Title (en)

Modulation doped high electron mobility transistor with n-i-p-i structure.

Title (de)

Modulationsdotierter Hochelektronengeschwindigkeitstransistor mit einer n-i-p-i-Struktur.

Title (fr)

Transistor à modulation de dopage et haute mobilité électronique, comportant une structure n-i-p-i.

Publication

EP 0301260 A1 19890201 (DE)

Application

EP 88110412 A 19880629

Priority

US 6968587 A 19870706

Abstract (en)

A modulation-doped field effect transistor includes an undoped semiconductor layer (104) and an arrangement (106, 108) for supplying charge carriers into a region of the semiconductor layer (104) adjacent one side. An arrangement (102) is provided for locally modulating the charge carrier density in another region adjacent the other side of the semiconductor layer (104) in a repeating pattern of alternations so as to inhibit current flow in the direction of the alternations.

IPC 1-7

H01L 29/80; H01L 29/205; H01L 29/36; H01L 29/10

IPC 8 full level

H01L 21/338 (2006.01); **H01L 29/205** (2006.01); **H01L 29/36** (2006.01); **H01L 29/778** (2006.01); **H01L 29/812** (2006.01)

CPC (source: EP US)

H01L 29/205 (2013.01 - EP US); **H01L 29/36** (2013.01 - EP US); **H01L 29/7783** (2013.01 - EP US)

Citation (search report)

- [A] EP 0091831 A2 19831019 - SAKAKI HIROYUKI
- [A] EP 0056904 A2 19820804 - FUJITSU LTD [JP]
- [A] GB 2171250 A 19860820 - SONY CORP
- [A] JAPANESE JOURNAL OF APPLIED PHYSICS, vol. 23, no. 2, February 1984, pages L61-L63, Tokyo, JP; K. INOUE et al.: "A new highly-conductive (AlGa)As/GaAs/(AlGa)As selectively-doped double-heterojunction field-effect transistor (SD-DH-FET)"
- [A] MICROELECTRONICS JOURNAL, vol. 13, no. 3, May/June 1982, pages 5-22, Benn Electronics Publications Ltd, Luton, GB; K. PLOOG et al.: "Growth and properties of new artificial doping superlattices in GaAs"
- [A] APPLIED PHYSICS LETTERS, vol. 47, no. 12, 15th December 1985, pages 1324-1326, American Institute of Physics, Woodbury, New York, US; Y.-C. CHANG et al.: "A new one-dimensional quantum well structure"

Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

EP 0301260 A1 19890201; JP S6424467 A 19890126; US 4855797 A 19890808

DOCDB simple family (application)

EP 88110412 A 19880629; JP 16764188 A 19880704; US 6968587 A 19870706