

The Analysis and Fabrication of Surface-Acoustic-Wave Resonator Filter

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ABSTRACT

The surface acoustic wave (SAW) resonator filters consisting of a pair of interdigital-electrode transducers can generate and transmit acoustic waves. By inserting a grating, we can improve the frequency response and lower the insertion loss, so appropriate design of the delay-line will be very important. In this research, we used the COM theory to design the frequency response of the multistrip-coupled resonator filter and investigate the influence of the number of IDT and grating pairs, and the overlap length on the frequency response. ZnO is a multipurpose material. The ZnO thin film can be used as the substrate for the SAW resonator filters. Moreover, the ZnO bulk materials exhibit nonlinear current-voltage characteristics which can be used as protection devices against voltage surges and voltage transients. Sol-gel processing prepared ZnO thin film can obtain not only the perfect stoichiometry but also the solution provides more thorough powders for ZnO bulk in this experiment.

Keywords : SAW ; IDT ; ZnO ; sol-gel

Table of Contents

目錄 封面內頁 簽名頁 授權書.....	iii	簽署人須知.....
.....iv 中文摘要.....	v	英文摘要.....vi 誌謝.....
.....vii 目錄.....	viii	圖目錄.....
.....x 表目錄.....	xi	符號說明.....
.....xii 第一章 緒論.....	1	第二章 表面聲波共振濾波器之分析.....	4 2.1
COM模型.....	4 2.1.1	金屬柵欄傳輸矩陣.....	4 2.1.2
交指叉電極對數.....	8 2.1.3	延遲距離傳輸矩陣.....	11 2.2
多重微帶.....	12 2.2.1	多重微帶特性.....	12 2.2.2
多重微帶傳輸矩陣.....	13 2.3	各參數對頻率響應影響之探討.....	14 2.3.1
金屬柵欄級數.....	14 2.3.2	交指叉電極對數.....	15 2.3.3
交指叉電極overlap之長度.....	15 2.3.4	延遲距離.....	16
第三章 氧化鋅材料之研製.....	17	3.1 溶液的製備.....	18
3.1.1製備溶液所需要的原料.....	18 3.1.2	製備溶液所需要的器材.....	18 3.1.3
溶液製備的步驟.....	18 3.2	氧化鋅薄膜.....	19
3.2.1薄膜的製作.....	19 3.2.2	薄膜量測分析.....	19 3.3
氧化鋅塊體.....	20 3.3.1	粉末的製作.....	20 3.3.2
塊體的製作.....	20 3.3.3	塊體量測結果.....	21
第四章 結論.....	22	參考文獻.....	24
圖目錄 圖(1)金屬柵欄構造圖.....	27	圖(2)交指叉電極構造圖.....	28
圖(3)基準角度對結構相對應關係圖.....	29	圖(4)交叉電場模型示意圖.....	30
圖(5)三埠網路分析圖.....	31	圖(6)多重微帶共振濾波器.....	32
圖(7)多重微帶共振濾波器之頻率響應圖.....	33	圖(8)改變參數後之響應圖.....	34
圖(9)改變參數後之響應圖.....	35	圖(10)頻率響應變化圖.....	36
圖(11)Grating對頻率響應之影響.....	37	圖(12)交指叉電極overlap長度對頻率響應之影響.....	38
圖(13)不同IDT對數時overlap長度對頻率響應之影響.....	39	圖(14)不同overlap長度時IDT對數對頻率響應之影響.....	40
圖(15)Delay line距對頻率響應之影響.....	41	圖(16)ZnO薄膜之SEM、XRD圖.....	42
圖(17)ZnO塊體之SEM圖.....	43	表目錄 表(1)ZnO塊體量測數據.....	41

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