

# Contents

Abstract (Chinese).....	i
Abstract .....	ii
Acknowledgments.....	iii
Contents.....	iv
List of Figures.....	vi
Chap1 Introduction.....	1
Chap2 W band Subharmonic Mixer.....	3
2-1 Introduction.....	3
2-2 Antiparallel Diode Pair Subharmonic Mixer.....	4
2-2-1 Harmonic Mixing Theory.....	4
2-2-2 Circuit Design.....	11
2-3 Ring Subharmonic Mixer.....	15
2-3-1 Harmonic Mixing Theory.....	15
2-3-2 Circuit Design.....	17
2-4 Implementation and Measurements.....	19
2-4-1 Implementation.....	19
2-4-2 Measurement Results.....	22
Chap3 38.5/77GHz Frequency Doubler.....	26
3-1 Introduction.....	26
3-2 Single Diode Frequency Doubler.....	28
3-2-1 Diode Frequency Multiplication Analysis .....	28
3-2-2 Circuit Design.....	31
3-3 HEMT Frequency Doubler.....	34

3-3-1 FET Frequency Multiplication Theory.....	34
3-3-2 Circuit Design.....	37
3-3-3 Simulation.....	40
3-4 Implementation.....	44
3-4-1 Implementation.....	44
3-4-2 Measurements Results.....	46
Chap5 Conclusion.....	49
Reference.....	51

