

Inductors

SMD pulse transformers for LAN applications

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TDK-EPC, a group company of TDK Corporation, has developed a series of TDK pulse transformers in SMD design for LAN use. The new product enables customers to employ automated placement of all components on the circuit board and using reflow solder and thus simplify their manufacturing processes. With an inductance of at least 200 μH and an insertion loss of not more than 1.5 dB, the new ALT4532-001T series of pulse transformers features the similar electrical properties as its predecessor product. Mass production began in February 2010.

The new design was made possible by the use of advanced fully automated wire winding and packaging that replaces the former manual processes. After winding, the wires to the contact pads are also attached automatically and the package is finished using thermo-compression bonding. The result is higher quality and reliability.

The benefits of the product's SMD design come into full play when the pulse transformer is used in combination with a common-mode filter to eliminate differential noise. Together, their mounting area is about 35 percent smaller because the previous version required that the two kinds of components be combined into a module with its own packaging.

The new component is used for the transmission of differential pulse signals in high-speed LANs such as 100BASE-TX. The ALT4532-001T series of pulse transformers is expected to be used mainly in digital consumer electronic applications that offer LAN connectivity such as game consoles and Internet radios as well as in PCs.

Glossary

- SMD: Surface mounted devices are electronic components that feature contact pads rather than pins and can be mounted on the surface of a printed circuit board using fully automated pick and place systems and reflow soldering techniques.
- 100BASE-TX: this LAN standard uses one pair of twisted wires in each direction, providing a transmission rate of 100 Mbit/s each direction.

Main applications

- Digital consumer electronics applications with LAN connectivity such as game consoles or Internet radios as well as in PCs

Main features and benefits

- The SMD component enables customers to simplify their manufacturing processes by using automated placement of all components on the circuit board and reflow soldering processes.

Key data

Inductance	≥200 µH
Insertion loss	≤1.5 dB
Line capacitance	≤35 pF
Isolation voltage	1500 V AC/1 min.
Operating temperature range	0°C to +70°C
Dimensions	4.5 × 3.2 × 2.8 mm ³

About TDK-EPC Corporation

TDK-EPC Corporation (TDK-EPC), a TDK group company, is a leading manufacturer of electronic components, modules and systems headquartered in Tokyo, Japan. TDK-EPC has emerged from the combination of the electronic components business of TDK and the EPCOS Group and markets its products under the product brands, TDK and EPCOS.

The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. With this product spectrum TDK-EPC offers a broad range of products and solutions of outstanding value from a single source and focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has design and manufacturing locations and sales offices in Asia, Europe, and in North and South America.

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