

Abstract**Fully Depleted SOI Device with Buried Doped Layer**

The present invention relates to a method for the manufacture of a semiconductor device, comprising: providing a first substrate, forming a doped layer in a surface region of the first substrate, forming a buried oxide layer on the doped layer and forming a semiconductor layer on the buried oxide layer to obtain an SeOI wafer, removing the buried oxide layer and the semiconductor layer from a first region of the SeOI wafer while maintaining the buried oxide layer and the semiconductor layer in a second region of the SeOI wafer, forming an upper transistor in the second region, forming a lower transistor, in particular, a recessed channel array transistor in the first region, wherein forming the p-channel and/or the n-channel transistor in the second region comprises forming a back gate in or by the doped layer and forming the transistor, in particular, a recessed channel array transistor in the first region comprises forming source and drain regions in or by the doped layer.

Figure 1