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(54) **AREA-EFFICIENT AND MODERATE CONVERSION TIME ANALOG TO DIGITAL CONVERTER (ADC)**

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(57) **ABSTRACT**

Systems and methods for converting an input analog signal to a digital representation thereof. A method includes determining an input analog signal voltage range of the input analog signal, and splitting the input analog signal voltage range into n+1 sub-ranges, n being a number of splits in the input analog signal voltage range. The method also includes assigning a respective N-bit coarse digital code i to each sub-range. The method also includes identifying the input analog signal with a corresponding sub-range, the corresponding sub-range having respective digital code i. A delta-sigma operation is performed on the input analog signal using upper and lower reference voltages of the corresponding sub-range that the input analog signal is identified with, to produce the digital representation.