

ABSTRACT

MEMORY DEVICE AND METHOD OF OPERATING THE MEMORY DEVICE

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Provided herein may be a memory device and a method of operating the memory device. The memory device may include memory cells configured to store data, a peripheral circuit configured to perform program and read operation on memory cells selected from among the memory cells,
10 and a refresh controller configured to include a counter and a refresh manager, wherein the counter is configured to count a number of memory cells which are in an erased state or a programmed state by performing a read operation on the selected memory cells using a reference read voltage, and the refresh manager is configured to compare a read count indicating
15 the counted number of memory cells, with a preset reference count, to determine whether to shift the reference read voltage and to control the peripheral circuit so that the program operation is performed using a voltage different than a program voltage by a step voltage.

20 FIG. 3