



## Inductors

3D transponder coils  
Size  $11.5 \times 12.5 \times 3.6$  (mm)

**Series/Type:**            **B82453C\*A**  
**Date:**                    October 2019

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## Transponder coils

B82453C\*A

Size 11.5 x 12.5 x 3.6 (mm)

3D transponder coil

SMD

Rated inductance 4.75 ... 13.2 mH

Sensitivity 45 ... 83 mV/μT

### Construction

- Special core geometry
- Ferrite core with stability in temperature
- Laser-welded
- High thermal class wire
- Flame-retardant molding



### Features

- Long receiving distance at 125 kHz
- Qualified to AEC-Q200
- High sensitivity in all orientations (X/Y/Z)
- Suitable for pick and place and AOI (Automatic Optical Inspection)
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020E
- RoHS-compatible

### Applications

- Passive entry, passive start (PEPS): wake-up and immobilizer LF antenna coil

### Terminals

- Base material CuSn4
- Layer composition Sn (lead-free)
- Lead-free tinned

### Delivery mode and packing unit

- 24-mm blister tape, wound on 330-mm Ø reel
- Packing unit: 900 pcs./reel

# Transponder coils

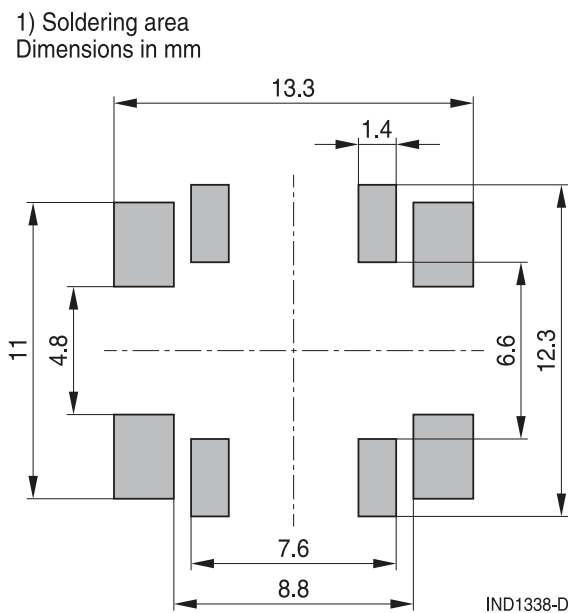
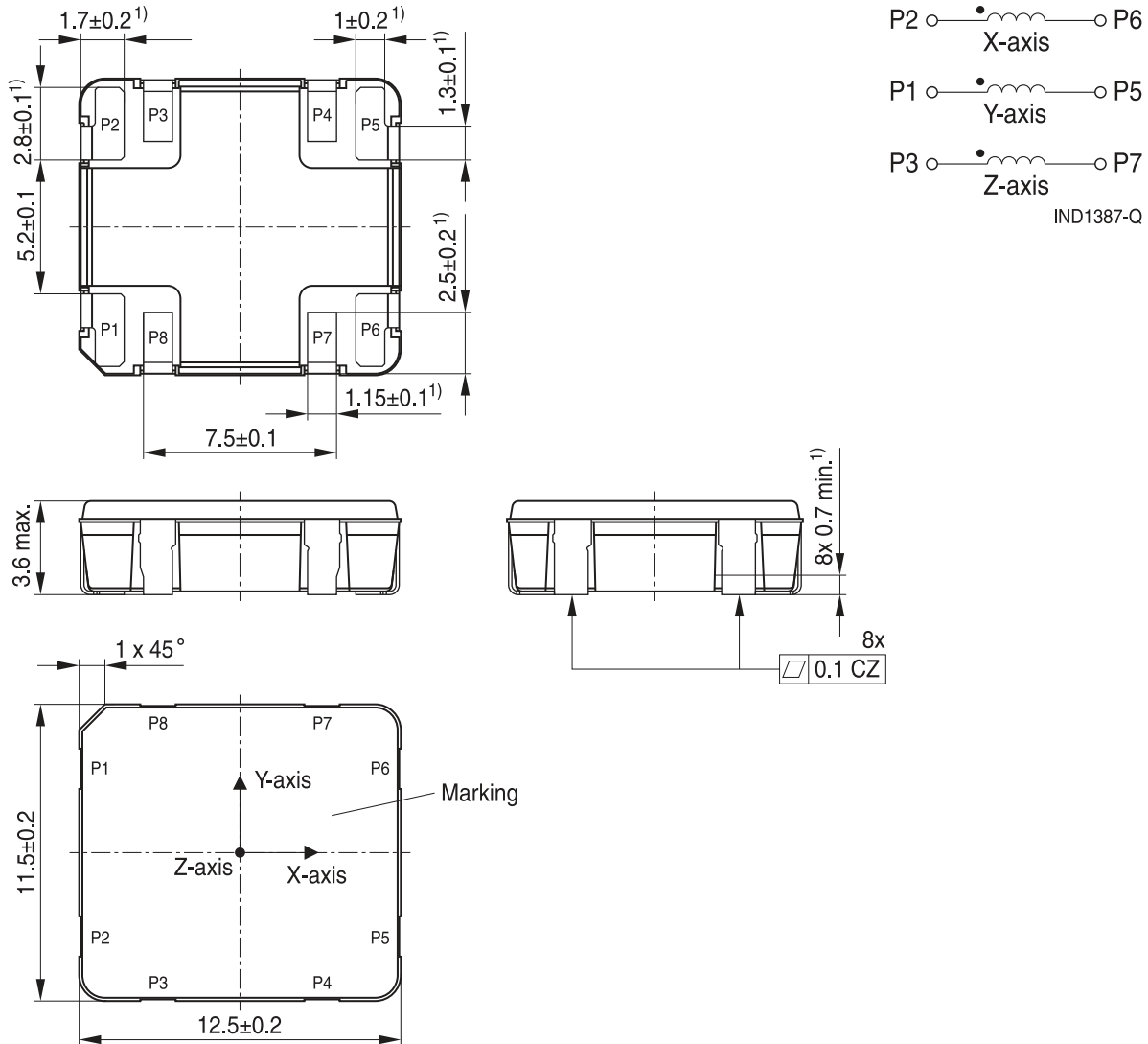
B82453C\*A

Size 11.5 x 12.5 x 3.6 (mm)

3D transponder coil

## SMD

### Dimensional drawing and layout recommendation



Dimensions in mm

# Transponder coils

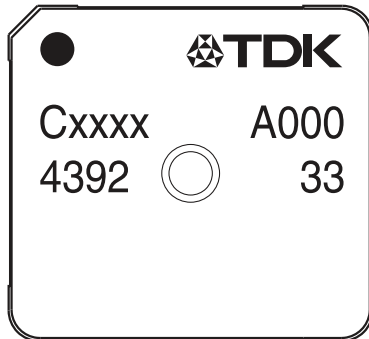
B82453C\*A

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3D transponder coil

## SMD

### Marking



IND1389-S

① Cxxxx A000

4 39 2 33  
② ③ ④ ⑤

①	Last 9 characters of the ordering code							9 characters/digits	
②	Year (10 years cycle): 2011 -> 1 2012 -> 2 ... 2020 -> 0							1 digit	
③	Calendar week: 01 ... 53							2 digits	
④	Day of the week:							1 digit	
	Day	Sun	Mon	Tue	Wed	Thu	Fri		Sat
	Code	0	1	2	3	4	5		6
⑤	Last 2 digits of the Lot No. (eg. "107865633" -> "33")							2 digits	

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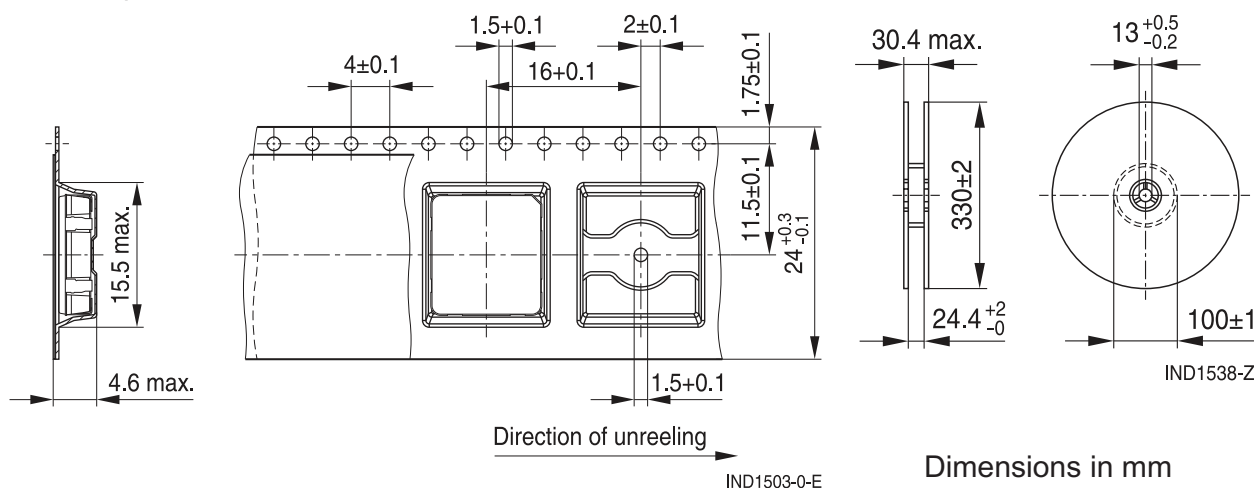
3D transponder coil

**SMD**

## Taping and packing

Blister tape

Reel



## Technical data and measuring conditions

Rated inductance $L_R$	Measured with Agilent 4294A or equivalent at frequency $f_L$ , RMS voltage 100 mV, +25 °C
L tolerance	±3%
Q factor $Q_{typ}$	Measured with Agilent 4294A or equivalent at frequency $f_Q$ , RMS voltage 100 mV, +25 °C
Sensitivity $S_{typ}$	Measured with Helmholtz coil test setup at $f_S$
Resonance frequency $f_{res,min}$	Measured with Agilent 4294A or equivalent, RMS voltage 100 mV, +25 °C
DC resistance $R_{DC,max}$	Measured with Burster Resistomat 2328, +25 °C
$f_L$ , $f_Q$ , $f_S$	125 kHz
Solderability	Sn96.5Ag3.8Cu0.7: +(245 ±5) °C, 5 s Wetting of soldering area ≥ 95% (based on JEDEC J-STD 002D)
Resistance to soldering heat	245 °C, 30 s (as referenced in JEDEC J-STD 020E)
Climatic category	40/85/56 (to IEC 60068-1)
Storage conditions	Mounted: -40 °C ... +85 °C Packaged: -20 °C ... +40 °C, ≤ 75% RH
Weight	Approx. 1.7 g

**Transponder coils**
**B82453C\*A**
**Size 11.5 x 12.5 x 3.6 (mm)**
**3D transponder coil**
**SMD**
**Characteristics and ordering codes**

Axis	L <sub>R</sub>  mH	Q <sub>typ</sub> -10%/ +15%	S <sub>typ</sub>  $\frac{\text{mV}}{\mu\text{T}}$	f <sub>res,min</sub>  kHz	R <sub>DC,max</sub>  $\Omega$	Ordering code
X	4.75	23.5	60	600	80	B82453C0300A000
Y	4.75	23.5	57	600	80	
Z	5.85	19.0	45	400	165	
X	4.75	23.5	60	600	80	B82453C0203A000
Y	4.75	24.5	57	600	80	
Z	7.20	19.5	50	400	165	
X	7.20	23.5	80	400	95	B82453C0275A000
Y	7.20	24.5	75	420	100	
Z	7.20	19.5	50	400	165	
X	6.30	23.5	75	440	90	B82453C0285A000
Y	6.30	24.5	70	460	90	
Z	9.00	19.5	63	360	190	
X	6.30	23.5	75	440	90	B82453C0301A000
Y	6.30	24.5	70	460	90	
Z	11.00	19.5	73	330	220	
X	6.75	23.5	77	430	92	B82453C0270A000
Y	6.75	24.5	73	450	95	
Z	13.20	19.5	83	300	250	

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, 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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