US005744830A

United States Patent [19]

Ekkanath-Madathil et al.

[11] **Patent Number: 5,744,830**

[45] **Date of Patent: Apr. 28, 1998**

[54] **SEMICONDUCTOR DEVICE**

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[21] Appl. No.: **556,621**

[22] Filed: **Nov. 13, 1995**

[30] **Foreign Application Priority Data**

Nov. 14, 1994 [GB] United Kingdom 9423424

[51] **Int. Cl.**^{6} **H01L 29/74**; H01L 29/76

[52] **U.S. Cl.** **257/140**; 257/141; 257/146; 257/147; 257/155; 257/162; 257/343

[58] **Field of Search** 257/66, 139, 141, 257/147, 155, 162, 212, 288, 343, 140, 146

[56] **References Cited**

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[57] **ABSTRACT**

A semiconductor device made of a lightly doped region of a first conductivity type has a well formed of a second conductivity type. The well extends to the surface of the device. First, second and third heavily doped regions of the first conductivity type are in the surface of the well. An electrode is fixed to the first heavily doped region of the first conductivity type. The third heavily doped region of the first conductivity type adjoins the lightly doped region of the first conductivity type. The first and second heavily doped regions of the first conductivity type are spaced apart from one another so that a portion of the well extends to the surface of the device therebetween. A first gate electrode is fixed via an insulating layer to a portion of the well extending between the first and second heavily doped regions. The first and third heavily doped regions of the first conductivity type are spaced apart from one another so that a portion of the well extends therebetween. A second gate electrode is fixed via an insulating layer to the portion of the well extending between the first and third heavily doped regions. Finally, a heavily doped region of the second conductivity type in the surface of the well is electrically connected to the second heavily doped region of the first conductivity type.

13 Claims, 7 Drawing Sheets