

Inductors

TDK develops miniaturized, high-performance automotive power inductors

- 47 μ H inductance achieved in a small size
- Product structure that reduces open risks
- Operating temperature range up to 155°C
- Qualified in accordance with AEC-Q200

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TDK Corporation (TSE: 6762) developed new power inductors, BCL322515RT, for use in automotive electronics, intended for insertion into the power line of an automobile electronic control circuit. Mass production will launch in October 2020.

Using TDK's proprietary material technologies and structure design, the inductors achieve high inductance (47 μ H) in a small size (3.2 x 2.5 x 1.5 mm). The saturation current is 0.72 A. In addition, by using metallic magnetic material as a core material, they were downsized by approximately 35% compared to products that used conventional ferrite material with similar attributes. The rated voltage is 40 V, and they can be used in a primary power supply circuit, which is input directly from an in-vehicle 12 V battery. The operating temperature range is from -55 to +155°C (including self-temperature rise), which supports severe temperature environments. In addition, the connection structure between the winding wire and the external electrode is designed to reduce open risks, ensuring high reliability.

Recently, automobiles are increasingly likely to have an electronic control unit for information communication and self-driving, resulting in an increased number of inductors for power supply circuits used in the units. TDK will expand its lineup in the BCL series to meet a variety of customer needs for power inductors to be used in automotive electronics, such as downsizing.

Main applications

- ADAS, a range of ECUs (Electronic Control Unit for automobiles)

Main features and benefits

- 47 μ H achieved in a small size, decreasing inductors used
- High reliability due to the product structure that reduced open risks
- Operating temperature range up to 155°C supported. Available for a variety of automotive applications

Key data

Type	Inductance [μH] @1 MHz	DC resistance [Ω] typ.	Rated current I _{sat} * [A] typ.	Rated current I _{temp} ** [A] typ.	Rated voltage [V]
BCL322515RT-470M-D	47.0 ± 20%	1.22	0.72	0.67	40

* I_{sat}: Based on inductance change ratio (-30% typ.)

** I_{temp}: Based on self-temperature rise (+40°C typ.)

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2020, TDK posted total sales of USD 12.5 billion and employed about 107,000 people worldwide.

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Further information on the products can be found under
https://product.tdk.com/info/en/catalog/datasheets/inductor_automotive_power_bcl322515rt-d_en.pdf.

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