# Inductors

## Transponder coils
## Size 7.8 × 2.7 × 2.7 (mm)

**Series/Type:** **B82450A*E**

Date: June 2012

SMD

**Rated inductance 1 ... 7 mH**
**Sensitivity 10 ... 28 mV/µT**

## Construction

- Ferrite core
- Winding: enamel copper wire welded to terminals
- Flame-retardant molding

## Features

- Robust construction for a high mechanical stability when exposed to shock, drop and bending tests
- Qualified to AEC-Q200
- High sensitivity
- Suitable for pick and place and AOI (Automatic Optical Inspection)
- Suitable for lead-free reflow soldering
- RoHS-compatible

## Applications

- Car access systems
  - immobilizer
  - PEPS (Passive Entry, Passive Start)
- TPMS (Tire Pressure Monitoring Systems)

## Terminals

- Base material CuSn6
- Layer composition Ni, Sn (lead-free)
- Electro-plated

## Marking

- Marking on component: Manufacturer, L value in nH, letter “E”, date of manufacture (YWWD), last five digits of lot number, internal information
- Minimum data on reel: Manufacturer, ordering code, L value, quantity, date of packing

## Delivery mode and packing unit

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

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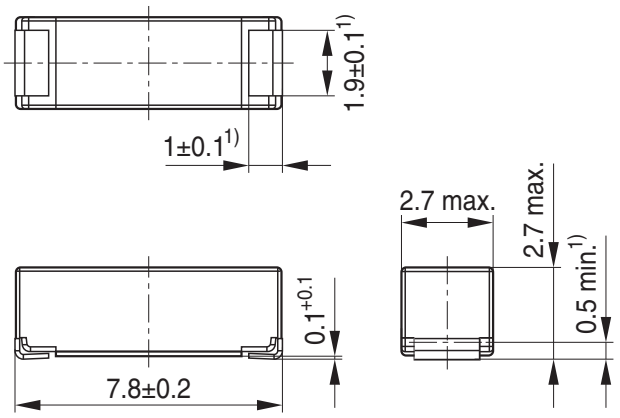
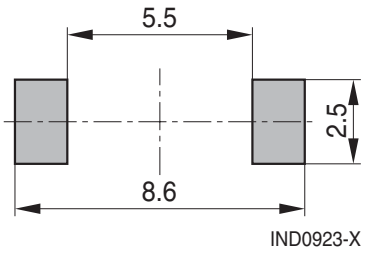
## Dimensional drawing and layout recommendation




1) Soldering area

IND0903-K-E

Dimensions in mm

## Technical data and measuring conditions

| | |
|---|---|
| Rated inductance $L_R$ | Measured with Agilent 4294A and test fixture Agilent 16034 at frequency $f_L$, RMS voltage 500 mV, +20 °C |
| Q factor $Q_{min}$ | Measured with Agilent 4294A and test fixture Agilent 16034 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<br>Wetting of soldering area ≥ 90%<br>(based on IEC 60068-2-58) |
| Climatic category | 40/125/56 (to IEC 60068-1) |
| Storage conditions | Mounted: –40 °C … +125 °C<br>Packaged: –25 °C … +40 °C, ≤ 75% RH |
| Weight | Approx. 0.25 g |

## Characteristics and ordering codes

| $L_R$ mH | L tolerance | $Q_{min}$ | $f_L$, $f_Q$ kHz | $S_{typ}$ $\frac{mV}{\mu T}$ | $f_{res}$ MHz | Ordering code |
|---|---|---|---|---|---|---|
| 1.0 | ±3% | 35 | 125 | 10 | 3.0 | B82450A1004E000 |
| 2.36 | | 35 | 125 | 16 | 2.0 | B82450A2364E000 |
| 7.0 | | 35 | 125 | 28 | 1.1 | B82450A7004E000 |

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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