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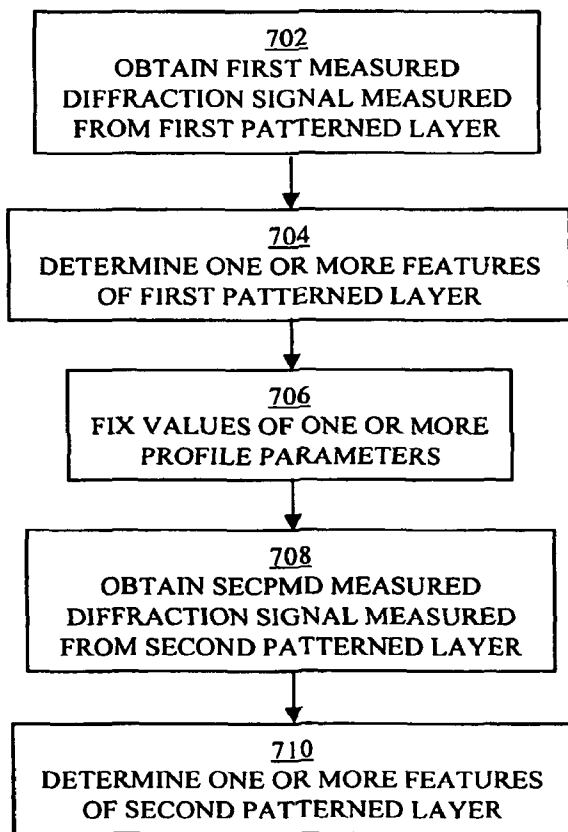
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(57) Abstract: One or more features of multiple patterned layers formed on a semiconductor are determined by obtaining a first measured diffraction signal measured from a first patterned layer before a second patterned layer is formed on top of the first patterned layer. One or more features of the first patterned layer are determined using the first measured diffraction signal. Values of one or more profile parameters of a hypothetical profile of the second patterned layer in combination with the first patterned layer are fixed. A second measured diffraction signal measured from the second patterned layer after the second patterned layer has been formed on top of the first patterned layer is obtained. One or more features of the second patterned layer are determined based on the second measured diffraction signal and the fixed values of the one or more profile parameters.

WO 2007/123701 A3

**INTERNATIONAL SEARCH REPORT**

International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **G01B 11/14(2006.01)**

USPC: 356/625  
 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)  
 U.S. : 356/625, 630, 600; 702/127

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

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 2002/0035455 A1 (NIU et al) 21 March 2002, see entire document	1, 5-21
Y		2-4
Y	US 2004/0233440 A1 (Mieher et al) 25 November 2004, See entire document	2, 3

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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