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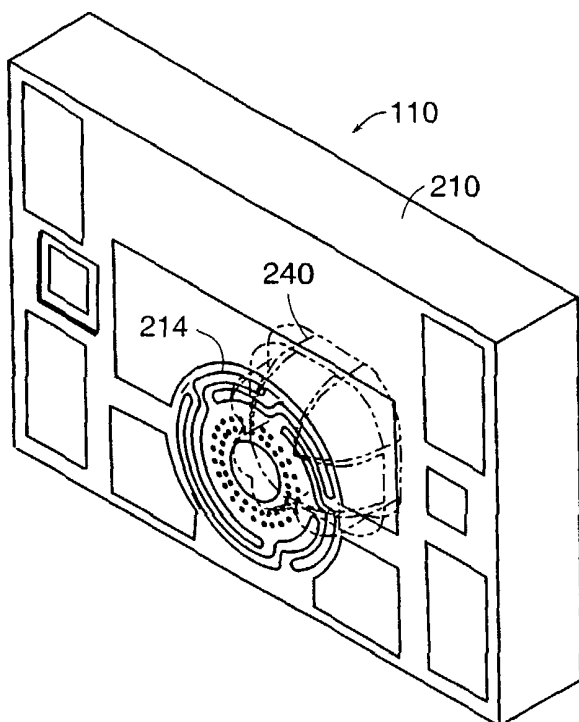
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- (74) Agent: **HOUSTON, J., Grant**; Axsun Technologies, Inc., 1 Fortune Drive, Billerica, MA 01821 (US).
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(54) Title: SILICON ON INSULATOR OPTICAL MEMBRANE STRUCTURE FOR FABRY-PEROT MOEMS FILTER



(57) Abstract: A process for fabricating an optical membrane device comprises providing a handle wafer and then oxidizing a surface of the handle wafer to form an insulating layer. A device wafer is then bonded to the handle wafer. An optical membrane structure is formed in this device wafer. The insulating layer is selectively removed to release the membrane structure. This device wafer can be manufactured from silicon wafer material. Such material typically has a low number of dislocations yielding a stable mechanical membrane structure. The insulating layer defines the electrical cavity across which electrical fields are established that are used to electrostatically deflect the membrane structure. The insulating layer is between 3 and 6 micrometers ( $\mu\text{m}$ ) in thickness.



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INTERNATIONAL SEARCH REPORT

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PCT/US 01/06853

A. CLASSIFICATION OF SUBJECT MATTER

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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)

IPC 7 G02B

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 practical, search terms used)

WPI Data, EPO-Internal, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	XIAO Z ET AL: "THE INFLUENCE OF PRESSURE ON THE OPTICAL PROPERTIES OF ARTIFICIAL MICROCAVITIES IN SILICON" SEMICONDUCTOR SCIENCE AND TECHNOLOGY, INSTITUTE OF PHYSICS. LONDON, GB, vol. 12, no. 2, 1 February 1997 (1997-02-01), pages 166-172, XP000641212 ISSN: 0268-1242 page 166, right-hand column, paragraph 2 page 167, left-hand column figure 1 --- -/--	11

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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X	EP 0 689 078 A (MATSUSHITA ELECTRIC IND CO LTD) 27 December 1995 (1995-12-27) column 19, line 8 - line 16; figure 7B ---	1-3
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A	ARATANI K ET AL: "SURFACE MICROMACHINED TUNEABLE INTERFEROMETER ARRAY" SENSORS AND ACTUATORS A, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. A43, no. 1/3, 1 May 1994 (1994-05-01), pages 17-23, XP000454081 ISSN: 0924-4247 figures 3,11,12 ---	1-16
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Information on patent family members

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