

## Inductors

### **TDK offers high-current and low-inductance power inductors for automotive power circuits**

- Reduced risk of open circuit and short circuit through the integration of an internal electrode and external electrode
- High power efficiency achieved with low-loss ferrite and low DC resistance
- Reduced EMI with magnetic flux cancelling structure
- Compliance with AEC-Q200

July 20, 2021

TDK Corporation (TSE: 6762) developed new HPL505032F1 power inductors for use in automotive circuits. The inductors enable level 5 ADAS applications for cameras by offering high-current and low-inductance for power circuits in central processing units and graphic processing units, such as advanced driver-assistance systems (ADAS). Mass production of these new inductors will begin in July 2021.

The new products achieve high power efficiency by adopting a low-resistance frame for the highly permeable and low-loss ferrite made of high BS material and low-RDC that is fully developed in-house. Its rated current is 1.5 times higher than TDK's existing product (HPL505028), accommodating currents as high as 40 A to 50 A. While the proprietary structural design generates magnetic flux canceling effects contributing to noise control, the frame that integrates internal with external electrodes reduces the risk of an open circuit and short circuit, ensuring high reliability.

The need for high-speed, large-capacity camera footage in ADAS is increasing as vehicles grow more autonomous. Cameras are an essential part of cars with ADAS capabilities to assure that everything is aligned within a vehicle and no dangerous situations occur. TDK's product line for ADAS systems includes a range of automotive inductors for these applications.

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#### **Main applications**

- ADAS (level 5 for camera)

#### **Main features and benefits**

- Reduced risk of open circuit and short circuit through the integration of internal electrode and external electrode
- High power efficiency achieved with low-loss ferrite and low DC resistance
- Reduced EMI with the magnetic flux cancelling structure
- Operation temperature range is between -55 °C and +155 °C (including self-heating)

## Key data

Type	Inductance (nH) @100 kHz	DC resistance [mΩ] max.	Rated current Isat typ. [A] 25 deg. C	Rated current Itemp typ. [A]
HPL505032F1060MRD3P	60 ± 20 %	0.77	54	34
HPL505032F1070MRD3P	70 ± 20 %	0.77	52	34
HPL505032F1080MRD3P	80 ± 20 %	0.77	42	34

Isat: when based on inductance variation (30 % lower than the nominal value)

Itemp: when based on temperature rise (Temperature rises by 40 °C)

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## 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.

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