

Simulation of 1GHz center frequency SAW using CST software for biosensor application

Abstract

Surface Acoustic Wave (SAW) is a one of the essential components that used for sensor application to detect in various fields. The high center frequency will improve the sensitivity of SAW biosensor. Therefore, it's very important in designing the SAW structure to improve the performance sensor in biomolecule detection. In SAW device, the IDT is a one of major factor can improve the performance device in term of sensitivity and accuracy detection. In this project, a miniature SAW IDT is designed and simulated by using CST software for achieving 1GHz of center frequency. The IDT Design and the width of IDT finger was varied to achieve the target. From the simulation results, found that this software able to calculate the center frequency and single split finger with size $1\mu\text{m}$ has achieved 1GHz center frequency.

Keywords

Biomolecules; Biosensor; Calculate; IDT; Surface acouststic wave