A METHOD TO FABRICATE ALIGNED DUAL DAMASCENE OPENINGS

ABSTRACT

A patterned mask layer is formed over a upper dielectric layer patterned to expose a portion of an underlying middle dielectric layer. The middle dielectric layer is patterned to expose a portion of a middle etch stop layer. The exposed portion of the middle etch stop layer is removed to expose a portion of a lower dielectric layer. Simultaneously: an inchoate upper trench opening is formed in the patterned middle dielectric layer; and an aligned inchoate lower via opening is formed in the lower dielectric layer exposing a portion of an underlying bottom etch stop layer.. The patterned mask layer is removed. The patterned upper dielectric layer, the exposed portions of the patterned middle etch stop layer and the exposed portion of the bottom etch stop layer are removed to convert: the inchoate upper trench opening; and the inchoate lower via opening into the dual damascene opening.

Fig 6