ABSTRACT OF THE DISCLOSURE

TITANIUM NITRIDE/TITANIUM TUNGSTEN ALLOY COMPOSITE BARRIER LAYER FOR INTEGRATED CIRCUITS

A method for forming a barrier layer upon an electrode contact. There is first provided a silicon substrate layer having an electrode contact region formed within the silicon substrate layer. There is then formed over the silicon substrate layer a titanium layer, where the titanium layer contacts the electrode contact region of the silicon substrate layer. There is then processed thermally the titanium layer in a nitrogen containing atmosphere to form a titanium silicide layer in contact with the electrode contact region and a titanium nitride layer formed thereover, where the titanium layer is completely consumed in forming the titanium silicide layer and the titanium nitride layer. Finally, there is formed upon the titanium nitride layer a barrier layer.

(FIGURE 1 IS SUGGESTED FOR PUBLICATION)