SMT Inductors

Z-transponder coils, size 7.7 x 7.4 x 2.65 mm

Series/Type: **B82451L*E402**
Ordering code:

Date: 2015-11-02
Version: 01

EPCOS AG is a TDK Group Company.

Z-transponder coils, size 7.7 x 7.4 x 2.65 mm B82451L*E402

Rated inductance 1.0 … 10 mH
Sensitivity 7 … 23 mV/µT

Construction

- Ferrite core
- Injection moulded base
- Winding laser welded to terminals

Features

- Ruggedized design to pass drop testing
- AEC-Q200 qualified
- Suitable for lead-free reflow soldering
- RoHS-compatible

Applications

- Car access system PEPS (Passive Entry, Passive Start)
- RFID (radio-frequency identification) systems at 125 kHz

Terminals

- Base material CuSn6
- Plating:annealed Sn

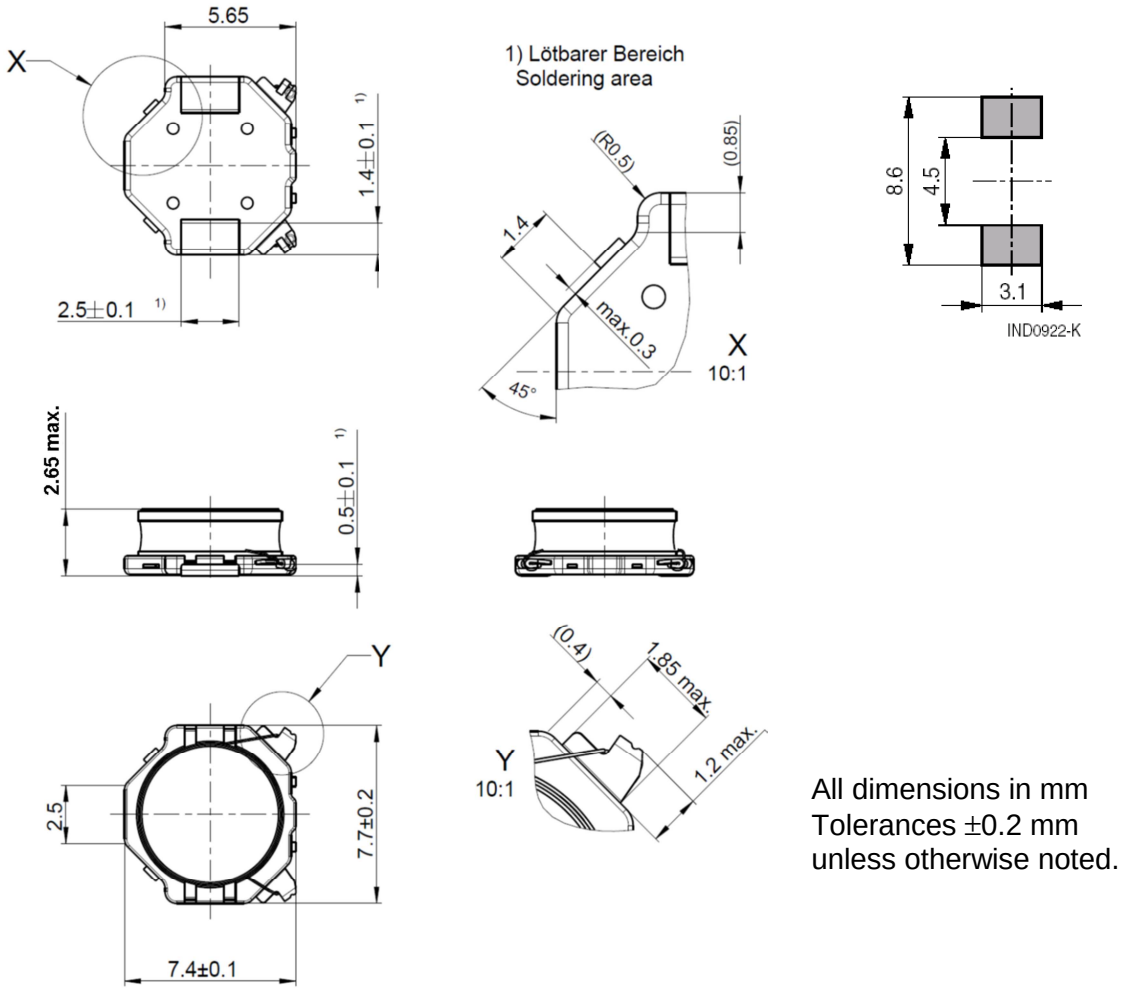
Marking

- Marking on component:
  L value in nH, “E402”, date of manufacture (YWWD)
- Minimum data on reel:
  Manufacturer, L value, ordering code, quantity, date of packing

Delivery mode and packing unit

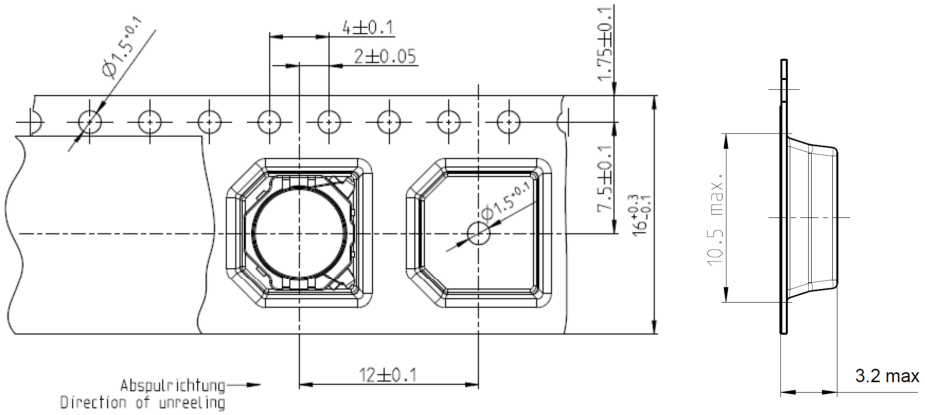
- 16-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 1500 pcs./reel

Dimensional drawing and layout recommendation



All dimensions in mm
Tolerances ±0.2 mm
unless otherwise noted.

Taping



All dimensions in mm

Technical data and measuring conditions

Rated inductance L_R and tolerance	Measured with LCR meter Agilent 4284A at frequency f_L, 0.5 V, +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
Self resonance frequency $f_{res,typ}$	Measured with HP8753
DC resistance R_{typ}	Measured at +20 °C
Solderability (lead-free)	Dip and look method Sn95.5Ag3.8Cu0.7: +(245 ±5) °C, (3 ±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 J-STD-020D)
Operating temperature range	−40 °C to 85 °C (including self-temperature rise)
Inductance drift over operating temperature range and after 3 reflow cycles and life tests (2000hrs @125°C, 2000 Thermal Shocks, 2000hrs 85°C/85%r.h.)	< ±3%, reference temperature +20 °C
Climatic category	40/85/56 (to IEC 60068-1)
Storage conditions	Mounted: –55 °C … +85 °C Packaged: –25 °C … +40 °C, ≤ 75% RH
Weight	Approx. 1.0 g

Characteristics and ordering codes

L_R mH	Tolerance	f_L, f_Q, f_S kHz	Q_{typ} (±20%)	S_{typ} (±20%) mV/µT	$f_{res,typ}$ (±20%) MHz	R_{typ} (±20%) Ω	Ordering code
1.0	±3%	125	55	7	3.0	9.0	B82451L1004E402
2.36			55	11	2.2	20.0	B82451L2364E402
4.66			58	16	1.2	38.5	B82451L4664E402
4.75			58	16	1.2	40.3	B82451L4754E402
4.81			58	16	1.2	40.7	B82451L4814E402
7.8			50	20	0.90	84.5	B82451L7804E402
10.0			50	23	0.85	104.0	B82451L1005E402

Cautions and warnings

- Please note the recommendations in our 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 glued on 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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