ALUMINIUM AND COPPER BIMETALLIC BOND PAD SCHEME FOR COPPER DAMASCENE INTERCONNECTS

ABSTRACT

Improved processes for fabricating wire bond pads on pure copper damascene are disclosed by this invention. The invention relates to various methods of fabrication used for semiconductor integrated circuit devices, and more specifically to the formation of Al-Cu alloy top pad metal layers are described, which improve adhesion among the wire bond, top Al-Cu and the underlying copper pad metallurgy. This invention describes processes wherein a special Al-Cu bond layer or region is placed on top of the underlying copper pad metal. This Al-Cu bond pad on pure copper (with barrier layer in-between) provides for improved wire bond adhesion to the bond pad and prevents peeling during wire bond adhesion tests.

Figure 3b