Inductors

TDK launches new inductors for automotive high-frequency circuits

- High safety and reliability for automotive use based on unique design expertise
- The high-frequency properties equal or superior to the conventional products are realized using an original internal structure developed by TDK
- Multilayer method allows for a lineup with fine increments of inductance
- Offers a wide operating temperature range of -55 to +125 ℃

February 27, 2024

TDK Corporation (TSE:6762) has announced the introduction of its new MHQ1005075HA series of inductors for automotive high-frequency circuits. This product uses the same materials and construction methods as the conventional product, while applying TDK's proprietary design expertise to the internal structure from the perspective of fail-safe design. The series is 1005 size (1.0 × 0.5 × 0.7 mm - L x W x H), and the inductance ranges from 1.0 nH to 56 nH. Mass production of the product series began this month, February 2024.

Inductors for high-frequency circuits for automotive or infrastructure use must meet higher standards for safety and reliability, designed based on AEC-Q200.

The product leverages TDK's one-of-a-kind design expertise in the design of the internal structure to realize the high-frequency properties equal or superior to conventional products. For example, the inductor's internal structure is designed to reduce the chances of an open failure due to cracks in the mount points of the component. Combined with automotive circuit board manufacturing guidelines, the TDK MHQ1005075HA inductor can deliver a sizable increase of reliability in an automotive environment. TDK will further expand its line to meet the evolving needs of customers.

Glossary

- Inductors for high-frequency circuits: Inductors for high-frequency band (GHz band) uses in inductor products
- AEC-Q200: Automotive Electronics Council. The standards for passive components for automobiles

Main applications

- High-frequency circuits for automotive equipment (transmitter-receiver circuitry for communications inside and outside the car, such as telematics and V2X)
- High-frequency transmitter-receiver circuitry for radio communications of smartphones, tablets, base stations and other devices (used as a component for impedance matching or filter circuits)

Main features and benefits

- The high-frequency properties equal or superior to the conventional products are realized using an original internal structure developed by TDK
- High reliability and AEC-Q200-ready because its structure prevents break line problems caused by circuit board bending stress (automotive grade)

Key data

Type	Outer dimensions [mm]	Inductance [nH]
MHQ1005075HA series	1.0 x 0.5 x 0.7	1.0~56

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 2023, TDK posted total sales of USD 16.1 billion and employed about 103,000 people worldwide.

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