

Inductors

Robust 3D transponder coils with high sensitivity for automotive

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TDK Corporation presents a new series of 3D transponder coils with a high sensitivity level for passive entry passive start (PEPS) and other access systems. Measuring just 11.5 mm x 12.5 mm x 3.6 mm, the B82453C*A* series features six types of 3D transponder coils that offer sensitivity levels from 45 mV/ μ T to 83 mV/ μ T and inductance values from 4.75 mH to 13.2 mH. The center frequency is at 125 kHz. Thanks to the optimized core geometry of the new 3D transponder coils, their sensitivity levels are about 20 percent higher than that of predecessor or competitor components with comparable geometries and inductance values. This enables the wake-up function of PEPS in vehicles applications to be activated at greater distances.

The RoHS-compatible 3D transponder coils have a robust overmolded casing and the terminals of the windings are laser-welded. As a result, they feature very high mechanical stability, as is proven by the severe drop tests required for PEPS applications. Accordingly, the new transponder coils are qualified to AEC-Q200.

Main applications

- Passive entry passive start (PEPS) systems and other access systems

Main features and benefits

- High sensitivity
- Compact dimensions of just 11.5 mm x 12.5 mm x 3.6 mm
- Very high mechanical stability
- Qualified to AEC-Q200

Key data

Ordering code	Axis	L_R [mH] $\pm 3\%$	Q (typ.) -10%/+15%	S (typ.) [mV/ μ T]	$f_{res,min.}$ [kHz]	$R_{DC max.}$ [Ω]
B82453C0300A000	X	4.75	23.5	60	600	80
	Y	4.75	23.5	57	600	80
	Z	5.85	19.0	45	400	165
B82453C0203A000	X	4.75	23.5	60	600	80
	Y	4.75	24.5	57	600	80
	Z	7.20	19.5	50	400	165
B82453C0275A000	X	7.20	23.5	80	400	95
	Y	7.20	24.5	75	420	100
	Z	7.20	19.5	50	400	165
B82453C0285A000	X	6.30	23.5	75	440	90
	Y	6.30	24.5	70	460	90
	Z	9.00	19.5	63	360	190
B82453C0301A000	X	6.30	23.5	75	440	90
	Y	6.30	24.5	70	460	90
	Z	11.00	19.5	73	330	220
B82453C0270A000	X	6.75	23.5	77	430	92
	Y	6.75	24.5	73	450	95
	Z	13.20	19.5	83	300	250

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes passive components, such as ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency products, and piezo and protection components, as well as sensors and sensor systems and power supplies. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK's further main product groups include magnetic application products, energy devices, and flash memory application devices. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2017, TDK posted total sales of USD 10.5 billion and employed about 100,000 people worldwide.

You can download this text and associated images from www.epcos.com/pressreleases.

Further information on the products can be found under www.epcos.com/transponder.

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