Abstracts

A silicon MMIC active balun/buffer amplifier with high linearity and low residual phase noise

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This paper describes an integrated circuit functioning as both an active balun and a buffer amplifier. The circuit has a single-ended input and balanced output with phase and amplitude balance error less than 2/spl deg/ and 1.2 dB, respectively, measured from 1.5 GHz to 1.8 GHz at 5 V supply. When supply voltage drops down to 1.5 V, its phase and amplitude balance error remains within 5/spl deg/ and 2 dB, respectively. The circuit has high-linearity (P1 dB/sub in/=5 dBm, IIP3=16.6 dBm) and low residual phase noise (<-155 dBc/Hz@100 kHz and above) which make it suitable as an active balun/buffer amplifier between LO and balanced mixer for DCS 1800 base station receiver applications. The circuit was fully integrated on a 0.25 /spl mu/m BiCMOS process.

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