

Metal-Oxide-Semiconductor-Only Process Corner Monitoring Circuit

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Abstract : A process corner monitoring circuit (PCMC) is presented in this work. The circuit generates a signal, the logical value of which depends on the process corner only. The signal can be used in both digital and analog circuits for testing and compensation of process variations (PV). The presented circuit uses only metal-oxide-semiconductor (MOS) transistors, which allow increasing its detection accuracy, decrease power consumption and area. Due to its simplicity the presented circuit can be easily modified to monitor parametrical variations of only n-type and p-type MOS (NMOS and PMOS, respectively) transistors, resistors, as well as their combinations. Post-layout simulation results prove correct functionality of the proposed circuit, i.e. ability to monitor the process corner (equivalently die-to-die variations) even in the presence of within-die variations.

Keywords : detection, monitoring, process corner, process variation

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