Barrier Structure For Semiconductor Devices

ABSTRACT

An opening in a dielectric layer having a unique barrier layer structure is provided. In an embodiment, the opening is a via and a trench. The barrier layer, which may comprise one or more barrier layers, is formed such that the ratio of the thickness of the barrier layers along a sidewall approximately midway between the bottom of the trench and the top of the dielectric layer to the thickness of the barrier layers along the bottom of the trench is greater than about 0.55. In another embodiment, the ratio of the thickness of the barrier layers along a sidewall approximately midway between the bottom of the trench and the top of the dielectric layer to the thickness of the barrier layers along the bottom of the via is greater than about 1.0. An underlying conductive layer may be recessed.

(FIG. 1a)