

## Material Technology

### Title

Multicomponent-alloy Material Layer, Method Of Manufacturing The Same And Capacitor Structure Of Semiconductor Device

### Abstract

This technology relates to a multi-element alloy material layer, a manufacturing method thereof, and a capacitor structure of a semiconductor device. The multi-element alloy material layer has quaternary to hexa-dimensions metal elements and contains two specific metal element compositions, and the two metal element compositions have a specific content ratio so that the multi-element alloy material layer has specific properties without thermal annealing treatment. The work function can be applied to the capacitance structure of semiconductor devices.

### Benefits

The conventional MOS capacitor structure must be adjusted and strictly control the temperature, time, and atmosphere of the thermal annealing treatment, which increases the difficulty of the manufacturing process and increases the manufacturing cost.

The multi-element alloy material layer of the present technology, its manufacturing method, and the capacitance structure of the semiconductor device can improve the above-mentioned problems, thereby simplifying the manufacturing process and increasing the yield.

### Industry Categories

Semiconductor industry

### Keywords

semiconductors, capacitors

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### Contact Us

Department : NCKU Innovation Headquarters  
 Contact person : Chun-Pang Chen  
 Phone number : 06-2360524-110  
 Email : pangchun@mail.ncku.edu.tw