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METHOD TO FABRICATE MIM CAPACITOR WITH A CURVILINEAR SURFACE USING DAMASCENE PROCESS

ABSTRACT OF THE DISCLOSURE

In one method embodiment, the present invention recites forming an opening in a substrate during a damascene process. The present embodiment then recites forming a dielectric region having two curvilinear surfaces opposite one another at least partially within the opening during the damascene process. The surfaces are curvilinear with respect to a horizontal cross-section. The present embodiment then recites forming a first copper region having a curvilinear surface proximate one of the surfaces of the dielectric region during the damascene process. The present embodiment then recites forming a second copper region having a curvilinear surface proximate a second surface of the dielectric region during the damascene process. In so doing, the dielectric region forms a dielectric barrier between the first copper region and the second copper region such that the vertical cylindrical MIM capacitor is formed.

FIGURE 1A

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