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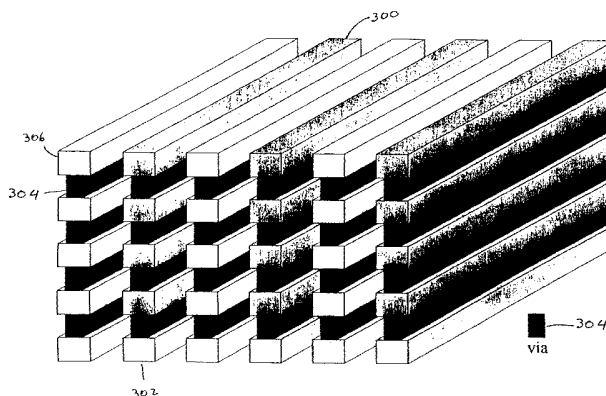
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(54) Title: HIGHLY EFFICIENT CAPACITOR STRUCTURES WITH ENHANCED MATCHING PROPERTIES



(57) Abstract: The present specification discloses highly efficient capacitor structures. One embodiment of the present invention is referred to herein as a vertical parallel plate (VPP) structure. In accordance with this embodiment, a capacitor structure comprises a plurality of vertical plates. The vertical plates are substantially parallel to each other, and each vertical plate comprises multiple conducting strips. These conducting strips are substantially parallel to each other and are connected to each other by one or more vias. The vertical plates are alternately connected to each other, creating a first portion of the vertical plates and a second portion of the vertical plates, such that the first portion of the vertical plates forms a first terminal of the capacitor structure, and the second portion of the vertical plates forms a second terminal of the capacitor structure. Either slotted vias or individual vias can be used to connect the conducting strips. Another embodiment of the present invention is referred to herein as a vertical bars (VB) structure. In accordance with this embodiment of the present invention, a capacitor structure comprises a plurality of rows of vertical bars, wherein within each row, the vertical bars are parallel to each other, and each vertical bar comprises multiple conducting patches. These conducting patches are connected to each other by one or more vias.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

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)

EPO-Internal, WPI Data, INSPEC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 583 359 A (NG ANTHONY C C ET AL) 10 December 1996 (1996-12-10)	1, 3-5, 7, 8, 10, 11, 16, 18, 19, 22, 24-27
A	figures 5-19	2, 6, 9, 12-15, 17, 20, 21, 23
A	EP 0 905 792 A (HEWLETT PACKARD CO) 31 March 1999 (1999-03-31) figure 3	1-27



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

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08, 30 June 1998 (1998-06-30) & JP 10 065101 A (SONY CORP), 6 March 1998 (1998-03-06) abstract ---	1-27
E	WO 01 99163 A (KONINKL PHILIPS ELECTRONICS NV) 27 December 2001 (2001-12-27) the whole document ---	1-27
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