Abstract

Memristor is a non-linear passive circuit element. It was visualized by Leon Chua in 1971. Memristor can form a non-linear relationship with electric charge and magnetic flux. Memristor has the capability to hold data even if it is not connected to any power source. This property makes it non-volatile in nature. Memristor is a non-volatile memory which can be used for data storage. International Technology Roadmap for Semiconductors acknowledges that it is difficult to scale the transistor beyond its current size and to overcome the existing memory issues, emerging memristor technology is being developed. The objective of this research is to realize the memristor based non-volatile memory which can consume less power with better Read/Write time. In this research, properties and construction of memristor is analyzed. In order to construct a memristor, various softwares like LTspice and MATLAB areused. By the means of these tools, memrsitor based memory cell is constructed to characterize the performance of memristor based non-volatile memory.