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A GPS RF front-end combines the LNA, mixer, and VCO in a single stage and can operate from a 1.2V supply. The chip is implemented in a 0.13um CMOS process and occupies 1.5mm2 active area. It consumes 5.4mW with a 4.8dB NF, 36dB gain, and a P1dB of -31dBm.

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