

Gate-First TaN/La₂O₃/SiO₂/Ge n-MOSFETs Using Laser Annealing

Chen, W. B., 吴建宏, Shie, B. S., Chin, A.

Microelectronics Engineering

Engineering

rossiwu

Abstract

To improve device performance, laser annealing was applied to Ge n-MOSFETs, which gave a low sheet resistance of 68 Ω/sq , a small ideality factor of 1.3, and a large $\sim 10^5$ forwardreverse current in the source-drain n+/p junction. The laser-annealed gate-first TaN/La₂O₃/SiO₂/Ge n-MOSFETs showed a high mobility of 603 cm^2/Vs and a good mobility of 304 cm^2/Vs at a 1.9-nm equivalent oxide thickness.

Keyword : Ge , high- κ gate dielectric , laser annealing