Title (en)

METHOD FOR FABRICATING A THREE-DIMENSIONAL THIN-FILM SEMICONDUCTOR SUBSTRATE FROM A TEMPLATE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES DREIDIMENSIONALEN DÜNSCHICHT-HALBLEITERSUBSTRATS AUS EINER MATRIZE

Title (fr)

PROCÉDÉ DE FABRICATION D'UN SUBSTRAT SEMI-CONDUCTEUR À COUCHE MINCE TRIDIMENSIONNEL À PARTIR D'UN MODÈLE

Publication

EP 2412029 A1 20120201 (EN)

Application

EP 10756809 A 20100324

Priority

- US 2010028534 W 20100324
- US 16283009 P 20090324

Abstract (en)

[origin: WO2010111417A1] A method is presented for fabrication of a three-dimensional thin-film solar cell semiconductor substrate from a template. A semiconductor template having three-dimensional surface features comprising a top surfaces substantially aligned along a (100) crystallographic plane of semiconductor template and a plurality of inverted pyramidal cavities defined by sidewalls substantially aligned along a (111) crystallographic plane is formed according to an anisotropic etching process. A dose of relatively of high energy light-mass species is implanted in the template at a uniform depth and parallel to the top surfaces and said sidewalls defining the inverted pyramidal cavities of the template. The semiconductor template is annealed to convert the dose of relatively of high energy light-mass species to a mechanically-weak-thin layer. The semiconductor template is cleaved along the mechanically-weak-thin layer to release a three- dimensional thin-film semiconductor substrate from the semiconductor template.

IPC 8 full level

H01L 31/18 (2006.01); **H01L 31/0352** (2006.01)

CPC (source: EP US)

C30B 29/06 (2013.01 - EP); **C30B 31/22** (2013.01 - EP); **H01L 31/035281** (2013.01 - EP US); **H01L 31/1892** (2013.01 - EP); Y02E 10/50 (2013.01 - EP)

Designated contracting state (EPC)

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 SE SI SK SM TR

DOCDB simple family (publication)

WO 2010111417 A1 20100930; EP 2412029 A1 20120201; EP 2412029 A4 20131002; MY 159267 A 20161230

DOCDB simple family (application)

US 2010028534 W 20100324; EP 10756809 A 20100324; MY PI2011004548 A 20100324