

**Abstract:** This brief presents the fully balanced version of the differential difference amplifier (DDA) as an essential building block for implementing fully differential architectures of analog CMOS integrated circuits (ICs). We demonstrate that the fully balanced differential difference amplifier (FBDDA) provides the solution for systematically developing fully differential versions of any single-ended op-amp based circuit. We also show that, unlike the DDA, the FBDDA exhibits a wide input range without demanding complex circuitry. A low-power class AB CMOS realization of the proposed circuit has been designed and fabricated in a 1.2- $\mu\text{m}$  technology. All proposed design techniques and circuits were experimentally verified.