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ABSTRACT

A NOVEL METHOD TO FORM C54 $TiSi_2$ FOR IC DEVICE FABRICATION

A novel method for forming a C54 phase titanium disilicide film in the fabrication of an integrated circuit is described. A semiconductor substrate is provided having silicon regions to be silicided. A titanium layer is deposited overlying the silicon regions to be silicided. The substrate is subjected to a first annealing whereby the titanium is transformed to phase C40 titanium disilicide where it overlies the silicon regions and wherein the titanium not overlying the silicon regions is unreacted. The unreacted titanium layer is removed. The substrate is subjected to a second annealing whereby the phase C40 titanium disilicide is transformed to phase C54 titanium disilicide to complete formation of a phase 54 titanium disilicide film in the manufacture of an integrated circuit.

FIGURE 6