

Title (en)  
POWER SEMICONDUCTOR STRUCTURAL PART WITH A MESA EDGE

Title (de)  
LEISTUNGSHALBLEITERBAUELEMENT MIT MESA-RANDABSCHLUSS

Title (fr)  
COMPOSANT A SEMI-CONDUCTEUR DE PUISSANCE A BORD MESA

Publication  
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Application  
**EP 00903516 A 20000112**

Priority  
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Abstract (en)  
[origin: WO0042662A1] The invention relates to an asymmetrically-locking power semiconductor structural part. Field stop zones of the same conducting type as in the inner zone are provided in the border area underneath the areas which are etched out (etching shoulders) from the semiconductor body. Said field stop zones are typically connected to the inner zone and to the emitter zone and are adjacent the polish-etched, damage-free surface of the etched-out etching shoulders. The doping concentration of said field stop zones is adjusted in such a way that a decreasing gradient results in the concentration gradient of the doping. Said decreasing gradient extends from the surface of the etching shoulders to the depth of the semiconductor body. According to the invention, the volume breakdown voltage can be secured under extreme conditions even in the bordering area of the power semiconductor structural part. The present invention is especially useful for power semiconductor structural parts which are embodied in a mesa structure, especially in pin diodes, asymmetric thyristors as for example GTOs, IGBTs and the like.

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IPC 8 full level  
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