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(54) **TWO-STAGE LNA WITH MUTUAL COUPLING**

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(57) **ABSTRACT**

Compact low noise amplifiers that have wide-band coverage while meeting necessary input matching and output matching characteristics. Embodiments include a wide-band, two-stage LNA with minimum degradation in performance compared to multiple narrow-band, single-stage LNAs. A generalized embodiment includes a first amplifier stage having a terminal coupled to a mutually coupled inductor circuit and to a second amplifier stage. The second amplifier stage includes a terminal coupled to the mutually coupled inductor circuit. The mutually coupled inductor circuit comprises electromagnetically coupled inductors L**1**, L**2**. Second terminals of the first and second amplifier stages are coupled to respective degeneration inductors. The electromagnetically coupled inductors L**1**, L**2** of the inductor circuit substantially increase the output bandwidth of the LNA with minimum degradation in performance.