

Inductors

Multilayer ceramic coils with high Q factor in 0402

- Market-leading Q factor: 40 percent higher than existing products

April 1, 2010

TDK-EPC, a group company of the TDK Corporation, announces the development of the MLG0402Q series of TDK multilayer ceramic coils in 0402 with a Q factor of 15.8 at 1 GHz and 10 nH. This is the world's best* and 40 percent higher than existing products. Mass production is scheduled to start in April 2010.

The new coils are chip components with a compact 0402 size ($0.4 \times 0.2 \times 0.2 \text{ mm}^3$). Their market-leading Q factor was achieved by employing a new technology that increases the precision of position control when forming the layers, thus allowing an optimization of the coil design. The high Q factor means that efficiency is high with low loss, particularly when the coil is used in high-frequency circuits. The lineup of the E12 series comprises 15 components with low resistance ranging from a maximum of 0.4 to 2.6 Ω , a rated current of 100 to 250 mA, and an inductance ranging from 1 to 15 nH. In addition, TDK-EPC plans to introduce an E24 series with 12 further inductance values in May 2010.

These components have an operating temperature range of -40 to $+85$ °C and are designed for use in the high-frequency circuits of mobile communications devices such as mobile phones. They are also suitable for use in other high-frequency wireless signal circuits such as those found in Bluetooth devices.

*As of March 2010, according to TDK investigations.

Glossary

- Q factor: A dimensionless parameter that indicates inductor performance. It is the ratio of reactance to resistance at a defined frequency and is expressed as Q. The higher the Q factor, the higher the performance of the inductor.
- E series: Short for exponent. E12 refers to a series divided by a geometric progression from 1 to 12 (the 12th root of 10).

Main applications

- High-frequency circuits of mobile communication devices such as mobile and cordless phones.

Main features and benefits

- Q factor of 15.8 (at 1 GHz and 10 nH) is 40 percent higher than existing products, minimizing loss in high-frequency circuits.
- Chip component with a compact 0402 size

Key data

Parameter	MLG0402Q series
Inductance	1 to 15 nH
Operating temperature range	-40 to +85 °C
DC resistance (max.)	0.4 to 2.6 Ω
Rated current	100 to 250 mA
Dimensions	0.4 x 0.2 x 0.2 mm ³

About TDK-EPC Corporation

TDK-EPC Corporation (TDK-EPC), a TDK group company, is a leading manufacturer of electronic components, modules and systems headquartered in Tokyo, Japan. TDK-EPC has emerged from the combination of the electronic components business of TDK and the EPCOS Group and markets its products under the product brands, TDK and EPCOS.

The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. With this product spectrum TDK-EPC offers a broad range of products and solutions of outstanding value from a single source and focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has design and manufacturing locations and sales offices in Asia, Europe, and in North and South America.

You can download this text and associated images from www.tdk.co.jp/teaah01/aah31500.htm. Further information on the products can be found under www.tdk.co.jp/tefe02/e521_mlg0402q.pdf

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