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PARK et al.(10) **Pub. No.: US 2022/0407533 A1**(43) **Pub. Date: Dec. 22, 2022**(54) **ANALOG TO DIGITAL CONVERTING
DEVICE AND OPERATING METHOD
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ABSTRACT

An analog-to-digital converting device configured to convert an analog signal into a digital signal, including a meta-stability detection unit configured to output a meta-stability signal based on a comparison result, wherein the comparison result is determined by comparing a comparison voltage of each bit of the digital signal with the analog signal; a counter configured to count a number of times that the comparison voltage of each bit of the digital signal is compared with the analog signal; and a control logic configured to detect a bit at which meta-stability has occurred from among bits of the digital signal based on the meta-stability signal and the counted number.

