



Abstract

Method for Forming a Nickel Silicide Layer on a Silicon Substrate

- 5 A method for forming nickel silicide on a silicon substrate wherein silicon oxide, if present on the substrate, does not substantially inhibit the formation of the nickel silicide. The method is particularly useful in the formation of CMOS transistors and includes a number of steps. The first step involves providing a silicon substrate having a surface. The next step involves depositing a layer of
- 10 nickel alloy on the substrate surface, the nickel alloy being made from nickel and an oxide-reacting material such as Titanium or Tantalum. The next step involves annealing the nickel alloy layer and the substrate causing the nickel in the nickel alloy layer to react with the silicon substrate and form a nickel silicide layer on the substrate surface. By using a nickel alloy containing an oxide-
- 15 reacting material, silicon oxide, if present on the substrate surface, does not substantially inhibit the formation of the nickel silicide layer.

[Figure 1]