



The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure

Title:

An Integrated RF Balun-filter with Enhanced Rejection Characteristics

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Inventor(s):

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Patent Status:

US Patent Pending

Non-confidential abstract:

In this invention, a newly proposed multi-layered integrated Radio Frequency (RF) balun-filter is proposed. This center-tapped transformer-based device works not only as a balun but also as a bandpass filter. Coupled resonant tanks are employed to perform a balun-type of operation, and thus, it can easily be designed by the traditional coupled-resonator filter theory. In addition, the device's filtering characteristics is enhanced by introducing a transmission zero at a specified frequency based on the extracted-pole technique. As two functional components, balun and bandpass filter, are integrated into one, it is expected that the overall size of a front-end module using this device can be significantly reduced. The proposed balun-filter has been successfully implemented in a multi-layered Low Temperature Co-fired Ceramic (LTCC) substrate, showing promising application potentials in miniaturization of RF front-end modules.

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