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ABSTRACT

HIGH FREQUENCY MOS FIXED AND VARIABLE GAIN AMPLIFIERS

A high frequency differential amplifier with a circuit topology which ensures that bias currents of the high transconductance differential transistors with minimum channel length are exactly equal, i.e , each differential transistor carries exactly half of the total current I_0 of the differential amplifier. This is achieved by coupling each differential transistor via its own current source to the reference potential. To insure a good match between the current sources, the current source devices are made with long channel lengths. Impedances are coupled between the junctions of each differential transistor pair and its current source to insure good AC gain. For the variable gain differential amplifier the spread in the gain control characteristics is reduced by making the aspect ratio of the first pair of differential transistors larger than that of the second pair of differential transistors

(Fig.1 is suggested for publication.)