

Inductors

World's smallest multilayer power inductor

- 60 percent less volume and smaller footprint than existing products
- Very high current capability of 500 mA in a miniature 1005 size power inductor

July 9, 2013

TDK Corporation has expanded its MLP series of multilayer power inductors with the new MLP1005M1R0D in case size IEC 1005. The new component measures in at a miniature 1.0 mm x 0.5 mm x 0.7 mm and is thus the world's smallest multilayer power inductor*. Both the footprint and the volume of the newly developed inductor are about 60 percent smaller than existing products with dimensions of 1.6 mm x 0.8 mm x 0.8 mm. The miniaturized multilayer power inductor offers a rated inductance of 1.0 μ H and a rated current of 500 mA. The product is designed for use in the power supply circuits of smartphones, tablet PCs, digital cameras, and other mobile devices. Mass production begins in July 2013.

Thanks to TDK's advanced structural design and materials technologies, the MLP1005M1R0D employs a particularly low-loss ferrite material. As a result, the new multilayer power inductor features electrical characteristics that allow its application in power supply circuits rated for up to 500 mA, which is very high for a 1005 size inductor.

The need for power inductors in mobile devices is growing rapidly. These devices are often used continuously in modes that involve large-volume, high-speed communications, leading to higher power consumption. Moreover, the trend toward multi-functionality requires multiple power supply configurations with a higher number of inductors. As a result, battery life and space restrictions on power supply circuits are becoming increasingly challenging design issues. The new MLP1005M1R0D provides advantages on both fronts, enabling smaller dimensions and higher power supply efficiency.

With the addition of the new type, TDK's very broad lineup of multilayer power inductors now covers high-performance components in case sizes from 2520 (2.5 mm x 2.0 mm) to 1005, including case sizes 2016 (2.0 mm x 1.6 mm), 1212 (2.0 mm x 1.2 mm), and 1608 (1.6 mm x 0.8 mm) with rated currents up to 2300 mA and rated inductances up to 10 μ H.

* As of July 2013, according to TDK data

Main applications

- Smartphones, tablet PCs, digital cameras, and other mobile devices
- Power supply modules

Main features and benefits

- Reduced volume and footprint contribute to space savings in power supply circuits
- Enables greater power supply efficiency
- Usage in power supply circuits rated for up to 500 mA supported

Key data

Type	Inductance * [μH]	DC resistance ** [mΩ]	Rated current *** [mA]
MLP1005M1R0D	1.0	0.53	500

* Tolerance ±20%

** Tolerance ±30%

*** Value obtained when current flows and the temperature has risen to 40 °C max.

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 electronic components, modules and systems marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial 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 2013, TDK posted total sales of USD 9.1 billion and employed about 80,000 people worldwide.

About TDK-EPC Corporation

TDK-EPC Corporation, a TDK group company, is the manufacturer of TDK's electronic components, modules and systems and is headquartered in Tokyo, Japan. TDK-EPC was founded on October 1, 2009, from the combination of the electronic components business of TDK and the EPCOS Group. The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors.

You can download this text and associated images from www.global.tdk.com/news_center/press/20130709582.htm.

Further information on the products can be found under www.tdk.co.jp/tefe02/e533_mlp.pdf.

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