

Title (en)
DOPED DIAMOND SEMICONDUCTOR AND METHOD OF MANUFACTURE

Title (de)
DOTIERTER DIAMANTHALBLEITER UND HERSTELLUNGSVERFAHREN

Title (fr)
SEMI-CONDUCTEUR AU DIAMANT DOPÉ ET PROCÉDÉ DE FABRICATION

Publication
EP 3642868 A1 20200429 (EN)

Application
EP 18820671 A 20180618

Priority
• US 201715627426 A 20170619
• US 201715836570 A 20171208
• US 2018038099 W 20180618

Abstract (en)
[origin: WO2018236760A1] A doped diamond semiconductor and method of production using a laser is disclosed herein. As disclosed, a dopant and/or a diamond or sapphire seed material may be added to a graphite based ablative layer positioned below a confinement layer, the ablative layer also being graphite based and positioned above a backing layer, to promote formation of diamond particles having desirable semiconductor properties via the action of a laser beam upon the ablative layer. Dopants may be incorporated into the process to activate the reaction sought to produce a material useful in production of a doped semiconductor or a doped conductor suitable for the purpose of modulating the electrical, thermal or quantum properties of the material produced. As disclosed, the diamond particles formed by either the machine or method of confined pulsed laser deposition disclosed may be arranged as semiconductors, electrical components, thermal components, quantum components and/or integrated circuits.

IPC 8 full level
H01L 21/268 (2006.01); **C30B 29/04** (2006.01)

CPC (source: EP KR)
C30B 23/00 (2013.01 - EP KR); **C30B 23/066** (2013.01 - EP KR); **C30B 23/08** (2013.01 - EP KR); **C30B 29/04** (2013.01 - EP KR); **H01L 21/02527** (2013.01 - EP KR); **H01L 21/02573** (2013.01 - EP KR); **H01L 21/02631** (2013.01 - KR); **H01L 21/02675** (2013.01 - EP); **H01L 21/268** (2013.01 - KR)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2018236760 A1 20181227; CN 110998796 A 20200410; EP 3642868 A1 20200429; EP 3642868 A4 20210407; KR 102638845 B1 20240220; KR 20200053464 A 20200519

DOCDB simple family (application)
US 2018038099 W 20180618; CN 201880053445 A 20180618; EP 18820671 A 20180618; KR 20207001880 A 20180618