



# United States Patent [19]

Nishimura et al.

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[54] SEMICONDUCTOR DEVICE HAVING A FUSE LAYER

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[21] Appl. No.: **672,867**

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[30] Foreign Application Priority Data

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[51] Int. Cl.<sup>6</sup> ..... **H01L 27/10**; H01L 29/00

[52] U.S. Cl. .... **257/529**; 257/208; 257/209; 257/630

[58] Field of Search ..... 257/208, 209, 257/529, 630

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[57] **ABSTRACT**

Burst pressure P of an insulating layer positioned immediately on a fuse layer is defined by using planar width W of fuse layer and thickness t of insulating layer. The value of the planar width W of fuse layer and the value of the thickness t of insulating layer are set such that the value of burst pressure P is at most about 1000 kg/cm<sup>2</sup>. The value of the thickness t and the value of the planar width W are set such that the value t/W is at least 0.45 and at most 0.91. Consequently, stable fuse blowing becomes possible while reducing manufacturing cost.

**8 Claims, 9 Drawing Sheets**

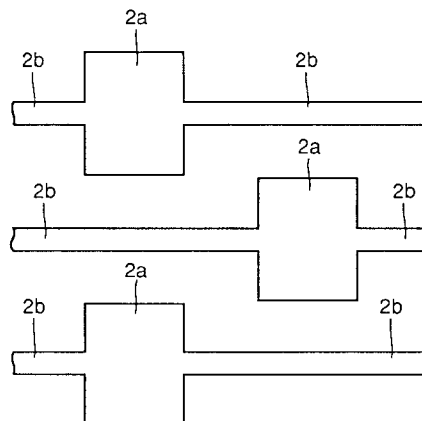
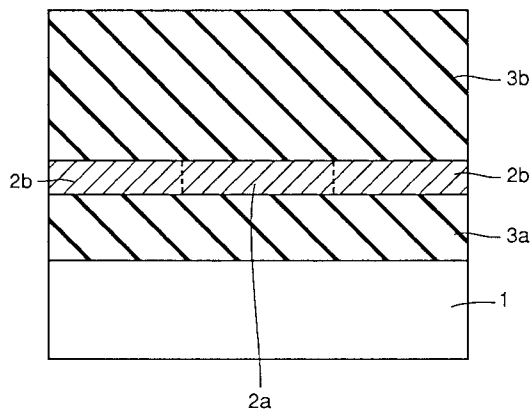


FIG. 1

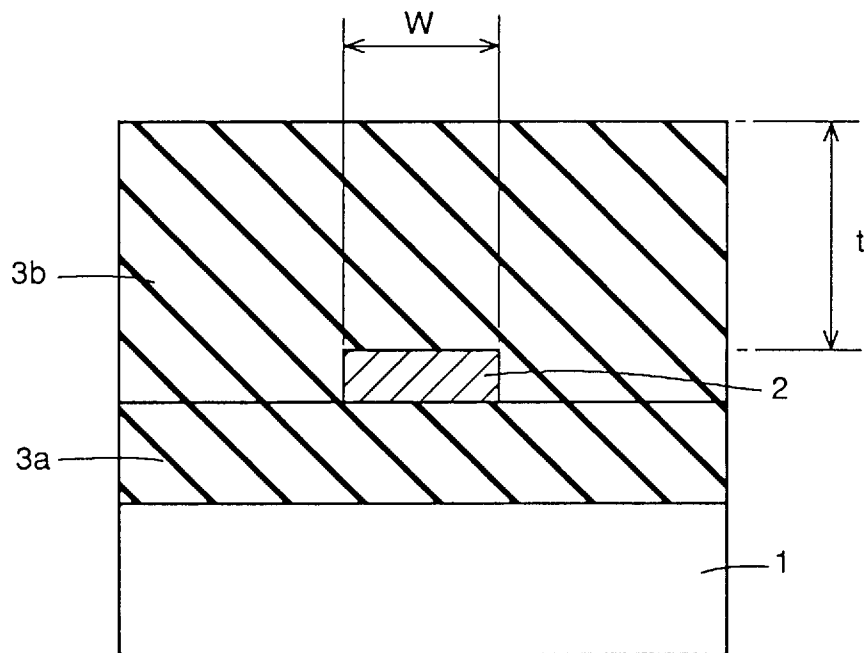


FIG. 2

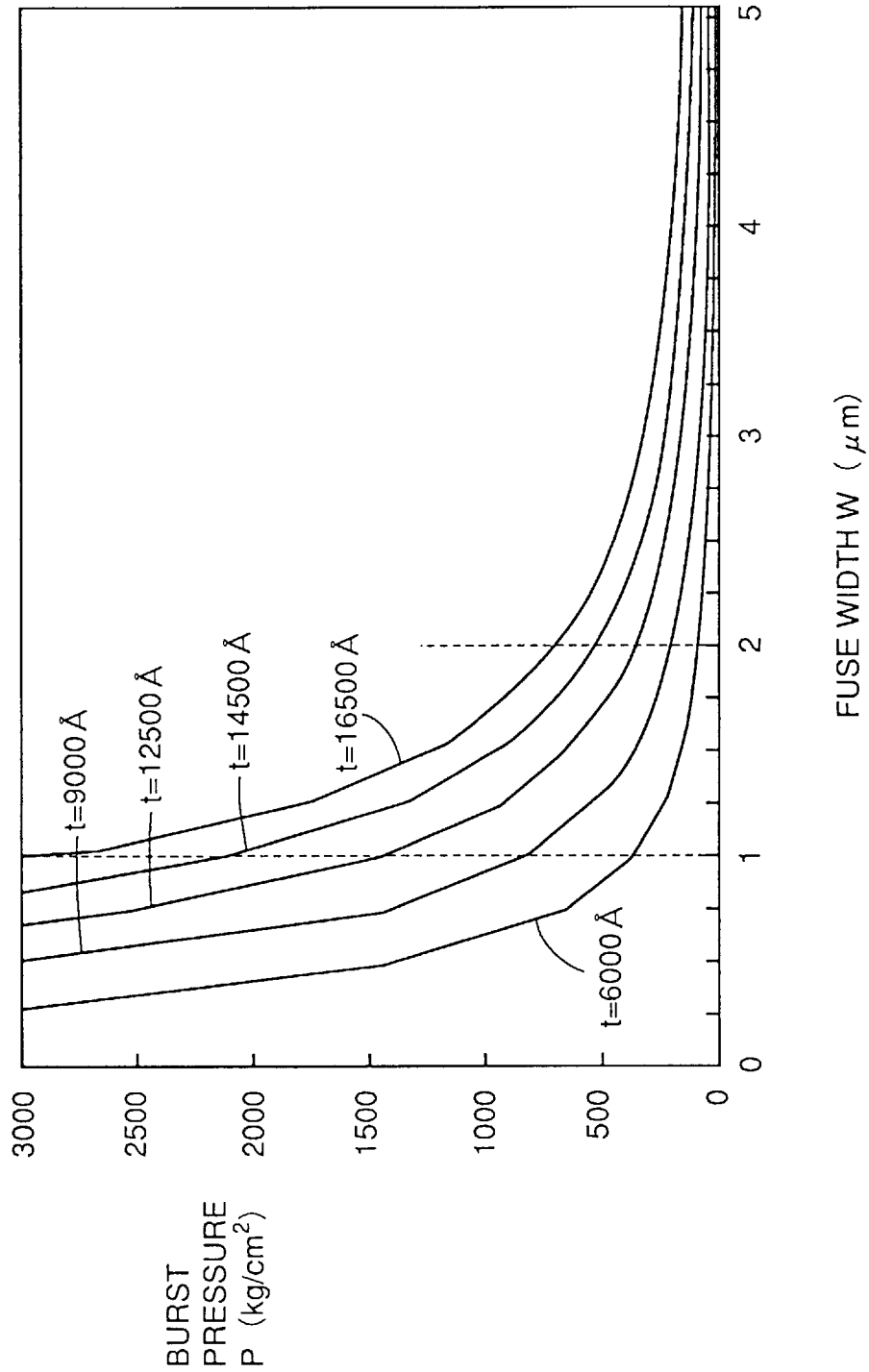


FIG. 3

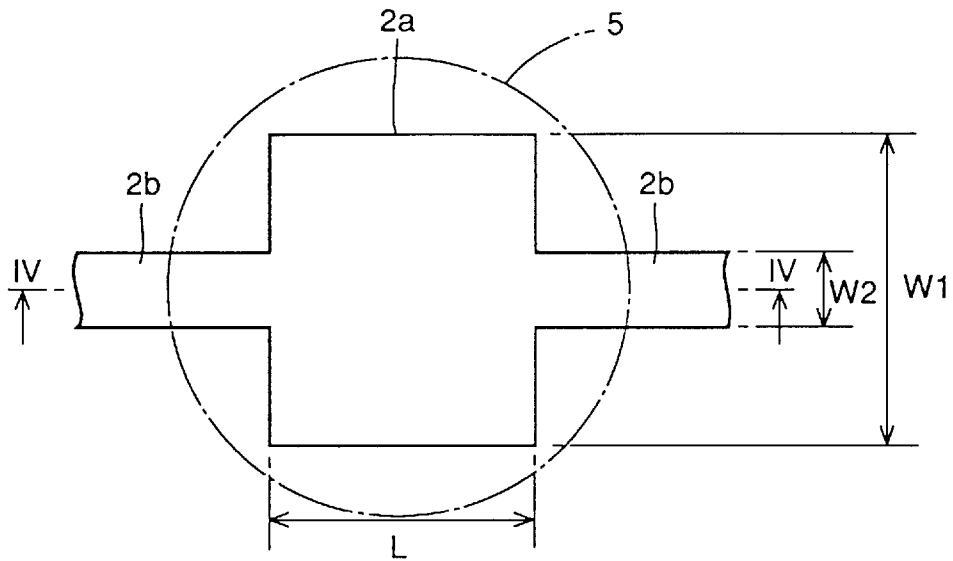


FIG. 4

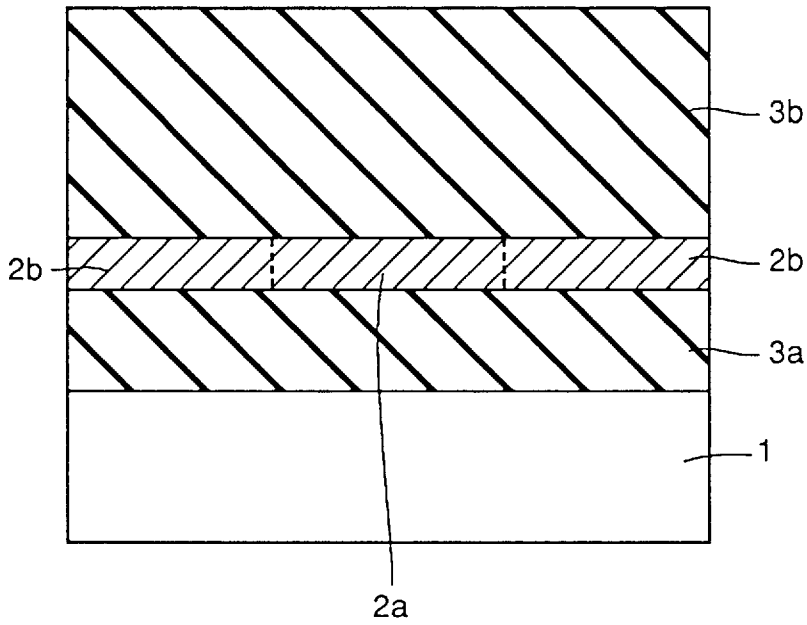


FIG. 5

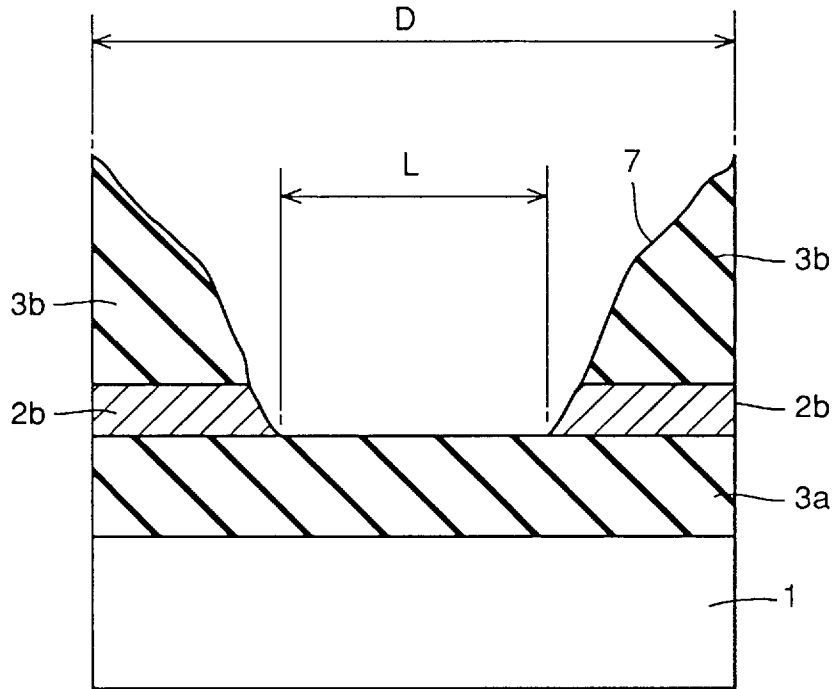
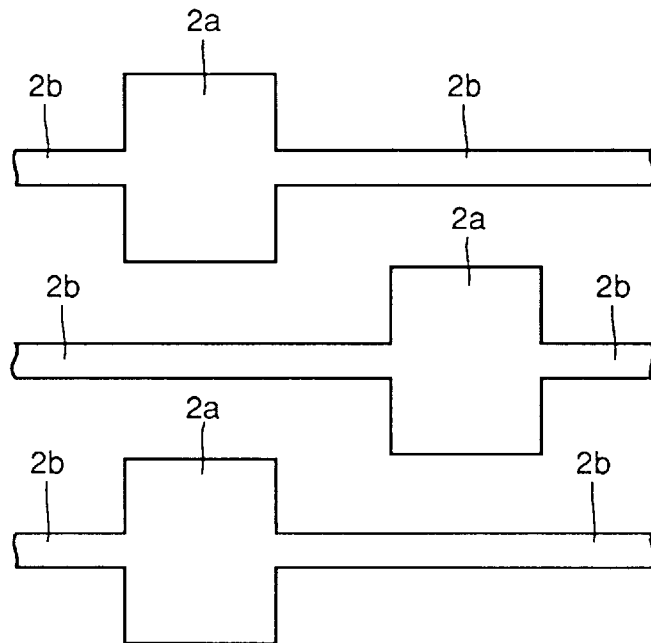


FIG. 6



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