



Dynamic Translinear and Log-Domain Circuits: Analysis and Synthesis (Paperback)

By Jan Mulder, Wouter A. Serdijn, Albert C. van der Woerd

Springer-Verlag New York Inc., United States, 2012. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****.Log-domain and translinear filters provide a competitive alternative to the challenges of ever increasing low-voltage, low-power and high frequency demands in the area of continuous-time filters. Since translinear filters are fundamentally large-signal linear, they are capable of realizing a large dynamic range in combination with excellent tunability characteristics. Large-signal linearity is achieved by exploiting the accurate exponential behavior of the bipolar transistor or the subthreshold MOS transistor. A generalization of the dynamic translinear principle exploiting the square law behavior of the MOS transistor is theoretically possible, but not practically relevant. Translinear and log-domain filters are based on the dynamic translinear principle, a generalization of the conventional (static) translinear principle. Besides their application for linear filters, dynamic translinear circuits can also be used for the realization of non-linear dynamic functions, such as oscillators, RMS-DC converters and phase-locked loops. Dynamic Translinear and Log-Domain Circuits: Analysis and Synthesis covers both the analysis and synthesis of translinear circuits. The theory is presented using one unifying framework for both static and dynamic translinear networks, which is based on a current-mode approach. General analysis methods are...



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