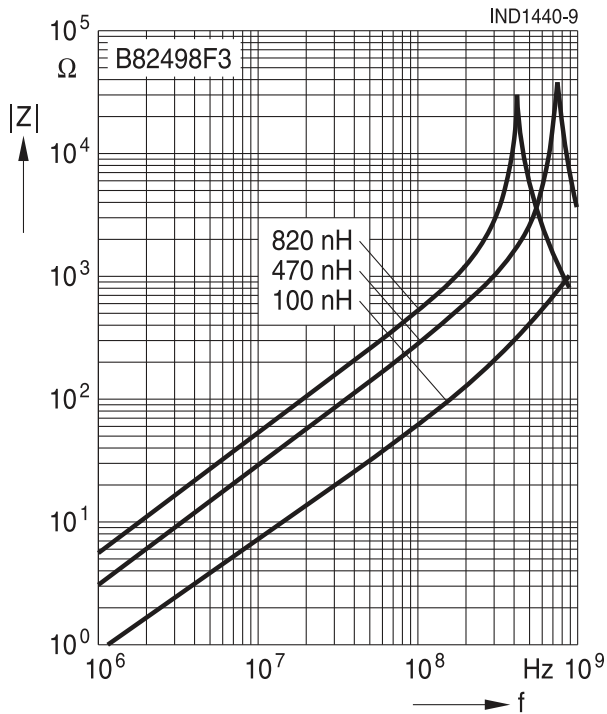
| $L_R$<br>nH | Tolerance                                        | $f_L$<br>MHz | $Q_{min}$ | $f_Q$<br>MHz | $I_R$<br>mA | $R_{max}$<br>$\Omega$ | $f_{res,min}$<br>MHz | Ordering code <sup>1)</sup> |
|-------------|--------------------------------------------------|--------------|-----------|--------------|-------------|-----------------------|----------------------|-----------------------------|
| 2.7         | $\pm 10\% \triangleq K$                          | 250          | 50        | 1500         | 1000        | 0.03                  | 9000                 | B82498F3279K001             |
| 5.6         |                                                  | 250          | 50        | 1000         | 900         | 0.04                  | 7000                 | B82498F3569K001             |
| 6.8         |                                                  | 250          | 50        | 1000         | 800         | 0.05                  | 6000                 | B82498F3689K001             |
| 8.2         |                                                  | 250          | 50        | 1000         | 700         | 0.09                  | 5000                 | B82498F3829K001             |
| 10          | $\pm 2\% \triangleq G$<br>$\pm 5\% \triangleq J$ | 250          | 50        | 500          | 700         | 0.09                  | 5000                 | B82498F3100+001             |
| 12          |                                                  | 250          | 50        | 500          | 700         | 0.09                  | 4000                 | B82498F3120+001             |
| 15          |                                                  | 250          | 50        | 500          | 650         | 0.13                  | 3300                 | B82498F3150+001             |
| 18          |                                                  | 250          | 60        | 500          | 700         | 0.08                  | 3300                 | B82498F3180+001             |
| 22          |                                                  | 250          | 60        | 500          | 700         | 0.08                  | 2500                 | B82498F3220+001             |
| 27          |                                                  | 250          | 60        | 500          | 700         | 0.09                  | 2500                 | B82498F3270+001             |
| 33          |                                                  | 250          | 65        | 500          | 600         | 0.11                  | 2200                 | B82498F3330+001             |
| 39          |                                                  | 250          | 65        | 500          | 600         | 0.12                  | 2100                 | B82498F3390+001             |
| 47          |                                                  | 200          | 65        | 500          | 600         | 0.13                  | 2000                 | B82498F3470+001             |
| 56          |                                                  | 200          | 60        | 500          | 600         | 0.14                  | 1700                 | B82498F3560+001             |
| 68          |                                                  | 200          | 60        | 500          | 500         | 0.18                  | 1600                 | B82498F3680+001             |
| 82          |                                                  | 150          | 60        | 500          | 500         | 0.19                  | 1500                 | B82498F3820+001             |
| 100         |                                                  | 150          | 55        | 500          | 450         | 0.28                  | 1350                 | B82498F3101+001             |
| 120         |                                                  | 150          | 50        | 250          | 440         | 0.31                  | 1250                 | B82498F3121+001             |
| 150         |                                                  | 100          | 45        | 250          | 400         | 0.42                  | 1150                 | B82498F3151+001             |
| 180         |                                                  | 100          | 45        | 250          | 340         | 0.53                  | 1050                 | B82498F3181+001             |
| 220         |                                                  | 100          | 45        | 250          | 320         | 0.70                  | 950                  | B82498F3221+001             |
| 270         |                                                  | 100          | 45        | 250          | 270         | 1.0                   | 900                  | B82498F3271+001             |
| 330         |                                                  | 100          | 45        | 250          | 220         | 1.5                   | 800                  | B82498F3331+001             |
| 390         |                                                  | 100          | 40        | 250          | 210         | 1.6                   | 700                  | B82498F3391+001             |
| 470         | 50                                               | 30           | 100       | 190          | 1.9         | 650                   | B82498F3471+001      |                             |
| 560         | 25                                               | 23           | 50        | 230          | 1.3         | 400                   | B82498F3561+001      |                             |
| 680         | 25                                               | 23           | 50        | 190          | 1.7         | 300                   | B82498F3681+001      |                             |
| 820         | 25                                               | 23           | 50        | 180          | 1.9         | 300                   | B82498F3821+001      |                             |

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

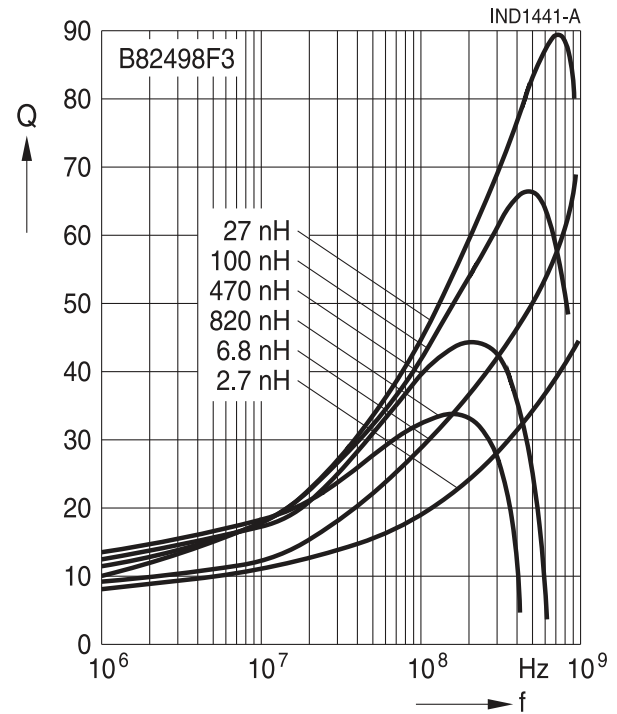
**SIMID 0805-F3**

**SMD**

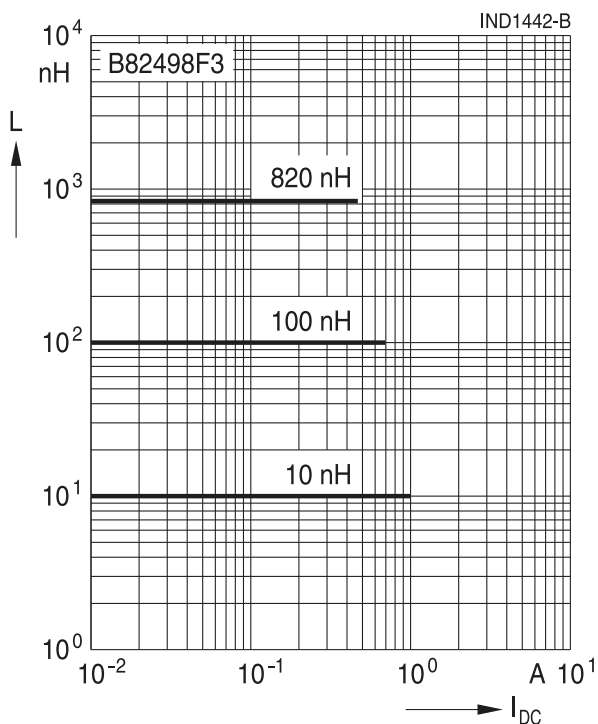
**Impedance  $|Z|$  vs. frequency  $f$**   
 measured with impedance analyzer  
 Agilent E4991A, typical values at +20 °C



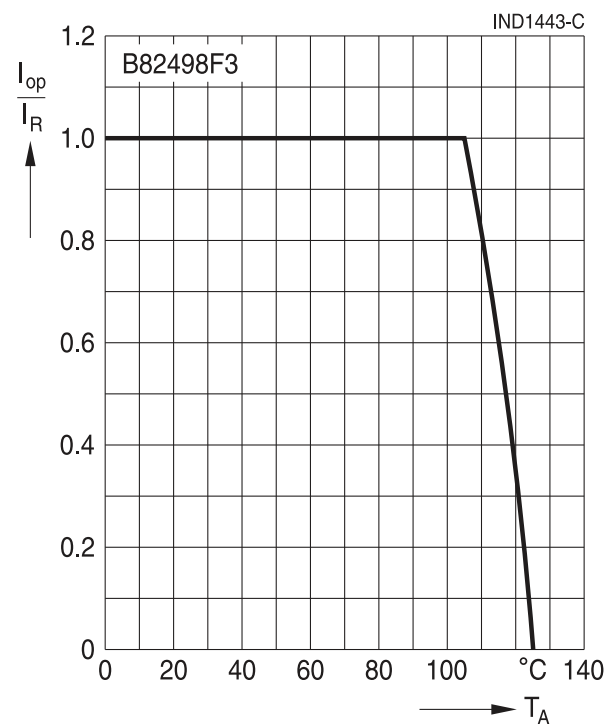
**Q factor versus frequency  $f$**   
 measured with impedance analyzer  
 Agilent E4991A, typical values at +20 °C



**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  $T_R = +105$  °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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