

Inductors

Low loss thin-film metal inductors with high current capability for power supply circuits

- 30 percent lower DC resistance than for existing types
- Lower losses and higher efficiency over a broad output current range

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TDK Corporation presents the new TFM160808ALC thin-film inductor for power supply circuits, which features a maximum DC resistance of 62 mΩ that is 30 percent lower than for existing types (e.g. TFM160808ALM, 0.47 μH). The new type, whose compact dimensions are just 1.6 mm x 0.8 mm x 0.8 mm, also offers a high rated current of 2.6 A and an inductance of 0.47 μH. In addition, thanks to the newly developed metal core the thin-film inductor features lower losses. As a result, the component's efficiency over a broad output current range of 10 mA to 2.5 A is higher than that of existing types and can improve the efficiency of DC-DC converter power supplies by nearly 1 percent. Mass production of the TFM160808ALC will commence in January 2017.

The required power supply voltage for smartphones and tablet PCs has risen in order to support their increasing multifunctionality, and with this, the number of inductors needed in power supply circuits is likewise growing. These components must be small in size, support a high current levels and, particularly important for smartphones and other battery-powered devices, have low losses. TDK has leveraged its innovative thin-film technology developed for HDD heads with advanced material technologies for passive components to create a metal material for compact components with optimized low losses and high current capabilities.

In the future, TDK will expand its lineup of thin-film inductors for power supply circuits to include components with footprints of 2.0 mm x 1.6 mm and 2.0 mm x 1.25 mm, making the series suitable for a wider variety of equipment designs.

Main applications

- Smartphones and tablet PCs
- HDDs, SSDs, digital still and video cameras, portable game consoles, compact power supply modules, etc.

Main features and benefits

- 30 percent lower DC resistance than for existing types
- Compact dimensions of 1.6 mm x 0.8 mm x 0.8 mm
- Lower losses and higher efficiency over a broad output current range for the improvement of power supply efficiency.

Key data

Type	Dimensions [mm]	Inductance * [μH]	Max. DC resistance [mΩ]	Max. rated current ** [A]
TFM160808ALC-R47MTAA	1.6 x 0.8 x 0.8	0.47 ± 20%	62	2.6

* Measurement frequency 1 MHz

** Current level at which the product surface temperature rises by up to 40 K

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 2016, TDK posted total sales of USD 10.2 billion and employed about 92,000 people worldwide.

* 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.

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Contacts for regional media

Region	Contact	Phone	Mail
Japan	Mr. Sumio MARUKAWA TDK Corporation Tokyo, Japan	+813 6852-7102	pr@jp.tdk.com
ASEAN	Ms. Jiang MAN Ms. Pei Lu LEE TDK Singapore (Pte) Ltd. Singapore	+65 6273 5022	asean.inquiry@sg.tdk.com
Greater China	Ms. Clover XU TDK China Co., Ltd. Shanghai, China	+86 21 61962319	pr@cn.tdk.com
Europe	Mr. Frank TRAMPNAU TDK Europe GmbH Duesseldorf, Germany	+49 211 9077 127	frank.trampnau@eu.tdk.com
America	Ms. Sara M. LAMBETH TDK Corporation of America Irving, TX, USA	+1 972-409-4519	sara.lambeth@us.tdk.com