

**THE DEPENDENCY OF QUALITY AND PHYSICAL PROPERTIES
OF RESIST FILM ON THE SPIN COATING PROCESS**

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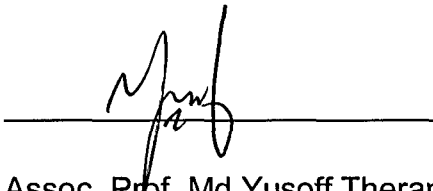
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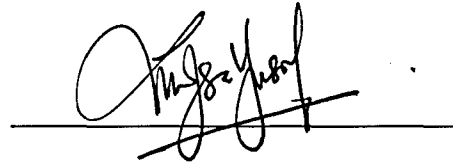
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ABSTRACT

QUALITY AND PHYSICAL PROPERTIES OF RESIST FILM ON THE SPIN COATING PROCESS

The research project is actually an approach on the spin coating process and how the quality and physical properties of resist film produced after coating depends on the parameters. The details obtained from this research project is vital in producing or obtaining a good performance of electrical devices to be fabricated for instance; transistor, diode or otherwise. Fabrication process of a transistor for example, starts with etching of substrate, follows by photolithography or pattern transfer, oxidation process, diffusion for doping as well as metallization process, and lastly electrical testing; usually current-voltage (IV) curve testing. This research is focusing on how spin coating technique should be conducted in which covers the major part of photolithography or also known as pattern transfer process. The critical technique in spin coating involves some parameters that should be taking into consideration along the fabrication. Those are volume of photoresist (PR) needed, spin speed and also spinning time. Experimental research starts using 5 different volume of PR apply on substrate running over 5 different spin speed being set on the spin coater with 5 sets of spinning time. Based on the results, graphs and calculations involved, comparably, it can be concluded that amount of PR used, spin speed and spinning time for coating are the best parameters that always influencing the quality of resist film produced after coating process.

CHAPTER 1

INTRODUCTION

1.1 Overview of Semiconductor and Device Fabrication Process

Semiconductors are material that having conductivity between the conductors and insulators. The semiconductor materials consist of elements and compounds. It promotes much narrower energy gap compared to insulators which enables electrons to jump from the valence band to the conduction band with respect to thermal energy supplied. Semiconductor materials are often used in electronic devices fabrication due to the temperature dependent; thermally can be controlled and manipulated. It is significant in electronic devices fabrication process as the properties of material could also being altered with the change of temperature. The most common semiconductor material used for device making is silicon (Si). Si is more stable compared to other semiconductor material due to its stability at standard room temperature, RTP. The abundant characteristic and the ability to withstand high temperature as a