URN etd-0407109-183720-1673
Author Fu-Lin Chang
Author's Email Address No Public.
Statistics This thesis had been viewed 37 times. Download 20 times.
Department
Year 2006
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title The Fabrication of Dual-Band Frequency Adjustable and Ultra Wide-Band filters on Al2O3 Substrate
Date of Defense 0000-00-00
Page Count 95
Keyword
filter

Abstract
In recently, there have been rapid developments in wireless communication, however, the increasing of operation frequency and the reducing of the size for microwave devices have been two major trends. Due to the dielectric loss of traditional FR4 substrate is large (the quality value Q f is small), it is not suitable for the application in microwave or higher frequency. Ceramic components or low temperature co-fired ceramics (LTCC) are the major methods for the application in microwave communication.
Aluminum Oxide (Al2O3) is used as the substrates in this paper, and which exhibits the microwave dielectric characteristics of dielectric constant r=9.8, quality value Q f=300000 GHz, and temperature coefficient of resonant frequency f≅55 ppm/ C. Comparing to the microwave devices which used the FR4 substrate in the past, the dielectric constant and quality factor of Al2O3 are better than FR4 substrate. Therefore, it is suitable for the application of microwave devices and reveals better microwave characteristics.
Dual-band frequency adjustable and ultra wide-band filters with Al2O3 substrate are fabricated and investigated in this paper. The structure of the filters is composed of two microwave striplines, one end is used as the input and the other end is used as the output. The electromagnetic simulation tool (IE3D) is used to simulate the filters, the bandwidth, center frequency, insertion loss, out-of-band rejection of the filters can be controlled by adjusting the interval, the slot and the sawtooth, and dual-band frequency adjustable and ultra wide-band filters are investigated in this paper.
Advisory Committee - advisor

- advisor

Files etd-0407109-183720-1673-001.pdf

indicate access worldwide
Date of Submission 2007-07-11