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ABSTRACT

METHOD FOR FORMING BORDERLESS GATE STRUCTURES AND APPARATUS FORMED THEREBY

A method (100) for forming a gate conductor cap in a transistor comprises the steps of: a) (110) forming a polysilicon gate conductor; b) (140) doping the polysilicon gate; c) doping diffusion areas; and d) (150) capping the gate conductor by a nitridation method chosen from among selective nitride deposition and selective surface nitridation. The resulting transistor (2100) may comprise a capped gate conductor (1240) and borderless diffusion contacts (2170); wherein the capping (1560) occurred by a nitridation method chosen from among selective nitride deposition and selective surface nitridation and wherein a portion of the gate conductor (1240) is masked during the nitridation method to leave open a contact area for a local interconnect or a gate contact.

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Fig. 1