ABSTRACT

SILICON-RICH OXIDE FOR COPPER DAMASCENE INTERCONNECT INCORPORATING LOW DIELECTRIC CONSTANT DIELECTRICS

A method of fabricating at least one damascene opening comprising the following steps. A structure having at least one exposed conductive structure is provided. A dielectric barrier layer over the structure and the at least one exposed conductive structure. A lower low-k dielectric layer is formed over the dielectric barrier layer. An upper low-k dielectric layer is formed over the lower low-k dielectric layer An SRO etch stop layer is formed between the lower low-k dielectric layer and the upper low-k dielectric layer and/or an SRO hard mask layer is formed over the upper low-k dielectric layer. At least the upper and lower low-k dielectric layers are patterned to form the at least one damascene opening exposing at least a portion of the at least one conductive structure, wherein the at least one SRO layer has a high etch selectivity relative to the lower and upper low-k dielectric layers.

FIGURE 3

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