Symbolic Analysis of Input Impedance of CMOS Floating Active Inductors with Application in Fully Differential Bandpass Amplifier

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Abstract : This paper proposes studies of input impedance of two types of the CMOS active inductor. It derives two input impedance formulas. The first formula is the input impedance of a grounded active inductor. The second formula is an input impedance of floating active inductor. After that, these formulas can be used to simulate magnitude and phase response of input impedance as a function of current consumption with MATLAB. Common mode rejection ratio (CMRR) of a fully differential bandpass amplifier is derived based on superposition principle. CMRR as a function of input frequency is plotted as a function of current consumption