Abstract

This paper describes a testing method to analyze analog and mixed signal device based on oscillation test process, which in turn is dependent on the BIST (Built In Self-Test method) appropriate for function based and structure based testing of analog and mixed signal device. During this test process, the test circuit is converted into oscillator with the help of addition of an extra circuitry in their feedback path. The faults present inside the test circuit that because an affordable deviation of the oscillation frequency and their amplitude from its value are detected. Through, this test method, there is no required of any test vector to apply. Therefore, the test vector generation drawbacks are eliminated and also the test time is reduced because a limited number of oscillation frequencies are calculated for each test circuit. Oscillation-test strategy and I_DDQ test method are very suitable for further wafer-probe testing for final production of testing. The application of this test method takes benefits for good fault coverage by using of a simple OBIST technique, necessity to apply that does not required any test signal generation and combines it with I_DDQ (quiescent supply current) testing to provide a fault confirmation. During this paper, the simulation results of this test method have been provided through some examples like continuous time state variable filter.
- Jila Zakizadeh and Sunil R. Das, "Testing Analog and Mixed Signal Circuits with


Index Terms

Computer Science

Signal Processing

Keywords

Built In Self Test (BIST); Oscillation based Built In Self Test (OBIST); Quiescent supply current (I_DDQ); System On Chip (SOC); Design for testability (DFT); Integrated Circuit (IC); Circuit under test (CUT); analog and mixed signal (AMS).