

COPPER STUD STRUCTURE WITH REFRACTORY METAL LINER

ABSTRACT

A multilayer interconnected electronic component (10) having increased electromigration lifetime is provided. The interconnections are in the form of studs (14) and comprise vertical side walls having a refractory metal diffusion barrier liner (15) along the sidewalls. The stud (14) does not have a barrier layer (16) at the base thereof and the base of the stud (14) contacts the metallization on the dielectric layer (11a, 11b, 11c) of the component (10). An adhesion layer can be provided between the base of the stud (14) and the surface of the metallization and the adhesion layer may be continuous or discontinuous. The adhesion layer is preferably a metal such as aluminum which dissolves in the stud (14) or metallization upon heating of the component during fabrication or otherwise during use of the component (10). A preferred component (10) utilizes a dual Damascene structure.

Fig. 1

This Sheet Has Been Replaced

