SEMICONDUCTOR DEVICES HAVING ENCAPSULATED ISOLATION REGIONS AND RELATED FABRICATION METHODS

ASTRACT

Apparatus and related fabrication methods are provided for semiconductor device structures having encapsulated isolation regions. An exemplary method for fabricating a semiconductor device structure involves the steps of forming an isolation region of a first dielectric material in the semiconductor substrate adjacent to a first region of the semiconductor material, forming a first layer of a second dielectric material overlying the isolation region and the first region, and removing the second dielectric material overlying the first region leaving portions of the second dielectric material overlying the isolation region intact. The isolation region is recessed relative to the first region, and the second dielectric material is more resistant to an etchant than the first dielectric material.

Fig. 7