Abstracts

Low-loss and compact V-band MEMS-based analog tunable bandpass filters

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This paper presents compact V-band MEMS-based analog tunable bandpass filters with improved tuning ranges and low losses. For compact size and wide tuning range, the two-pole filters are designed using the lumped-elements topology with metal-air-metal (MAM) bridge-type capacitors as tuning elements. Capacitive inter-resonator coupling has been employed to minimize the radiation loss, which is the main loss contributor at high frequencies. Two filters have been demonstrated at 50 and 65 GHz. The 65-GHz analog tunable filter showed a frequency tuning bandwidth of 10% (6.5 GHz) with low and flat insertion losses of 3.3 /spl plusmn/ 0.2 dB over the entire tuning range.

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