

RF components

High-performance multilayer band pass filter in 1005

- Volume reduction of 75 percent compared to existing components
- Insertion height more than one third lower

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TDK Corporation has developed a multilayer band pass filter in size 1005 that is significantly smaller than the existing 1608 types. With its miniature dimensions of just 1.0 mm x 0.5 mm x 0.37 mm, the insertion height of the new DEA102450BT-1278A1 band pass filter has been reduced by more than a third and its volume by 75 percent. The filters are designed for the 2.4 GHz band, and are thus suitable for Bluetooth and wireless LAN implementation in smartphones, regular cell phones, and other mobile devices. They feature an outstanding insertion loss of just 2.5 dB and a high attenuation of at least 25 dB (at 4.8 GHz to 5.0 GHz). Despite the component's small form factor it offers a rated power as high as 27 dBm. Mass production has launched in April 2012.

As smartphones and other mobile devices become ever smaller, lighter, faster, and capable of handling higher frequencies, their electronic components also must provide high performance in a compact, low-profile, lightweight package. TDK used its advanced thin-layer and micro-wiring technology to develop the new band pass filter with both miniature dimensions and excellent performance characteristics. Thanks to the use of a low-loss conductive material for the resonator the DEA102450BT-1278A1 also features high Q values. The new product is rated for an operating temperature range of -40 °C to +85 °C.

Glossary

- Q: the quality factor is a value expressing the performance of a circuit component. For RF circuits, high Q means that frequency selectivity is better, resulting in lower losses of electrical energy.

Main applications

- Bluetooth and wireless LAN circuitry in smartphones, conventional mobile phones, and other mobile devices.

Main features and benefits

- Insertion height reduced by more than a third and volume by 75 percent compared to existing product without sacrificing excellent filter performance.
- Smaller footprint and insertion height enable low profile designs and the integration in modules.

Key data

Type	DEA102450BT-1278A1
Frequency band [GHz]	2.4 to 2.5
Characteristic impedance [Ω]	50 (nominal value)
Insertion loss [dB]	max. 2.5
Attenuation [dB]	min. 25 (at 4.8 to 5.0 GHz)
Rated power [dBm]	max. 27
Dimensions [mm]	1.0 x 0.5 x 0.37

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 current product line includes passive components, magnetic application products as well as energy devices, flash memory application devices, and others. TDK today 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 2012, TDK posted total sales of USD 9.9 billion and employed about 79,000 people worldwide.

About TDK-EPC Corporation

TDK-EPC Corporation, a TDK group company, is a leading manufacturer of electronic components, modules and systems, headquartered in Tokyo, Japan. TDK-EPC was founded in 2009 from the combination of the passive components business of TDK and the EPCOS Group. The portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, magnets, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. The company markets the product brands TDK and EPCOS.

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