

Design and Fabrication of Two-Pole Monolithic Bulk Acoustic Filters

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A new class of miniature monolithic filters has been fabricated in the 1 to 1.5 GHz range. The devices are 2-pole ladder filters which incorporate two inductors, a coupling capacitor and two bulk acoustic resonators. They are characterized by small size and weight, low insertion loss (typically between 1 and 1.5 dB), narrow passbands (between 2 and 5%) and potentially very low cost. Filters have been fabricated on both high resistivity silicon and semi-insulating gallium arsenide substrates. Fabrication is completely compatible with all MMIC components and thus it is straightforward to integrate these devices with active components on the same wafer.

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