METHOD TO FABRICATE ELEVATED SOURCE/DRAIN STRUCTURES IN MOS TRANSISTORS

A method for forming a MOSFET having an elevated source/drain structure is described. A sacrificial oxide layer is provided on a substrate. A polish stop layer is deposited overlying the sacrificial oxide layer. An oxide layer is deposited overlying the polish stop layer. An opening is formed through the oxide layer and the polish stop layer to the sacrificial oxide layer. First polysilicon spacers are formed on sidewalls of the opening wherein the first polysilicon spacers form an elevated source/drain structure. Second polysilicon spacers are formed on the first polysilicon spacers. The oxide layer and sacrificial oxide layer exposed within the opening are removed. An epitaxial silicon layer is grown within the opening. A gate dielectric layer is formed within the opening overlying the second polysilicon spacers and the epitaxial silicon layer. A gate material layer is deposited within the opening. The gate material layer, first polysilicon spacers and second polysilicon spacers are polished back to the polish stop layer thereby completing formation of a MOSFET having an elevated source/drain structure in the fabrication of an integrated circuit device.



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FIGURE 12



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