Design of High Voltage xDSL Line Drivers in Standard CMOS [

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Monografía

Design of high voltage xDSL line drivers in standard CMOS fits in the quest for highly efficient fully integrated xDSL modems for central office applications. The book focusses on the line driver, the most demanding building block of the xDSL modem for lowering power. To reduce the cost, the cheapest technology is selected: standard CMOS, without any extra process options to increase the nominal supply voltage. The emphasis lies on the analysis, design and implementation of high voltage highly efficient line drivers in mainstream CMOS. Design of high voltage xDSL line drivers in standard CMOS starts from the Self-Oscillating Power Amplifier (SOPA), a highly efficient line driver for xDSL applications. However, in the nano-electronic era, the low supply voltage of CMOS results in very low efficiencies for line drivers and power amplifiers in general. In this book a technique is developed for designing high voltage circuits in a low voltage mainstream CMOS technology. Several practical design examples reveal the subtleties and challenges encountered during the design of high voltage circuits in low voltage standard CMOS. Such a high voltage buffer is then integrated into the SOPA architecture leading to the implementation of a high voltage highly efficient aDSL2+ line driver in a 1.2V 130nm mainstream CMOS technology. Design of high voltage xDSL line drivers in standard CMOS covers the total design flow of monolithic CMOS high voltage circuits. The book is essential reading for analog design engineers and researchers in the field and is also suitable as a text book for an advanced course on the subject

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