Two Innovative Chip Filters for Cellular Band Applications

Taiyo Yuden's latest lines of chip filters optimize the performance, while minimizing the size, of mobile phones. The exceptionally compact EIA 0603 size multilayer dual low pass filter is designed for use with multi-band smartphones, while two new optimized EIA 0805 size multilayer diplexers were developed for use with mobile phones. Taiyo Yuden chip filters for the cellular band field are based on the company's experience with and development of multilayer filters and chip antennas for non-cellular band applications, such as wireless LAN, Bluetooth® and GPS.

One of the smallest chip filters in its class, the EIA 0603 size dual low pass filter F1168D087018 measures 1.6mm x 0.8mm with a maximum height of 0.45mm. To ensure a wide coverage area without service disruption, today's multi-band handsets are designed for use at multiple frequency ranges. In the past, mobile phones have required a low pass filter for each frequency band to prevent disruption occurring due to busy frequency bands.

With the introduction of Taiyo Yuden's F1168D087018, two differing frequency band low pass filters (the GSM telecommunication standard low band and a high band) are successfully combined into a single part. This reduction in parts and surface mount area contribute to a smaller overall device size. Smartphones equipped with dual low pass filter technology meet the wireless communication standards that are required to achieve high-speed data transmission.

Taiyo Yuden's new EIA 0805 size F1212P089208 and F1212P089213 (2.0 x 1.25 x 0.90mm each) multilayer diplexers are optimized for the RF send/receive systems of multi-band mobile phones. To meet the growing demand for multiple frequency band support, a multi-antenna method is often utilized. Two antennas for different frequency bands are used for sending and receiving RF signals, with a diplexer that performs the required multiplexing and demultiplexing operations. This often results in a higher component count and increased mounting space requirements. However, employing their component design technology, multilayer ceramic technology, high frequency component materials and simulation technology, Taiyo Yuden produces compact multilayer diplexers that drastically reduce the required space for a multi-antenna system. Custom solutions are also available to meet customer specific demands.

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