



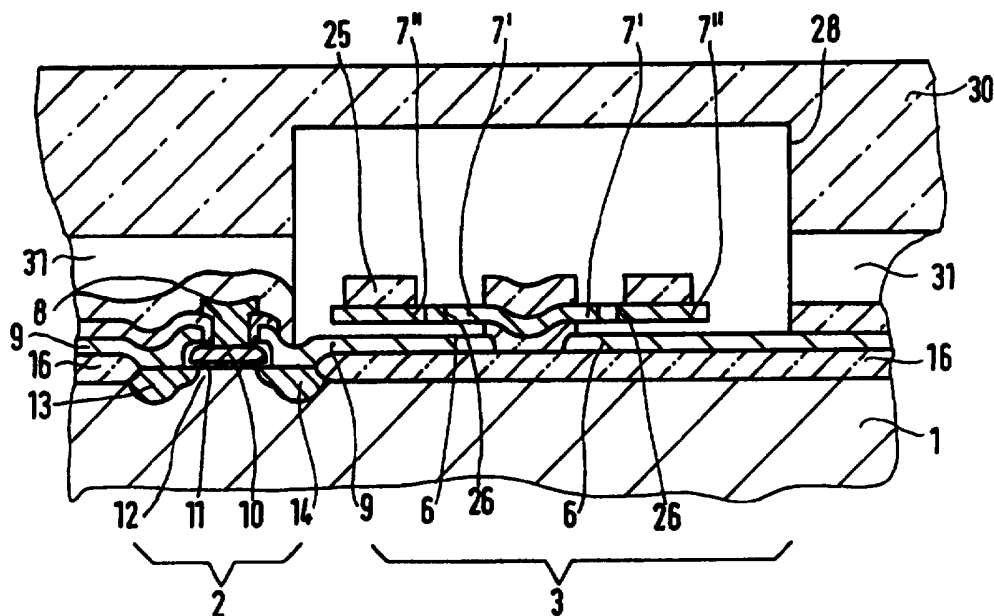
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: SEMICONDUCTOR DEVICE PROVIDED WITH A MICROCOMPONENT HAVING A FIXED AND A MOVABLE ELECTRODE

(57) Abstract

The invention relates to a method of manufacturing a semiconductor device whereby semiconductor switching elements (2) and an integrated microcomponent (3) with a fixed electrode (6) and an electrode (7) which is movable relative to the fixed electrode (6) are provided adjacent a surface of a semiconductor slice (1), which slice (1) is subsequently subdivided into individual semiconductor devices. According to the invention, the method is characterized in that, after the semiconductor switching elements (2) have been



provided, metal conductor tracks (20) of a first level are provided on the surface which form the fixed electrode (6) and electrical connections (9), over which an insulating layer (21) and metal conductor tracks (22) of a second level are provided, which form the movable electrode (7) and further electrical connections (8), after which the insulating layer (21) between the fixed (6) and the movable electrode (7) is removed. In the method according to the invention, the semiconductor switching elements (2) are thus manufactured first, after which during the application of the metallization of the device the microcomponent (3) is also manufactured. Since the electrodes (6, 7) of the microcomponent are manufactured by means of conductor tracks (20, 22) at the two metallization levels, it suffices to adapt the metallization stage ("back end") of the manufacturing process only for the creation of a microcomponent (3). A standard process may accordingly be taken for the manufacture of the semiconductor elements (2). The manufacture of the device becomes simpler and cheaper thereby.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 95/00913

A. CLASSIFICATION OF SUBJECT MATTER		
IPC6: H01L 21/302, H01L 21/311, H01L 21/283, G01P 15/08 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
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IPC6: H01L, G01P		
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)		
DIALOG: 2, 350, 351, 434		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0604212 A1 (NEC CORPORATION), 29 June 1994 (29.06.94), column 3, line 54 - column 5, line 13; column 6, line 36 - column 11, line 24, figures 8,9,10A-H,11,12; claims 1-5,9	1-4,6
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Y	US 4948757 A (JAIN ET AL.), 14 August 1990 (14.08.90), column 3, line 4 - column 4, line 34; column 4, line 60 - column 10, line 38, figures 1-5,7-13, claim 4	1-4,6
A	--	5
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search		Date of mailing of the international search report
31 May 1996		04 -06- 1996
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International application No. PCT/IB 95/00913
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0547742 A1 (MOTOROLA, INC.), 23 June 1993 (23.06.93), page 2, line 26 - line 36; page 4, line 25 - line 35, figure 5 --	1-6
A	EP 0560661 A1 (SOCIETE D'APPLICATIONS GENERALES D'ELECTRICITE ET DE MECANIQUE SAGEM), 15 Sept 1993 (15.09.93), figures 1,2 --	1-6
A	EP 0566943 A1 (ASULAB S.A.), 27 October 1993 (27.10.93), figures 1-5 --	1-6
A	US 4851080 A (HOWE ET AL.), 25 July 1989 (25.07.89), column 4, line 16 - line 60; column 8, line 46 - column 9, line 31, figures 1,4 --	1-6
A	US 4679434 A (STEWART), 14 July 1987 (14.07.87), column 2, line 43 - line 67, figure 2 -- -----	1-6

INTERNATIONAL SEARCH REPORT

Information on patent family members

01/04/96

International application No.

PCT/IB 95/00913

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US-A- 4948757	14/08/90	NONE	
EP-A1- 0547742	23/06/93	DE-D- 69206770 JP-A- 5249138 US-A- 5487305	00/00/00 28/09/93 30/01/96
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