

RF components

Industry's smallest multilayer diplexer

- Miniature dimensions of 1.0 mm x 0.5 mm x 0.4 mm
- Volume more than 60 percent smaller than existing products with equal or better performance

March 11, 2014

TDK Corporation has developed a new multilayer diplexer in case size IEC 1005 for the implementation of 2.4 GHz/5 GHz band WLAN in smartphones and other mobile devices. With its miniature dimensions of only 1.0 mm x 0.5 mm x 0.4 mm the DPX105950DT-6010B1 diplexer is the smallest in the industry*. Thus, the volume of the new component is more than 60 percent smaller than existing 1608 diplexers. In spite of the significant size reduction, the new diplexer provides equal or even better insertion loss and attenuation performance. For example, the maximum low band insertion loss at 2.4 to 2.5 GHz is just 0.5 dB, while the high band attenuation in the same frequency range is at least 25 dB. Mass production of the new diplexer has started in February 2014.

Diplexers are electronic components used in the antenna input/output section to divide or combine two different frequency bands. The new product features a combination of layers with different dielectric constants, which are produced using TDK's co-firing technology. TDK was able to further miniaturize its diplexer by using even thinner ceramic layers and finer conductor lines. The product is rated for an operating temperature of -40°C to +85°C and is suitable for use in the Bluetooth and WLAN circuitry in mobile devices.

* As of March 2014, according to TDK data

Main applications

- WLAN and Bluetooth transmitter-receiver circuitry in smartphones, mobile phones, and other mobile devices and modules

Main features and benefits

- Volume more than 60 percent smaller than existing products with equal or better performance
- Miniaturized footprint and insertion height enable low-profile designs and module integration

Key data

Type	DPX105950DT-6010B1
Dimensions [mm]	1.0 x 0.5 x 0.4 (max.)
Max. insertion loss [dB] Low band at 2.4 - 2.5 GHz High band at 4.9 - 5.95 GHz	0.5 0.8
Min. attenuation [dB] Low band at 4.8 - 6.0 GHz Low band at 7.2 - 7.5 GHz High band at 0.0 - 2.7 GHz High band at 2.4 - 2.5 GHz High band at 9.8 - 11.9 GHz	23 23 23 25 20

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 portfolio includes electronic components, modules and systems* marketed under the product brands TDK and EPCOS, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK 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 2013, TDK posted total sales of USD 9.1 billion and employed about 80,000 people worldwide.

* The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites, inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors.

You can download this text and associated images from www.global.tdk.com/news_center/press/20140311796.htm.

Further information on the products can be found under www.tdk.co.jp/tefe02/erf_dpx_dpx105950dt-6010b1.pdf.

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