1. Record Nr. UNINA9910452365803321

Autore	Darabi Hooman <1972->
Titolo	Integration of passive RF front end components in SoCs / / Hooman Darabi, Broadcom Corporation, Ahmad Mirzaei, Broadcom Corporation [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-139-62439-3 1-107-23250-3 1-139-03072-8 1-139-60951-3 1-139-60822-3 1-139-61137-2 1-139-61509-2 1-299-40567-3 1-139-62067-3
Descrizione fisica	1 online resource (xii, 190 pages) : digital, PDF file(s)
Disciplina	621.3841/33
Soggetti	Electric filters, Bandpass Radio frequency integrated circuits - Design and construction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: Part I. Introduction to Highly Integrated and Tunable RF Receiver Front Ends: 1. Introduction; 2. Front-end integration challenges and system requirements; 3. 2G receiver SAW elimination; 4. 3G receiver SAW elimination; 5. Summary and conclusions; Part II. Active Blocker Cancellation Techniques in Receivers: 6. Introduction; 7. Concept of receiver translational loop; 8. Non-ideal effects; 9. Circuit implementations; 10. Measurement results; 11. Feedback blocker cancellation techniques; 12. Summary and conclusions; Part III. Impedance Transformation: Introduction to the Simplest On-Chip SAW Filter: 13. Introduction; 14. Impedance transformation by a 50% passive mixer; 15. Application as on-chip SAW filter; 16. Impact of harmonics on the sharpness of the proposed filter;

17. Differential implementation; 18. Summary and conclusions; Part IV. Four-Phase High-Q Bandpass Filters: 19. Introduction; 20. Impedance transformation by a four-phase filter; 21. Differential implementation of four-phase high-Q bandpass filter; 22. Application as an on-chip SAW filter; 23. Impact of harmonics on the sharpness of the proposed filter; 24. Four-phase high-Q bandpass filter with a complex baseband impedance; 25. Four-phase high-Q bandpass filter with quadrature RF inputs; 26. Harmonic upconversion and downconversion; 27. A SAW-less receiver with on-chip four-phase high-Q bandpass filters; 28. Summary and conclusions; Part V. M-Phase High-Q Bandpass Filters: 29. Introduction; 30. Impedance transformation by M-phase filters; 31. Differential implementation of M-phase high-Q filter; 32. Application as an on-chip SAW filter; 33. Impact of harmonics on the sharpness of the M-phase bandpass filter; 34. M-phase high-Q filter with complex baseband impedances; 35. M-phase high-Q bandpass filter with quadrature RF inputs; 36. M-phase high-Q bandpass filter with N-phase complex bandpass filters; 37. Harmonic upconversion; 38. Summary and conclusions; Part VI. Design of a Superheterodyne Receiver Using M-Phase Filters: 39. Introduction; 40. Proposed superheterodyne receiver architecture; 41. Design and implementation of the receiver chain; 42. Measurement results; 43. Summary and conclusions; Part VII. Impact of Imperfections on the Performance of M-Phase Filters: 44. Introduction; 45. Mathematical background; 46. LO phase noise; 47. Second-order nonlinearity in the switches of the bandpass filter; 48. Quadrature error in the original 50% duty-cycle clock phases; 49. Harmonic downconversion; 50. Thermal noise of switches; 51. Parasitic capacitors of switches; 52. Switch charge injection; 53. Mismatches; 54. Summary and conclusions; Part VIII. M-Phase Filtering and Duality: 55. Introduction; 56. Dual of an electrical circuit, dual of a switch; 57. Dual of M-phase filter, differential implementation of M-phase filter and its dual; 58. Dual of M-phase high-Q filter with complex baseband impedances; 59. Summary and conclusions.

Sommario/riassunto

Examining the most important developments in highly integrated wireless RF front ends, this book describes and evaluates both active and passive solutions for on-chip high-Q filtering, and explores M-phase filters in depth. An accessible step-by-step approach is used to introduce everything an RF designer needs to know about these filters, including their various forms, principles of operation, and their performance against implementation-related imperfections. Real-world examples are described in depth, and detailed mathematical analyses demonstrate the practical quantification of pertinent circuit parameters.