

CMOS Current Amplifiers: Speed versus Nonlinearity; Kimmo Koli, Kari A.I. Halonen; Springer US, 2013; 9781475775655; 290 pages; 2013

The filter architecture is based on transconductance amplifiers, implemented with strictly positive second generation current conveyors. The combination of current conveyors with passive resistors leads to remarkable performances in terms of linearity, current consumption and operating frequency. The differential OTA allows the operation with asymmetrical supply voltages, a stringent requirement in modern signal processing circuitry. In addition, all even order nonlinearities in Z_{x1} and Z_{x2} are effectively summed together and hence X -terminal impedance nonlinearity is increased. Fortunately, in most cases the nonlinearity of the X -terminal impedance has little effect on the total amplifier distortion [25]. Kluwer Academic Publishers, 2003. X, 290 p. ISBN 978-0-306-48003-4. CMOS Current Amplifiers: Speed versus Nonlinearity is intended as a current-amplifier cookbook containing an extensive review of different current amplifier topologies realisable with modern CMOS integration technologies. The seldom-discussed issue of high-frequency distortion performance is derived for all reviewed amplifier topologies using as simple and intuitive mathematical methods as possible. The topologies discussed are also useful as building blocks for high-performance voltage-mode amplifiers. So the reader can a This book contains application examples with experimental results in three different fields: instrumentation amplifiers, continuous-time analogue filters and logarithmic amplifiers. The instrumentation amplifier example shows that using unmatched off-the-self components very high CMRR can be reached even at relatively high frequencies. As a filter application, two 1 MHz 3rd-order low-pass continuous-time filters are realised with a 1.2 μm CMOS-process. Bibliographic information. Title. CMOS Current Amplifiers: Speed versus Nonlinearity Volume 681 of The Springer International Series in Engineering and Computer Science.