

ABSTRACT

In a method of erasing data in a nonvolatile memory device including one or more memory blocks, a plurality of memory cells are disposed in a vertical direction in each memory block. An erase loop is performed once or more on an entire of a first memory block
5 in the one or more memory blocks. After the erase loop is successfully completed, a first partial verification operation is performed on one or more groups of a plurality of groups in the first memory block. After the first partial verification operation is successfully completed, it is determined whether a second partial verification operation is required for a group of the one or more groups. The second partial verification operation is performed on one or more
10 subgroups of a plurality of subgroups in a first group requiring the second partial verification operation among the plurality of groups.

FIG. 1