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# United States Patent [19]

Nakajima et al.

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[54] **METHOD FOR USING FUSE STRUCTURE IN SEMICONDUCTOR DEVICE**

[75] Inventors: **Hirofumi Nakajima; Takanori Hitomi,**  
both of Kyoto, Japan

[73] Assignee: **Rohm Co., Ltd.,** Japan

[21] Appl. No.: **547,278**

[22] Filed: **Oct. 24, 1995**

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### Related U.S. Application Data

[63] Continuation of Ser. No. 177,930, Jan. 6, 1994, abandoned.

### [30] Foreign Application Priority Data

Jan. 6, 1993	[JP]	Japan .....	5-000470
May 13, 1993	[JP]	Japan .....	5-111764
May 13, 1993	[JP]	Japan .....	5-111792

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

[52] U.S. Cl. .... **257/529; 437/173; 437/922**

[58] Field of Search ..... **257/529, 209;**  
**437/173, 922**

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*Primary Examiner*—J. Carroll

*Attorney, Agent, or Firm*—Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A.

### [57] ABSTRACT

This invention provides a semiconductor device wherein a fuse structure can be formed of a normal metal wiring material and the fuse structure can be cut easily and surely. A laser beam is applied three times to the fuse structure composed of an Al wiring **22** and a passivation film **24** to cut the fuse. The Al wiring **22** is sublimated to be almost cut as a consequence of a first laser beam application. However, a part of sublimated aluminum is cooled and solidified to possibly hinder the cutting of the fuse. In order to cope with the above phenomenon, second and third laser beam applications are effected on a point of coordinates **P2 (P3)** so that the area **S2 (S3)** is completely damaged.

**15 Claims, 10 Drawing Sheets**

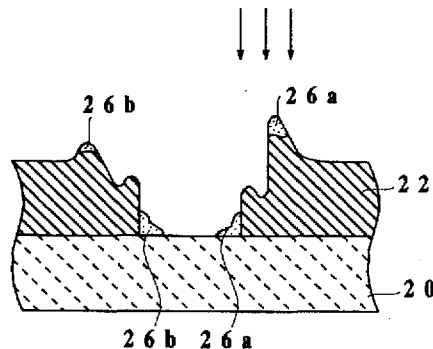
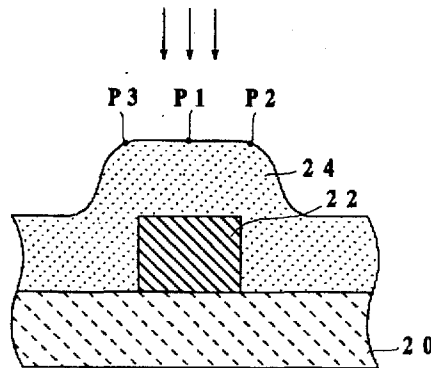


FIG. 1

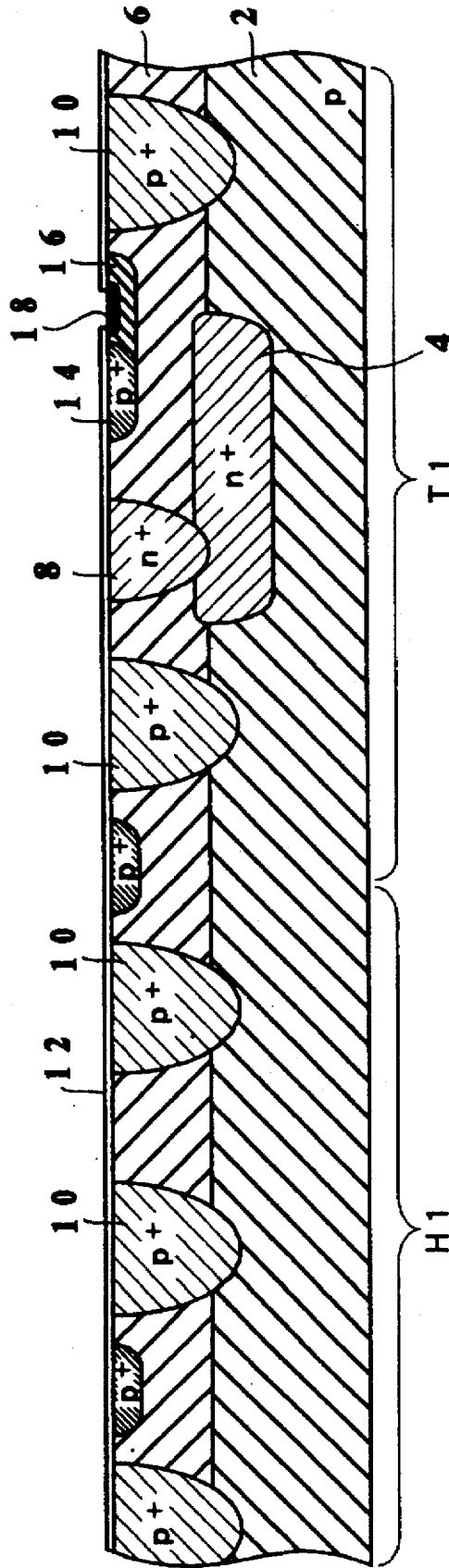




FIG. 3

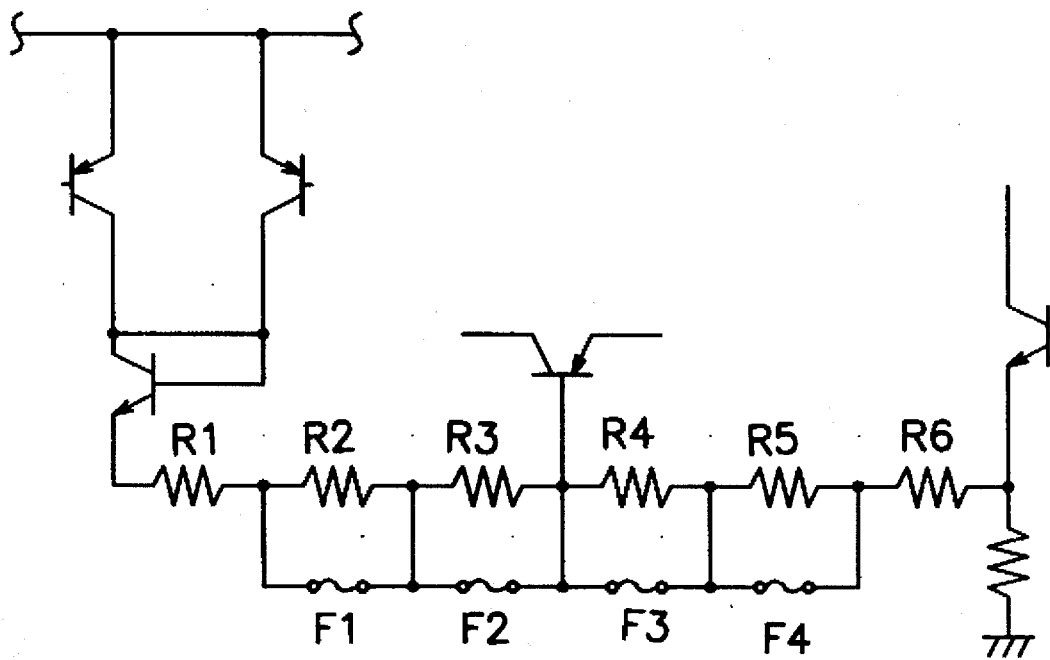


FIG. 4A

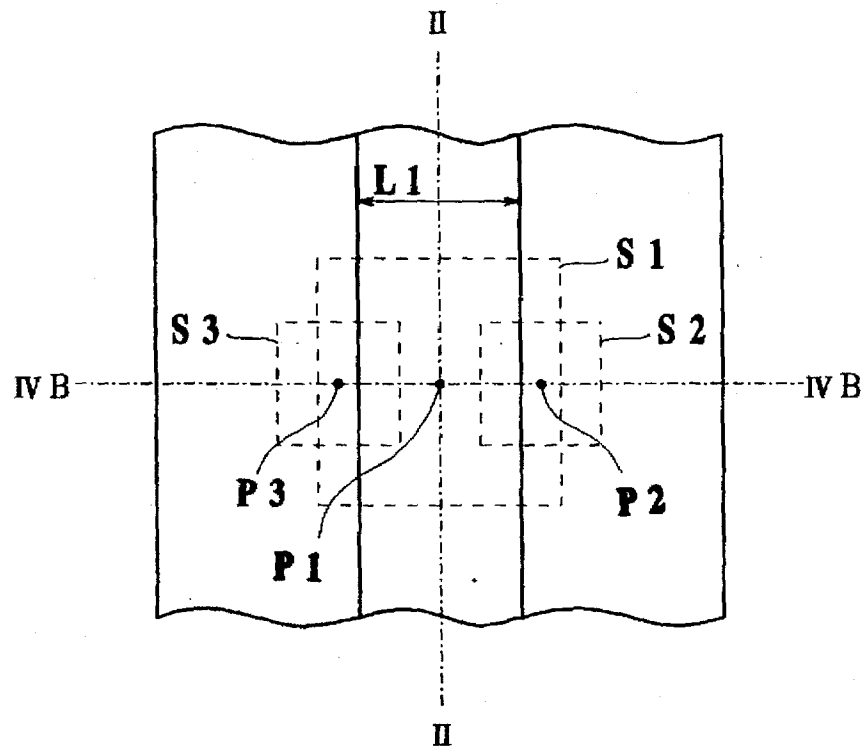
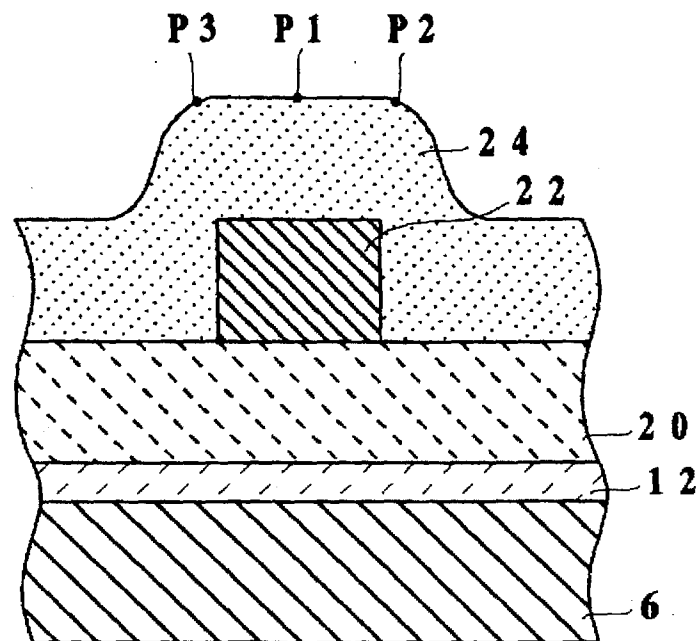


FIG. 4B



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