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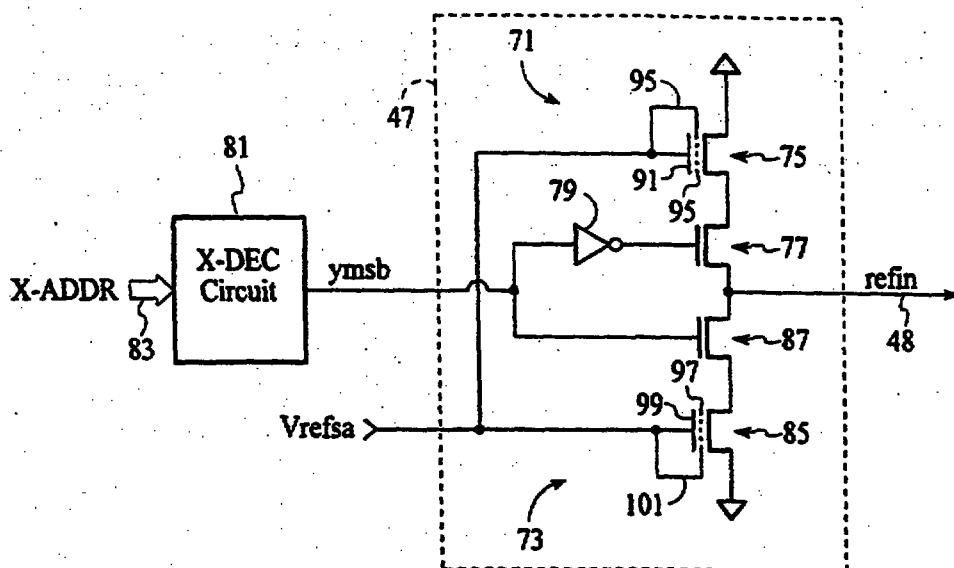
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[Continued on next page]

(54) Title: REFERENCE CELL FOR HIGH SPEED SENSING IN NON-VOLATILE MEMORIES



(57) Abstract: A reference cell (47) for use in a high speed sensing circuit includes a first sub-circuit (73) and a second sub-circuit (71). The first sub-circuit (73) has a structure similar to memory cells within odd number rows of a main memory array. The second sub-circuit (71) has a structure similar to memory cells within even numbered rows of the main memory array. If a target cell within the main memory array lies within an odd numbered row, then the first sub-circuit is selected, and if the target cell lies within an even numbered row, then second sub-circuit is selected. Both of the first and second sub-circuits include a reference transistor (85, 75) having its control gate (99, 91) broken into two parts. A first part is a poly 1 layer and is separated from the channel region by a tunneling oxide. A second part is a metal or poly 2 layer over the first part and separated from the first part by a gate oxide. A via (101, 95) is used to connect the first part to the second part.

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