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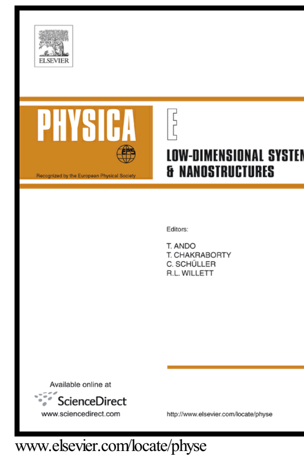

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ACCEPTED MANUSCRIPT

# A Novel Lateral Diffused Metal Oxide Semiconductor (LDMOS) Using Attracting the Electric Field Lines

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*Abstract*- **In this paper, a novel silicon on insulator (SOI) lateral diffused metal oxide semiconductor (LDMOS) transistor with high voltage and high frequency performance is presented. In this work we try to reduce the electric field crowding in the drift region. The proposed structure consists of a metal in the buried oxide and also connected to the source. The inserted metal attracts the electric field lines in the buried oxide. It causes 67% improvement in the breakdown voltage in comparison with a conventional SOI-LDMOS (C-LDMOS). Our simulations with two dimensional ATLAS simulator show that the gate-**

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