

# Ultra-thin body and thin-BOX SOI CMOS technology analog figures of merit

## Abstract

In this paper, we analyze, for the first time to our best knowledge, the perspectives of ultra-thin body and ultra-thin BOX (UTBB) SOI CMOS technology for analog applications. We show that UTBB is a promising contender for analog applications, exhibiting high maximum transconductance, drive current, intrinsic gain and achievable cut-off frequencies in the range of 150–220 GHz. Effect of operation regime, substrate bias, channel width and high temperature (up to 250 °C) on analog figures of merit (FoM) are analyzed. Benchmarking of UTBB with other technologies (as planar FD SOI, different FinFETs, UTB with thick BOX) is presented.