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(54) Title: METHODS FOR THE EPITAXIAL GROWTH OF SILICON CARBIDE

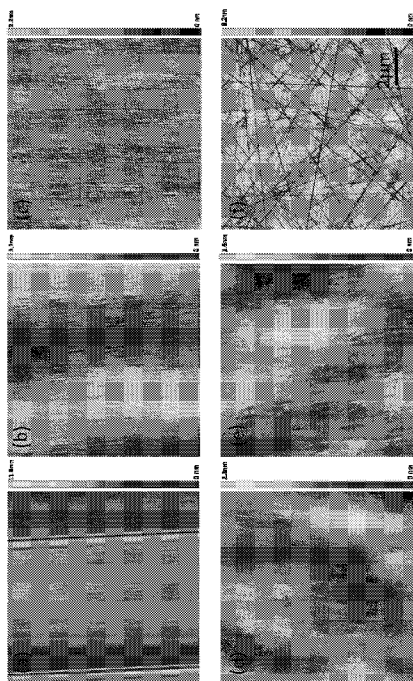


FIG. 1

(57) Abstract: A method for the epitaxial growth of SiC is described which includes contacting a surface of a substrate with hydrogen and HCl, subsequently increasing the temperature of the substrate to at least 1550 °C and epitaxially growing SiC on the surface of the substrate. A method for the epitaxial growth of SiC is also described which includes heating a substrate to a temperature of at least 1550 °C, contacting a surface of the substrate with a C containing gas and a Si containing gas at a C/Si ratio of 0.5-0.8 to form a SiC buffer layer and subsequently contacting the surface with a C containing gas and a Si containing gas at a C/Si ratio > 0.8 to form a SiC epitaxial layer on the SiC buffer layer. The method results in silicon carbide epitaxial layers with improved surface morphology.



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INTERNATIONAL SEARCH REPORT

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PCT/US2012/051718**A. CLASSIFICATION OF SUBJECT MATTER****H01L 21/20(2006.01)i, C30B 29/36(2006.01)i, C30B 23/02(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 21/20; C30B 25/20; C30B 33/12; H01L 21/31; B32B 9/04; C30B 29/36

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: epitaxial, silicon, carbide, buffer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	KR 10-2011-0093892 A (NIPPON STEEL CORP) 18 August 2011 See abstract; paragraphs [0028]-[0045]; and figures 1, 6.	1,6,8 2-5,7,9-15,28
Y	JP 2011-121847 A (SHOWA DENKO KK) 23 June 2011 See paragraphs [0086], [0090]; and claim 4.	2-5,7,9,13-15,28
X Y	US 2005-0181627 A1 (ISAHO KAMATA et al.) 18 August 2005 See paragraphs [0094], [0111]; and claims 1, 4, 9.	16-21 10-12,29
Y	US 2011-0045281 A1 (RACHAEL L. MYERS-WARD et al.) 24 February 2011 See claims 10, 11, 14.	29
A	JP 09-052796 A (FUJI ELECTRIC CO LTD) 25 February 1997 See paragraph [0009]; and figure 1.	1-21,28-29

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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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