Inductors

SMD power inductors for high temperatures up to 150 °C

- New material with improved heat resistance enables use in automotive applications at temperatures of up to 150 °C
- Mass production launched in May 2012

May 16, 2012

TDK Corporation has expanded its portfolio of SMD power inductors with new CLF7045-D types that can withstand temperatures of up to 150 °C. The CLF7045-D power inductors are thus suitable for applications with extreme operating temperatures such as power supply circuits in the engine compartment of automobiles. The new types, which have dimensions of 6.9 x 7.2 x 4.5 mm³, offer rated inductance values ranging from 1 µH to 470 µH. Types are available for rated currents of 0.43 A to 8.9 A, based on a 10 percent drop in initial inductance, and their DC resistance ranges from 9.6 mΩ to 1.42 Ω. Mass production was launched in May 2012.

Power inductors are key components for the power supply circuits of the growing number of electronic control units (ECU) in today's cars. With temperatures that can range from -40 °C to +150 °C the operating conditions in the engine compartment of cars are especially harsh. In order to maintain the high reliability and efficiency of the SMD power inductors over this entire temperature range, TDK used its leading materials technology to develop a new material with excellent heat resistance. As a result the CLF7045-D series is highly suitable for use as choke coils in the DC-DC converters of engine control modules and similar applications. Other application areas include ABS, airbag, and headlight systems.

In addition, an automated process was adopted for the coil windings and connecting lines of the CLF7045-D series, which results in a high-quality baseless, solderless design.

Main applications

- Choke coils in DC-DC converters of automotive engine control modules (ECM)
- ABS, airbag, and headlight systems

Main features and benefits

- New, highly heat-resistant material for use over a wide temperature range from -40 °C to +150 °C

Key data

Type	Dimensions [mm]	Inductance [µH]	DC resistance [mΩ]	Rated current [A]	
				I DC 1	I DC 2
CLF7045-D	6.9 x 7.2 x 4.5	1.0 to 470	9.6 to 1420	0.43 to 8.9	0.37 to 5.2

I DC 1: Current at which initial inductance drops by 10 percent
I DC 2: Current at which coil temperature rises by 30 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 current product line includes passive components, magnetic application products as well as energy devices, flash memory application devices, and others. TDK today 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 2012, TDK posted total sales of USD 9.9 billion and employed about 79,000 people worldwide.

About TDK-EPC Corporation

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

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Contacts for regional media

Region	Contact		Phone	Mail
Japan	Mr. Yoichi OSUGA	TDK Corporation Tokyo/ Japan	+813 5201-7102	pr@jp.tdk.com
ASEAN	Ms. Tomoko KAMEDA	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 Dusseldorf/ Germany	+49 211 9077 127	trampnau@eu.tdk.com
America	Ms. Sara M. REYNOSO	TDK Corporation of America Irving, TX/ USA	+1 972-409-4519	sreynoso@tdktca.com