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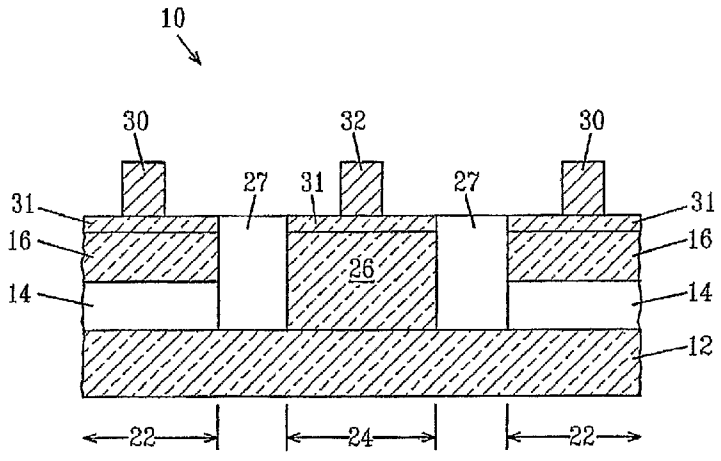
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(54) Title: HIGH-PERFORMANCE CMOS SOI DEVICE ON HYBRID CRYSTAL-ORIENTED SUBSTRATES



(57) Abstract: An integrated semiconductor structure containing at least one device formed upon a first crystallographic surface that is optimal for that device, while another device is formed upon a second different crystallographic surface that is optimal for the other device is provided. The method of forming the integrated structure includes providing a bonded substrate including at least a first semiconductor layer of a first crystallographic orientation and a second semiconductor layer of a second different crystallographic orientation. A portion of the bonded substrate is protected to define a first device area, while another portion of the bonded substrate is unprotected. The unprotected portion of the bonded substrate is then etched to expose a surface of the second semiconductor layer and a semiconductor material isregrown on the exposed surface. Following planarization, a first semiconductor device is formed in the first device region and a second semiconductor device is formed on theregrown material.

WO 2004/114400 A1

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