AN INVESTIGATION INTO FABRICATION OF MAGNET

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TABLE OF CONTENTS

ABSTRACT

MAGFET is magnetic field MOSFET is one kind of device that is use to be magnetic sensor which can sense magnetic field and convert the magnetic field into a corresponding electronic signal such as voltage, current, frequency and etc. The magnetic field will be exploiting by using Hall Effect principle.

MAGFET has a structure like a MOSFET but with a split of drain. The magnetic fields that across the device perpendicularly will causes the charge carriers attend to make a symmetry current line based on the Hall Effect principle and the lateral current drain will be change. The reflected of the charge carries will causes an imbalance in drain current. The change of current is depending on the magnetic field strength and the geometry of the split of drain. The MAGFET can be classified into two types that are double-drain MAGFET and triple-drain MAGFET. The parameters of that effect in the MAGFET sensitivity is oxide thickness, gate thickness, and geometrical parameters such as split drain, gate width and length, separation between the drain. By theoretically, the triple-drain MAGFET is more sensitive than double-drain MAGFET.

Fabrication process is the major process to make this device. The process involve are oxidation, doping, photolithography and metallization. The fabrication process is not an easy process and it needs high concentration to fabricate the device.