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(54) Title: NEUTRON DETECTION DEVICE AND METHOD OF MANUFACTURE

(57) Abstract: A neutron detection device includes a neutron conversion layer in close proximity to an active semiconductor layer. The device is preferably based on the modification of existing conventional semiconductor memory devices. The device employs a conventional SRAM memory device that includes an SOI substrate. The SOI substrate includes an active semiconductor device layer, a base substrate and an insulating layer between the active semiconductor device layer and the base substrate. The base substrate layer is removed from the memory device by lapping, grinding and/or etching to expose the insulating layer. A neutron conversion layer is then formed on the insulating layer. The close proximity of the neutron conversion layer to the active semiconductor device layer yields substantial improvements in device sensitivity.



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