

EMC components: World's smallest common-mode choke for automotive Ethernet

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TDK Corporation presents a new series of common-mode chokes for automotive Ethernet that features the world's best common-mode noise suppression. Measuring in with a footprint of 4.5 mm x 3.2 mm and an insertion height of just 2.8 mm, the miniaturized ACT45L series is the world's smallest common-mode choke for automotive Ethernet and fulfills the standard's stiffest requirements. Mass production of the new common-mode choke starts in November 2013.

Ethernet, which supports data rates of up to 100 Mbit/s, is quickly becoming the networking protocol of choice for high-speed multimedia infotainment applications in cars. Because it employs lightweight unshielded twisted-pair (UTP) wires, automotive Ethernet is able to save

space and weight. The specifications of the new automotive Ethernet standard with regard to common-mode noise suppression are significantly more demanding than the requirements of CAN and FlexRay. The higher the attenuation of the noise is, the better the performance of the common-mode choke. Thanks to TDK's advanced technologies, the [noise suppression](#) of the ACT45L is 15 dB to 25 dB better than existing products over a broad frequency range up to 100 MHz.

The new ACT45L series is designed to be manufactured using fully-automated processes that include a high-precision autowinding process and the bonding of ferrite cores with a highly temperature- and moisture-resistant adhesive. The result is a new series of automotive components qualified to AEC-Q200 with high reliability and consistent quality.

The new product joins the existing ACT45B and ACT45R series of common-mode chokes for CAN and FlexRay, respectively, to form a highly versatile lineup of high-performance EMC components for automotive networks.

Main applications

Automotive Ethernet systems for in-vehicle multimedia and infotainment such as cameras for driver assistance, navigation systems and audio information applications

Main features and benefits

- World's best common-mode suppression
- World's smallest common-mode choke for automotive Ethernet with dimensions of 4.5 mm x 3.2 mm x 2.8 mm
- Manufactured with fully-automated processes for high reliability

and consistent quality

- Qualified to AEC-Q200

Provided by TDK Corporation

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