INFLUENCE OF SOLUTION CONCENTRATION TOWARDS ELECTRICAL PROPERTIES OF ZnO/MgO FILMS USING IMMERSION METHOD

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ABSTRACT

ZnO/MgO thin films were deposited on a glass substrate. In ZnO solution, zinc acetate dehydrate was used as the precursor while 2-methoxylethanol and mono-ethanolamine were used as the solvent and stabilizer respectively. The magnesium oxide solution was prepared using sodium chloride, magnesium nitrate and de-ionized water. The molarities of this solution were 0.2 M, 0.4 M, 0.6 M, 0.8 M and 1.0 M. The electrical property of multilayer ZnO/MgO thin films prepared by immersion method was investigated using two point probe I-V measurement (Bukoh Keiki) while the structural behavior was examined using surface profiler (KL-Tenco) and Atomic Force Microscopy (AFM). The electrical measurement shows that the resistivity increases, while the conductivity decreases as the molarity concentration increases. The highest resistivity at 6.68 x 10^5 Ω.cm and the lowest conductivity about 1.50μ S/cm have been obtained at for 1.0M solution.

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CHAPTER 1

INTRODUCTION

1.0 BACKGROUND OF STUDY

Nowadays capacitor is widely used in electronic circuit. The capacitor used to store electric charge and measured in units of farad (F) or coulombs per volt. There are many different types of capacitors such as polyester film, ceramic, aluminum electrolyte and tantalum electrolyte. Figure 1.1 show the type of capacitor while the symbol for capacitor used in the schematic diagrams show in Figure 1.2.

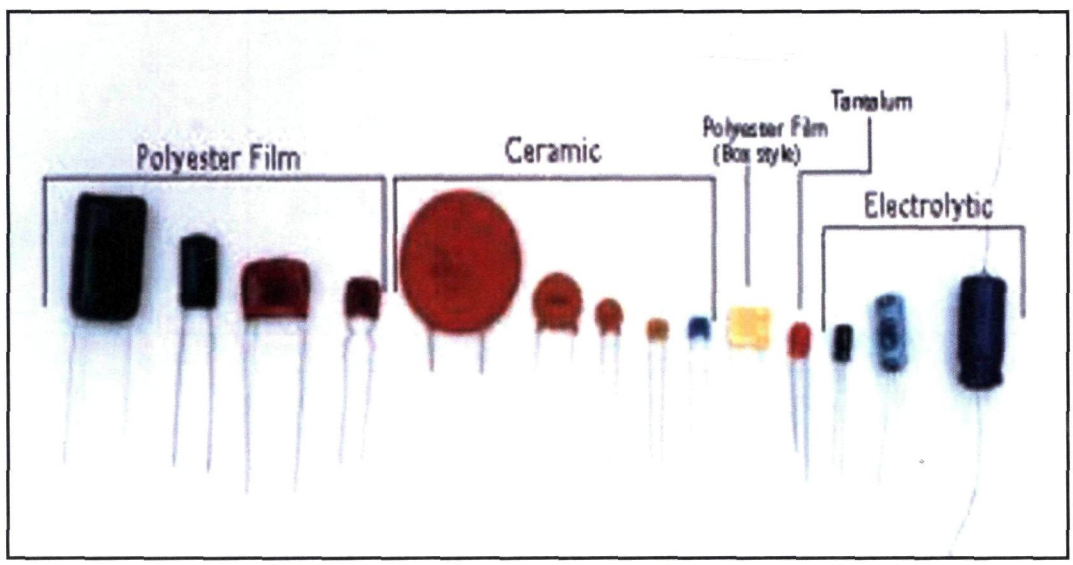

Figure 1. 1: Type of capacitor in the market