

Inductors

TDK develops industry's highest rated current inductors for automotive Power over Coax systems

- Highest rated current in the industry for the 3225 dimension*
- Achieves high impedance over a broad bandpass and supports a wide operating temperature range between -55 °C and +155 °C
- Compliant with AEC-Q200

October 26, 2021

TDK Corporation (TSE:6762) announces the release of its newly developed ADL3225VM inductors for use in automotive Power over Coax (PoC) systems. Measuring at 3.2 x 2.5 x 2.5 mm (L xW x H), these inductors provide a compact solution for designers looking to reduce vehicle weight as manufacturers add more sensors and cameras to accommodate expanding automotive and advanced driver-assistance systems (ADAS) applications. The proprietary structural design and wire winding manufacturing process ensure high impedance over a broad bandpass of 1 MHz up to 1 GHz. The inductors are compliant with AEC-Q200 and achieve the highest-rated current in the industry for the 3225 size*. Volume production began in October 2021.

Performance advancements of ADAS applications have resulted in the increased production of electric control units (ECUs), particularly around view cameras and front sensing cameras, escalating the need for high-speed interfaces. Low-voltage differential signaling (LVDS) with transmission rates of up to 1.5 Gbit/s transfer image signals from automotive cameras to the control circuit board. This process involves PoC systems that relay data and power over the same coaxial cable. TDK's ADL3225VM inductors serve as a blocking coil that separates ringing currents from the power supply, and increases the currents supplied by PoC systems. They support operating temperatures between -55 °C and +155 °C.

In the future, TDK will further expand the product portfolio to meet the needs of higher-speed and larger-volume transmission for an even wider variety of automotive applications.

* Source: TDK, as of October 2021

Glossary

- PoC (Power over Coax): Transmission technology whereby both data and power are simultaneously transmitted over the same coaxial cable

Main applications

- PoC for ADAS camera system circuits

Main features and benefits

- Achieves the highest rated current in the industry for the 3.2 mm (L) x 2.5 mm (W) size
- Achieves high impedance over a broad bandpass
- Supports a wide operating temperatures range between -55 °C and +155 °C

Key data

Type	Inductance [μH] @ 100KHz 500mV	DC resistance (Ω) max.	rated current (mA)			
			I _{sat} typ.		I _{temp} typ.	
			105°C	125°C	105°C	125°C
ADL3225VM-2R2M-TL000	2.2 ± 20%	0.18	1000	950	1220	1045
ADL3225VM-150M-TL000	15.0 ± 20%	0.40	350	310	725	625

I_{sat}: when based on inductance variation (30% lower than the nominal inductance value)

I_{temp}: 105 °C: when based on temperature rise (temperature rise of 40 °C by self-heating)

I_{temp}: 125 °C: when based on temperature rise (temperature rise of 30 °C by self-heating)

Values when assessed using a single-layer circuit board with a total thickness of 1 mm and a copper layer thickness of 70 μm.

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2021, TDK posted total sales of USD 13.3 billion and employed about 129,000 people worldwide.

You can download this text and associated images from
https://www.tdk.com/en/news_center/press/20211026_01.html.

Further information on the products can be found under
https://product.tdk.com/system/files/dam/doc/product/inductor/inductor/smd/catalog/inductor_automotive_decoupling_adl3225vm_en.pdf.

Contacts for regional media

Region	Contact	Phone	Mail
Japan	Mr. Yoichi OSUGA TDK Corporation Tokyo, Japan	+813 6778-1055	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 61962307	pr@cn.tdk.com
Europe	Mr. Frank TRAMPNAU TDK Management Services GmbH Duesseldorf, Germany	+49 211 9077 127	frank.trampnau@managementservices.tdk.com
America	Ms. Sara M. LAMBETH TDK Corporation of America Irving, TX, USA	+1 972-409-4519	sara.lambeth@us.tdk.com