Title (en)

METHODS AND DEVICE FOR IMPROVED PROGRAM-VERIFY OPERATIONS IN NON-VOLATILE MEMORIES

Title (de)

VERFAHREN UND VORRICHTUNG FÜR VERBESSERTE PROGRAMMPRÜFUNGSOPERATIONEN IN NICHTFLÜCHTIGEN SPEICHERN

Title (fr)

PROCEDES ET DISPOSITIF POUR REALISER DES OPERATIONS AMELIOREES DE VERIFICATION DE PROGRAMME DANS DES MEMOIRES PERMANENTES

Publication

EP 1966802 A2 20080910 (EN)

Application

EP 06848897 A 20061227

Priority

- US 2006062627 W 20061227
- US 32359605 A 20051229
- US 32357705 A 20051229

Abstract (en)

[origin: WO2007076512A2] In programming a non-volatile memory involving alternately applying a programming pulse and verifying the programming, time is saved in the program verify portion when, depending on the states of the memory cells, a portion of the verify operation is recognized to be superfluous and skipped. Preferably, in a program verify operation relative to a demarcation threshold level for demarcating between two memory states, the verify operation includes a sequence of two verify sub-cycles, the first sub-cycle performing a verify relative to a first threshold level at a predetermined margin below the demarcation threshold level and the second sub-cycle performing a verify relative to a second threshold level which is identical to the demarcation threshold level. Unlike conventional cases, the second sub-cycle is not performed until any one memory cell of the group has been verified to pass the first threshold.

IPC 8 full level

G11C 16/10 (2006.01); **G11C 16/34** (2006.01)

CPC (source: EP KR)

G11C 16/10 (2013.01 - EP KR); **G11C 16/34** (2013.01 - KR); **G11C 16/3454** (2013.01 - EP); **G11C 16/3459** (2013.01 - EP)

Citation (search report)

See references of WO 2007076512A2

Designated contracting state (EPC)

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