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(54) **SEMICONDUCTOR MEMORY DEVICE AND  
METHOD OF FABRICATING THE SAME**

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(71) Applicant: **Fujian Jinhua Integrated Circuit Co.,  
Ltd.**, Quanzhou City (CN)

(72) Inventors: **Ken-Li Chen**, Quanzhou City (CN);  
**Yifei Yan**, Quanzhou City (CN);  
**Yu-Cheng Tung**, Quanzhou City (CN)

(73) Assignee: **Fujian Jinhua Integrated Circuit Co.,  
Ltd.**, Quanzhou City (CN)

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**ABSTRACT**

The present disclosure relates to a semiconductor memory device and a fabricating method thereof, and the semiconductor memory device includes a substrate, bit lines, plugs and a spacer structure. The bit lines are separately disposed on the substrate, and the plugs are also disposed on the substrate to alternately arrange with the bit lines. The spacer structure is disposed on the substrate, between each of the bit lines and each of the plugs. The spacer structure includes a first air gap layer, a first spacer and a second air gap layer, and the first air gap layer, the first spacer and the second air gap layer are sequentially stacked between sidewalls of the bit lines and the plugs. Therefore, two air gap layers may be formed between the bit lines and the storage node contacts to improve the delay between the resistor and the capacitor.

