

ALUMINUM ALLOY FOR THE DAMASCENE PROCESS FOR ON-CHIP WIRING APPLICATIONS

ABSTRACT

An integrated circuit chip interconnect wiring level and method of making is described incorporating an adhesion layer M (18) of Ti, Zr, Hf, V, Nb, Ta, W and alloys thereof and a layer (20) of Al -rare-earth or Al-Y alloy. The layers (18, 20) may be heat treated to become one layer. A further layer (22) of AlCu, AlCuSi or AlCuGe alloy may be added and heat treated to form one layer with the layers below. The invention overcomes the problems of polishing MAI_3 or other M aluminides by reducing their formation, of scratching by reducing the size of the polishing debris, and of Cu plate out during polishing. The invention improves form-filling.

Fig. 1.