

A Novel Bi-layer Cobalt Silicide Process with Nitrogen Implantation for sub-50nm CMOS and beyond

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Abstract

We propose the “bi-layer” CoSi₂ structure with smaller grain size, which realizes the low sheet resistance of 35nm gate length as well as the low junction leakage current of 100nm junction depth for the first time. The formation of *bi-layer* CoSi₂ structure is successfully controlled by the N₂ ion implantation with low energy and high dosage, and enables us to manufacture sub-50nm CMOS devices.