

Title (en)

METHOD FOR PRODUCING AN INTERCONNECTION COMPRISING A VIA EXTENDING THROUGH A SUBSTRATE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINER VERBINDUNG MIT EINER DURCH EIN SUBSTRAT REICHENDEN DURCHKONTAKTIERUNG

Title (fr)

PROCEDE DE FABRICATION D'UNE INTERCONNEXION COMPRENANT UN VIA S' ETENDANT AU TRAVERS D'UN SUBSTRAT

Publication

EP 3405974 A1 20181128 (FR)

Application

EP 17701653 A 20170116

Priority

- FR 1650408 A 20160119
- EP 2017050761 W 20170116

Abstract (en)

[origin: WO2017125336A1] The invention relates to a method for producing an interconnection comprising a via (V) extending through a substrate (1), said method successively comprising: (a) the deposition of a layer (11) of titanium nitride or tantalum nitride on a main surface (1A) of the substrate and on the inner surface (10A, 10B) of at least one hole (10) extending into at least part of the thickness of said substrate; (b) the deposition of a layer (12) of copper on said layer (11) of titanium nitride or tantalum nitride; and (c) the filling of the hole (10) with copper, said method being characterised in that, during step (a), the substrate (1) is arranged in a first deposition chamber (100), and in that said step (a) comprises the injection of a titanium or tantalum precursor in a gaseous phase into the deposition chamber via a first injection path according to a first pulse sequence, and the injection of a nitrogen-containing reactive gas into the deposition chamber via a second injection path different from the first injection path according to a second pulse sequence, the first pulse sequence and the second pulse sequence being dephased.

IPC 8 full level

H01L 21/768 (2006.01); **C23C 16/455** (2006.01); **H01L 21/285** (2006.01)

CPC (source: EP KR US)

C23C 16/34 (2013.01 - US); **C23C 16/4405** (2013.01 - US); **C23C 16/45523** (2013.01 - EP KR US); **C25D 3/38** (2013.01 - US); **C25D 5/02** (2013.01 - US); **C25D 7/123** (2013.01 - US); **H01L 21/02046** (2013.01 - KR); **H01L 21/0254** (2013.01 - KR); **H01L 21/28202** (2013.01 - KR); **H01L 21/28556** (2013.01 - EP KR); **H01L 21/3065** (2013.01 - KR); **H01L 21/67017** (2013.01 - KR); **H01L 21/76852** (2013.01 - US); **H01L 21/7687** (2013.01 - KR); **H01L 21/76897** (2013.01 - KR); **H01L 21/76898** (2013.01 - EP KR US); **H01L 23/481** (2013.01 - US); **H01L 23/53238** (2013.01 - US)

Citation (search report)

See references of WO 2017125336A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

FR 3046878 A1 20170721; **FR 3046878 B1 20180518**; CN 108475660 A 20180831; EP 3405974 A1 20181128; KR 20180118627 A 20181031; TW 201733066 A 20170916; US 11114340 B2 20210907; US 2021202314 A1 20210701; WO 2017125336 A1 20170727

DOCDB simple family (application)

FR 1650408 A 20160119; CN 201780007371 A 20170116; EP 17701653 A 20170116; EP 2017050761 W 20170116; KR 20187023627 A 20170116; TW 106101376 A 20170116; US 201716070506 A 20170116