

Sample 1

CMOS High Frequency/Low Voltage
Full-Wave Rectifier

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Abstract

A CMOS high frequency/low voltage full-wave rectifier is presented. The proposed rectifier is composed of three main components: a dual output V-I converter, a positive full/wave current rectifier, and an I-V converter. A voltage input signal is changed into two out-of phase current signals by the V-I converter. The current rectifier rectifies these current signals resulting in a positive full-wave current output signal that is finally changed into a positive full-wave voltage output signal by the I-V converter. The theory of operation is described, and the simulation results obtained from the PSPICE program are used to verify the theoretical prediction. Simulation rectifier performance with a 0.5 μm MOS model obtained through MIETEC, using a ± 1.2 V supply voltage, demonstrates good rectifier integrity at operation frequencies up to 100 MHz

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