

**Abstract :**

The passage of an electrical current of high density shows a phenomenon of electromigration on a metal thin layer. This phenomenon causes the failure of interconnections.

The stress of tension is resulting from matter depletion in cathode induces the formation of void, the rupture of interconnects and the opening of circuit.

The compressive stress is due to the accumulation of matter in the anode produces the formation of hillocks and closing of circuit.

**Key words :** electromigration , interconnects , integrate circuits ,mechanical stress, diffusions , reliability of thin films , simulation