Title (en)

METHOD AND APPARATUS FOR DOPING SILICON WAFERS USING A SOLID DOPANT SOURCE AND RAPID THERMAL PROCESSING

Publication

EP 0588792 A4 19940525 (EN)

Application

EP 91920043 A 19911002

Priority

US 59179190 A 19901002

Abstract (en)

[origin: WO9205896A1] The present invention is, in part, a new process for dopant diffusion, both p-type (e.g., B) and n-type (e.g., P, As), into silicon wafers, using rapid thermal processing (RTP). It uses a surface layer of a new planar dopant as an active dopant source. Such a source is produced using either a rigid holder wafer with a spin-on dopant or CVD doped oxides deposited on its surface, or such a source is high pressure planar solid source having a surface that has been activated by dry etching or sputtering etching. Such a dopant source is placed in proximity to a processed silicon wafer in such a manner that its active surface is facing the surface of the silicon wafer during RTP. Both the silicon wafer and the dopant source are heated by lamps emitting light causing transport of dopant from the dopant source to the silicon surface. The dopant source may be produced using either silicon wafers, quartz or ceramic plates or planar solid diffusion sources which are commercially available in a form of solid discs containing compounds containing various dopant atoms (e.g., B, P, and As).

IPC 1-7

B21F 41/00

IPC 8 full level

H01L 21/225 (2006.01); **H01L 21/00** (2006.01); **H01L 21/22** (2006.01); **H01L 21/223** (2006.01); **H01L 21/26** (2006.01); **H01L 21/268** (2006.01); **H01L 21/324** (2006.01)

CPC (source: EP KR)

H01L 21/223 (2013.01 - EP); **H01L 21/225** (2013.01 - KR); **H01L 21/2686** (2013.01 - EP); **H01L 21/67115** (2013.01 - EP)

Citation (search report)

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- See references of WO 9205896A1

Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

WO 9205896 A1 19920416; EP 0588792 A1 19940330; EP 0588792 A4 19940525; JP H06508957 A 19941006; KR 930702095 A 19930908

DOCDB simple family (application)

US 9107333 W 19911002; EP 91920043 A 19911002; JP 51836191 A 19911002; KR 930700699 A 19930309