

ABSTRACT

A semiconductor device includes a first semiconductor chip, a second semiconductor chip, an input/output circuit, a sensing line, and a detecting circuit. The first semiconductor chip includes bitlines, wordlines, first bonding pads electrically connected to the bitlines, second bonding pads electrically connected to the wordlines, and memory cells electrically connected to the bitlines and the wordlines. The second semiconductor chip includes third bonding pads that are electrically connected to the first bonding pads and fourth bonding pads that are electrically connected to the second bonding pads. The input/output circuit writes data to the memory cells via the third bonding pads. The sensing line extends along edge portions of at least one of the first and second semiconductor chips. The detecting circuit is in the second semiconductor chip and can detect defects from at least one of the first and second semiconductor chips using the sensing line.

FIG. 1