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**DING et al.**(10) **Pub. No.: US 2022/0393683 A1**(43) **Pub. Date: Dec. 8, 2022**(54) **METHOD OF METHOD OF FORMING A  
MULTI-BIT LEVEL SHIFTER****Publication Classification**(71) Applicants: **TAIWAN SEMICONDUCTOR  
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**Zhang-Ying YAN**, Hsinchu (TW);  
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**Yi-Ting CHEN**, Hsinchu (TW)(57) **ABSTRACT**

A method includes: forming first, second, and third NWs; forming form first to fourth transistors in corresponding first to fourth groups of active regions, connecting selected transistors amongst the first and second transistors to form first and second input circuits respectively receiving a first input signal in a first domain and a second input signal in the first domain; connecting selected transistors amongst the first and third transistors and amongst the first and fourth transistors to respectively form a first single bit level shifter (SBLS) and a second SBLS; each SBLS operates in the second domain and receives correspondingly versions of the first and second input signals; and connecting selected transistors amongst the first and third transistors to form a control circuit for toggling the first and second SBLSs between a normal and a standby state, a portion of the control circuit and the first SBLS sharing the second NW.

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