

Title (en)

CAPACITIVE-COUPLED NON-VOLATILE THIN-FILM TRANSISTOR STRINGS IN THREE DIMENSIONAL ARRAYS

Title (de)

KAPAZITIVE GEKOPPELTE NICHTFLÜCHTIGE DÜNNFILM-TRANSISTORSTRÄNGE IN DREIDIMENSIONALEN ARRAYS

Title (fr)

CHAÎNES DE TRANSISTORS À COUCHES MINCES NON-VOLATILES À COUPLAGE CAPACITIF DANS DES RÉSEAUX TRIDIMENSIONNELS

Publication

EP 3504728 A4 20200909 (EN)

Application

EP 17844550 A 20170825

Priority

- US 201615248420 A 20160826
- US 2017048768 W 20170825

Abstract (en)

[origin: WO2018039654A1] Multi-gate NOR flash thin-film transistor (TFT) string arrays are organized as three dimensional stacks of active strips. Each active strip includes a shared source sublayer and a shared drain sublayer that is connected to substrate circuits. Data storage in the active strip is provided by charge-storage elements between the active strip and a multiplicity of control gates provided by adjacent local word-lines. The parasitic capacitance of each active strip is used to eliminate hard-wire ground connection to the shared source making it a semi-floating, or virtual source. Pre-charge voltages temporarily supplied from the substrate through a single port per active strip provide the appropriate voltages on the source and drain required during read, program, program-inhibit and erase operations. TFTs on multiple active strips can be pre-charged separately and then read, programmed or erased together in a massively parallel operation.

IPC 8 full level

H01L 27/11578 (2017.01); **G11C 11/34** (2006.01); **G11C 16/04** (2006.01); **G11C 16/06** (2006.01); **H01L 27/11568** (2017.01); **H01L 29/792** (2006.01)

CPC (source: EP KR)

G11C 16/08 (2013.01 - KR); **G11C 16/10** (2013.01 - KR); **H01L 21/28** (2013.01 - KR); **H01L 29/78618** (2013.01 - KR); **H01L 29/78696** (2013.01 - KR); **H10B 41/20** (2023.02 - KR); **H10B 41/30** (2023.02 - KR); **H10B 43/20** (2023.02 - EP KR); **H10B 43/30** (2023.02 - EP KR); **H01L 2924/1443** (2013.01 - KR)

Citation (search report)

- [I] US 2016086970 A1 20160324 - PENG HAIBING [US]
- [I] KR 20120085591 A 20120801 - KIM JIN SEON [KR]
- See also references of WO 2018039654A1

Designated contracting state (EPC)

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