

Inductors

Compact metal power inductors for mobile devices

- Very low profile of 1.0 mm
- 80 percent higher current capability and 40 percent lower DC resistance than existing products

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TDK Corporation presents the new VLS-HBX series of compact metal power inductors, which feature a very low profile of just 1.0 mm, combined with a high current capability. The two new types have footprints of 2.0 mm x 1.6 mm and 2.5 mm x 2.0 mm, respectively. Thanks to the use of a magnetic metal core material with a high saturation flux density, the power inductors offer rated currents of up to 6.0 A DC, depending on type. Their current capability is thus up to 80 percent higher than that of existing products whose cores are based on ferrite materials. In addition, TDK was able to achieve DC resistance values that are 40 percent lower than those of current products through the use of advanced core forming technology and optimized structural design. The VLS-HBX series is designed for use in the power supply circuitry of smartphones, tablet PCs, and other mobile devices. Mass production began in November 2013.

The mobile phone market is characterized by the rapid evolution of smartphones to offer ever higher performance and a greater array of functions. The power supply circuitry of such devices requires multiple inductors that are rated for high currents, yet offer a small footprint and low profile. The use of the newly developed TDK inductors will help to increase power supply efficiency and extend battery life.

The new VLS-HBX series joins the existing VLS-E series, resulting in a highly versatile lineup of power inductors for power supply applications in mobile devices.

Main applications

- Smartphones, tablet PCs, digital cameras, etc.
- Power supply modules

Main features and benefits

- Current capability increased by 80 percent through the use of a magnetic metal core material with a high saturation flux density
- DC resistance decreased by 40 percent through the use of advanced core forming technology and optimized structural design

Key data

Type	Dimensions [mm]	Inductance [μ H] *	DC resistance [m Ω] max.	Rated current [A] max.	
				I DC 1	I DC 2
VLS201610-HBX	2.0 x 1.6 x 1.0	0.24 to 2.2	30 to 170	1.7 to 4.5	1.45 to 3.74
VLS252010-HBX	2.5 x 2.0 x 1.0	0.24 to 2.2	29 to 120	2.3 to 6.0	1.76 to 3.91

* at 1 MHz

I DC 1: Current at which initial inductance drops by 30 percent

I DC 2: Current at which coil temperature rises by 40 K due to self-heating

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.

* 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	Ms. Mari KONISHI	TDK Corporation Tokyo, Japan	+813 6852-7102	pr@jp.tdk.com
ASEAN	Ms. Jiang MAN Mr. Shota KANZAKI	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 61962307	pr@cn.tdk.com
Europe	Mr. Frank TRAMPNAU	TDK Electronics Europe GmbH Duesseldorf, Germany	+49 211 9077 127	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