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Hf and Zr Thin Films as Getters for Dopant Diffusion through Hf and Zr Silicate and Oxide Based Gate Dielectrics

This invention involves using ultra-thin metal films deposited on top of the gate dielectric to be used as getters to avoid dopant incorporation into the Si substrate. Metallic thin films incorporated between the gate dielectric and the polysilicon gate will react with the dopant atoms as they reach the polysilicon/dielectric interface and form a highly stable material. That material will form an ohmic contact, thus eliminating the diffusion of the dopant atoms through the gate dielectric and into the channel region.

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