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(54) **3D SEMICONDUCTOR DEVICE AND STRUCTURE WITH LOGIC AND MEMORY**

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(57) **ABSTRACT**

A 3D semiconductor device including: a first level including a single crystal layer, a memory control circuit which includes a plurality of first transistors; a first metal layer overlaying the single crystal layer; a second metal layer overlaying the first metal layer; a third metal layer overlaying the second metal layer; second transistors which include a metal gate are disposed atop the third metal layer; third transistors disposed atop the second transistors; a fourth metal layer disposed atop the third transistors; and a memory array including word-lines, the memory array includes at least four memory mini arrays, each including at least four rows by at least four columns of memory cells, where each of the memory cells includes at least one of the second transistors or at least one of the third transistors, the memory control circuit includes at least one digital to analog converter circuit.

