Abstract: The design and implementation of a high performance CMOS fully balanced second-generation current conveyor (FBCCII) is presented. The proposed circuit is essential to extend the use of the CCII based circuits to integrated circuits (ICs) applications. The circuit is developed by applying the current sensing technique to a fully balanced version of a differential difference amplifier (DDA). A low power class AB circuit realization is implemented in a 1.2-mum CMOS technology and its different characteristics are measured. Design examples of realizing fully balanced variable gain amplifiers (VGAs) and a bandpass filter based on the proposed FBCCII are given. Experimental results of the proposed circuits are included.