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(54) Title: METHOD OF DESIGN AND GROWTH OF SINGLE-CRYSTAL 3D NANOSTRUCTURED SOLAR CELL OR DETECTOR

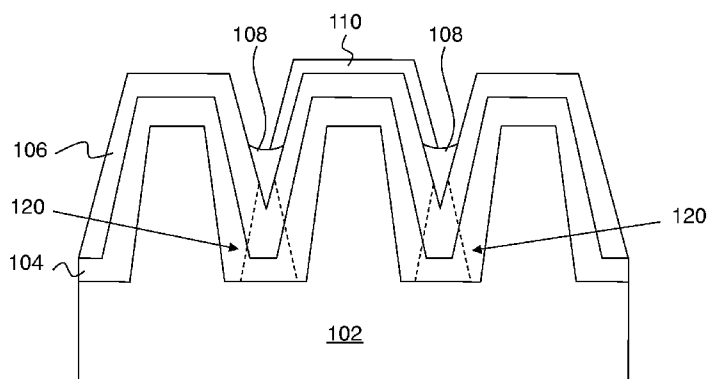


Fig. 1

(57) Abstract: Photovoltaic devices conformally deposited on a nano-structured substrate having hills and valleys have corresponding hills and valleys in the device layers. We have found that disposing an insulator in the valleys of the device layers such that the top electrode of the device is insulated from the device layer valleys provides beneficial results. In particular, this insulator prevents electrical shorts that otherwise tend to occur in such devices.



A. CLASSIFICATION OF SUBJECT MATTER***H01L 31/04(2006.01)i, H01L 31/08(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01L 31/04; H01L 21/20; H01L 31/035; H01L 31/0352; H01L 31/18; H01L 31/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: (photovoltaic, solar cell), nano, insulator, electrode.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0189145 A1 (WANG SHIH-YUAN et al.) 30 July 2009 See abstract, paragraphs [0054]-[0056], claims 1-9, 13, 20, 23 and figures 1, 5.	1-6
A	EP 1703569 A2 (GENERAL ELECTRIC COMPANY) 20 September 2006 See abstract, paragraphs [000]-[0061], claims 1-5, 10 and figures 7-8, 10.	1-6
A	US 2009-0050204 A1 (HABIB YOUSSEF) 26 February 2009 See abstract, claims 1-3, and figures 1, 4.	1-6
A	US 2009-0211632 A1 (BRETT MICHAEL JULIAN et al.) 27 August 2009 See abstract, and figures 1-2.	1-6



Further documents are listed in the continuation of Box C.



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