Title (en)

ELECTRONIC DEVICES WITH BARRIER FILM AND PROCESS FOR MAKING SAME

Title (de)

ELEKTRONISCHE VORRICHTUNGEN MIT SPERRFILM UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

DISPOSITIFS ELECTRONIQUES POURVUS DE FILMS BARRIERES ET PROCEDE DE FABRICATION

Publication

EP 1114464 A1 20010711 (EN)

Application

EP 99943619 A 19990818

Priority

- US 9916719 W 19990818
- US 13708398 A 19980820
- US 13708498 A 19980820
- US 13708598 A 19980820
- US 13708698 A 19980820
- US 13708798 A 19980820
- US 13708898 A 19980820
- US 13708998 A 19980820
- US 21512798 A 19981218
- US 21512898 A 19981218

Abstract (en)

[origin: WO0011721A1] A semiconductor device having a barrier film (47) comprising an extremely thin film formed of one or more monolayers each comprised of a two-dimensional array of metal atoms. In one exemplary aspect, the barrier film (47, 49) is used for preventing the diffusion of atoms of another material (45) such as copper conductor, into a substrate (46), such as a semiconducting material or an insulating material, and an oxide layer (48). Methods for making the barrier film (47) in a semiconductor device are also covered. The extremely thin barrier film (47, 49) makes possible a significant increase in the component density and a corresponding reduction in the number of layers in large scale integrated circuits, as well as improved performance.

IPC 1-7

H01L 29/43; H01L 21/441

IPC 8 full level

C23C 14/02 (2006.01); **C23C 14/18** (2006.01); **C23C 14/58** (2006.01); **C23C 16/02** (2006.01); **C23C 16/14** (2006.01); **H01L 21/768** (2006.01)

CPC (source: EP)

C23C 14/025 (2013.01); **C23C 14/18** (2013.01); **C23C 14/5806** (2013.01); **C23C 16/0281** (2013.01); **C23C 16/14** (2013.01); **H01L 21/76843** (2013.01); **H01L 21/76846** (2013.01)

Citation (search report)

See references of WO 0011721A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0011721 A1 20000302; EP 1114464 A1 20010711

DOCDB simple family (application)

US 9916719 W 19990818; EP 99943619 A 19990818