

Title (en)

METHOD AND DEVICE FOR PRODUCING GROUP III-N, GROUP III-V-N AND METAL-NITROGEN COMPONENT STRUCTURES ON SI SUBSTRATES

Title (de)

VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG VON GRUPPE-III-N, GRUPPE-III-V-N UND METALL-STICKSTOFF-BAUELEMENTSTRUKTUREN AUF SI-SUBSTRATEN

Title (fr)

PROCEDE ET DISPOSITIF PERMETTANT DE PRODUIRE DES STRUCTURES DE COMPOSANTS GROUPE-III-N, GROUPE-III-V-N ET METAL-AZOTE SUR DES SUBSTRATS SI

Publication

EP 1259978 A2 20021127 (DE)

Application

EP 01921151 A 20010302

Priority

- DE 0100777 W 20010302
- DE 10009945 A 20000302

Abstract (en)

[origin: WO0165592A2] The invention relates to a method and a device for producing Group-III-N, Group-III-V-N and metal-nitrogen component structures on Si substrates by means of organometallic gas phase epitaxy. The inventive method and the corresponding device are characterised in that a low-temperature germination layer and/or a low-temperature buffer layer is/are produced from a Group III-V semiconductor and/or a metal-Group V connecting semiconductor and a component layer or sequence of layers is produced from Group-III-N, Group-III-V-N or metal-Group-V semiconductors in a horizontal growth chamber, in that a minimal lateral temperature difference of less than 5 K, preferably less than 1K, an adjustable roof temperature and/or wall temperature and a temperature on a substrate holder that is caused to rotate by a gas cushion are maintained, the reaction gases being introduced in such a way as to prevent any unwanted interaction between the starting gases and in such a way that the procedure can be observed without disturbing the growth process.

IPC 1-7

H01L 21/205

IPC 8 full level

C30B 25/02 (2006.01); **H01L 21/205** (2006.01); **H01L 33/00** (2006.01); **H01L 33/12** (2010.01); **H01L 33/32** (2010.01); **H01L 33/34** (2010.01); **H01S 5/323** (2006.01); **H01L 21/20** (2006.01)

CPC (source: EP KR US)

C30B 25/02 (2013.01 - EP US); **C30B 29/403** (2013.01 - EP US); **C30B 29/406** (2013.01 - EP US); **H01L 21/02381** (2013.01 - KR); **H01L 21/0254** (2013.01 - KR); **H01L 21/0262** (2013.01 - KR); **C30B 25/02** (2013.01 - KR); **C30B 29/406** (2013.01 - KR); **H01L 21/02381** (2013.01 - EP US); **H01L 21/0254** (2013.01 - EP US); **H01L 21/0262** (2013.01 - EP US)

Citation (search report)

See references of WO 0165592A2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

WO 0165592 A2 20010907; **WO 0165592 A3 20011206**; EP 1259978 A2 20021127; JP 2003526203 A 20030902; KR 20020086595 A 20021118; US 2003070610 A1 20030417

DOCDB simple family (application)

DE 0100777 W 20010302; EP 01921151 A 20010302; JP 2001564384 A 20010302; KR 20027011426 A 20020830; US 23364702 A 20020903