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(71) Applicant (*for all designated States except US*): NATIONAL UNIVERSITY OF SINGAPORE [SG/SG]; 10 Kent Ridge Crescent, Singapore 119260 (SG).

(72) Inventors; and

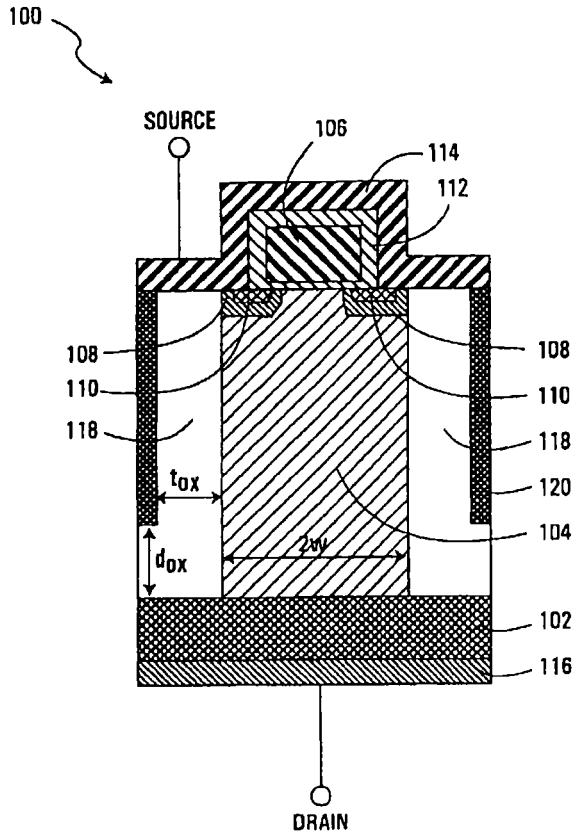
(75) Inventors/Applicants (*for US only*): LIANG, Yung, Chii [—/SG]; 113 Clementi Street 13 #03-27, Singapore 120113 (SG). SAMUDRA, Ganesh, Shankar [IN/SG]; 111 Clementi Road, Block C, #08-03, Singapore 129792 (SG). GAN, Kian, Paau [MY/SG]; 35 West Coast Park, #04-03, Singapore 127652 (SG). YANG, Xin [CN/SG]; 18A West Coast Road, Greenacres #01-03, Singapore 127307 (SG).

(74) Agent: ALBAN TAY MAHTANI & DE SILVA; 39 Robinson Road #07-01, Robinson Point, Singapore 068911 (SG).

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(54) Title: POWER MOSFET HAVING ENHANCED BREAKDOWN VOLTAGE



(57) Abstract: A MOSFET (100) includes a dielectric, preferably in the form of a metal thick oxide (118) that extends alongside the MOSFET's drift region (104). A voltage across this dielectric between its opposing sides exerts an electric field into the drift region to modulate the drift region electric field distribution so as to increase the breakdown voltage of a reverse biased semiconductor junction between the drift region and body region (108). The voltage is applied to conductive region (120). This allows for higher doping of the drift region, for a given breakdown voltage when compared to conventional MOSFET's. The MOSFET is made by forming opposed vertical trenches in a semiconductor wafer, covering the walls of the trenches with dielectric (118), filling the trenches between the dielectric with conductive material (120), and forming a double diffused MOSFET structure between the pair of opposed vertical trenches such that a drift region abuts the dielectric material (118).

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