Inductors

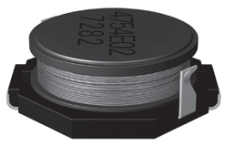
Transponder coils
Size 7.7 × 7.5 × 2.65 (mm)

Series/Type: **B82451N**

Date: June 2012

SMD

Rated inductance 4.75 mH
Sensitivity 16 mV/µT



Construction

- Ferrite core
- Injection molded base (UL 94 V-0)
- Winding soldered to terminals

Features

- Robust construction for a high mechanical stability when exposed to shock, drop and bending tests
- Qualified to AEC-Q200
- Suitable for lead-free reflow soldering
- RoHS-compatible

Application

- Car access system PEPS (Passive Entry, Passive Start)

Terminals

- Base material CuSn6
- Layer composition Ni, Sn
- Lead-free tinned

Marking

- Marking on component:
  L value in nH, “E02”, date of manufacture (YWWD)
- Minimum data on reel:
  Manufacturer, L value, ordering code, quantity, date of packing

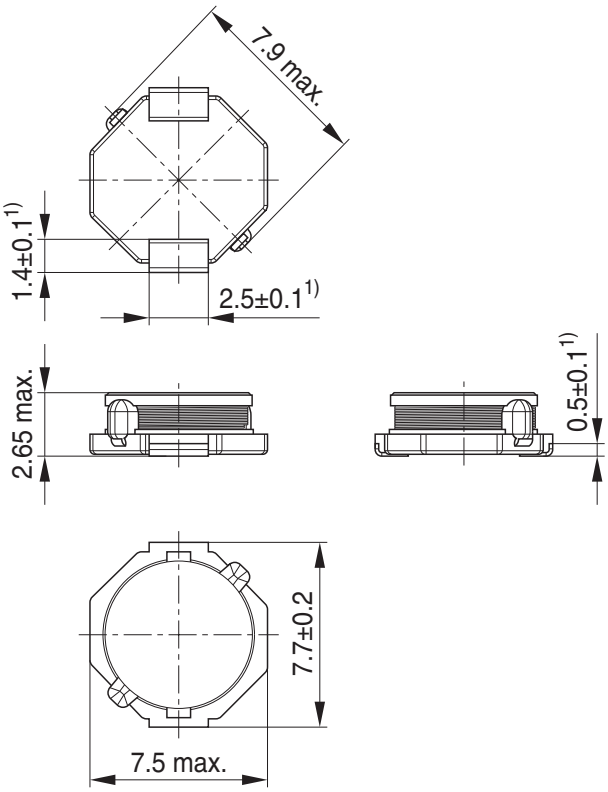
Delivery mode and packing unit

- 16-mm blister tape, wound on 330-mm ∅ reel
- Packing unit: 1500 pcs./reel

Size 7.7 x 7.5 x 2.65 (mm)

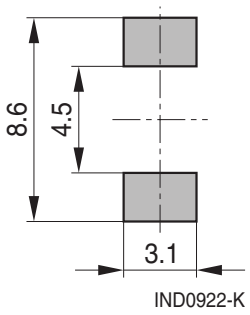
SMD

Dimensional drawing and layout recommendation



1) Soldering area

IND0902-U-E



IND0922-K

Dimensions in mm

Transponder coils B82451N

Size 7.7 x 7.5 x 2.65 (mm)

SMD

Technical data and measuring conditions

Rated inductance L_R	Measured with Agilent 4294A at frequency f_L, RMS voltage 500 mV, +20 °C
Q factor Q_{min}	Measured with Agilent 4294A at frequency f_Q, RMS voltage 500 mV, +20 °C
Sensitivity S_{typ}	Measured with Helmholtz coil test setup at 125 kHz
Resonance frequency f_{res}	Measuring with network analyzer Agilent 8753D, +20 °C
DC resistance R_{max}	Measured at +20 °C
Solderability (lead-free)	Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, 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	40/125/56 (to IEC 60068-1)
Storage conditions	Mounted: –40 °C … +125 °C Packaged: –25 °C … +40 °C, ≤ 75% RH
Weight	Approx. 1.5 g

Characteristics and ordering codes

L_R mH	L tolerance	f_L, f_Q kHz	Q_{min}	S_{typ} $\frac{mV}{\mu T}$	R_{max} Ω	f_{res} MHz	Ordering code
4.75	±3%	125	50	16	42	>1.2	B82451N4754E002

Characteristics and ordering codes for other L values available on request.

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 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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