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(54) **MEMORY DEVICE AND METHOD OF FORMING THE SAME**

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(57) **ABSTRACT**

Provided are a memory device and a method of forming the same. The memory device includes a first tier on a substrate and a second tier on the first tier. The first tier includes a first layer stack; a first gate electrode penetrating through the first layer stack; a first channel layer between the first layer stack and the first gate electrode; and a first ferroelectric layer between the first channel layer and the first gate electrode. The second tier includes a second layer stack; a second gate electrode penetrating through the second layer stack; a second channel layer between the second layer stack and the second gate electrode; and a second ferroelectric layer between the second channel layer and the second gate electrode.

