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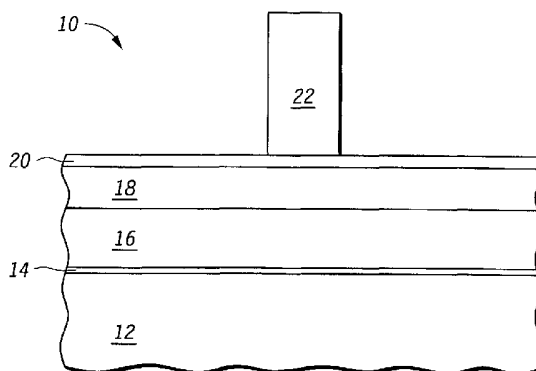
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(54) Title: A SEMICONDUCTOR DEVICE HAVING AN ORGANIC ANTI-REFLECTIVE COATING (ARC) AND METHOD THEREFOR



(57) Abstract: In a making a semiconductor device (10), a patterning stack above a conductive material (16) that is to be etched has a patterned photoresist layer (22) that is used to pattern an underlying a tetraethyl-ortho-silicate (TEOS) layer (20). The TEOS layer (20) is deposited at a lower temperature than is conventional. The low temperature TEOS layer (20) is over an organic anti-reflective coating (ARC) (18) that is over the conductive layer (16). The low temperature TEOS layer (20) provides adhesion between the organic ARC (18) and the photoresist (22), has low defectivity, operates as a hard mask, and serves as a phase shift layer that helps, in combination with the organic ARC (18), to reduce undesired reflection.



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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 021/332

US CL : 438/636, 669, 671, 717, 720, 725, 736, 737, 738, 742, 744, 754

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. : 438/636, 669, 671, 717, 720, 725, 736, 737, 738, 742, 744, 754

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
East, US-PGP; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,187,688 B1 (OHKUNI) 13 February 2001 (13.02.2001), see entire document.	1-14
A	US 6,316,167 B1 (ANGELOPOULOS) 13 November 2001 (13.11.2001), see entire documents.	1-14
A	US 6,417,084 B1 (SINGH) 09 July 2002 (09.07.2002), see entire document.	1-14
A	US 6,428,894 B1 (BABICH et al) 06 August 2002 (06.08.2002), see entire document.	1-14
A	US 6,423,384 B1 (KHAZENI) 23 July 2002 (23.07.2002), see entire document.	1-14
A	US 6,503,818 B1 (JANG) 07 January 2003 (07.01.2003), see entire document.	1-14
A	US 6,548,423 B1 (PLAT) 15 April 2003 (15.04.2003), see entire document.	1-14

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