

1. Record Nr.	UNINA9910784361003321
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Titolo	A Baker's dozen [[electronic resource]] : real analog solutions for digital designers // by Bonnie Baker
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier/Newnes, 2005
ISBN	1-281-00994-6 9786611009946 0-08-047599-X
Descrizione fisica	1 online resource (362 p.)
Disciplina	621.3815
Soggetti	Digital integrated circuits - Design and construction Logic design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Prelims; Contents; Preface; Acknowledgments; About the author; Chapter 1: Bridging the Gap Between Analog and Digital; Try to Measure Temperature Digitally; Road Blocks Abound; The Ultimate Key to Analog Success; How Analog and Digital Design Differ; Time and Its Inversion; Organizing Your Toolbox; Set Your Foundation and Move On, Out of the Box; Chapter 1 References; Chapter 2: The Basics Behind Analog-to-Digital Converters; The Key Specifications of Your ADC; Successive Approximation Register (SAR) Converters; Sigma-Delta (S-?) Converters; Conclusion; Chapter 2 References Chapter 3: The Right ADC for the Right ApplicationClasses of Input Signals; Using an RTD for Temperature Sensing: SAR Converter or Sigma-Delta Solution?; RTD Signal Conditioning Path Using the Sigma-Delta ADC; Measuring Pressure: SAR Converter or Sigma-Delta Solution?; The Pressure Sensor Signal Conditioning Path Using a SAR ADC; Pressure Sensor Signal Conditioning Path Using a Sigma-Delta ADC; Photodiode Applications; Photosensing Signal Conditioning Path Using a SAR ADC; Photosensing Signal Conditioning Path Using a Sigma-Delta ADC; Motor Control Solutions; Conclusion; Chapter 3 References Chapter 4: Do I Filter Now, Later or Never?Key Low-Pass Analog Filter Design Parameters; Anti-Aliasing Filter Theory; Analog Filter

Realization; How to Pick Your Operational Amplifier; Anti-Aliasing Filters for Near DC Analog Signals; Multiplexed Systems; Continuous Analog Signals; Matching the Anti-Aliasing Filter to the System; Chapter 4 References; Chapter 5: Finding the Perfect Op Amp for Your Perfect Circuit; Choose the Technology Wisely; Fundamental Operational Amplifier Circuits; Using these Fundamentals; Amplifier Design Pitfalls; Chapter 5 References
Chapter 6: Putting the Amp Into a Linear System The Basics of Amplifier DC Operation; Every Amplifier is Waiting to Oscillate, and Every Oscillator is Waiting to Amplify; Determining System Stability; Time Domain Performance; Go Forth; Chapter 6 References; Chapter 7: SPICE of Life; The Old Pencil and Paper Design Process; Is Your Simulation Fundamentally Valid?; Macromodels: What Can They Do?; Concluding Remarks; Chapter 7 References; Chapter 8: Working the Analog Problem From the Digital Domain; Pulse Width Modulators (PWM) Used as a Digital-to-Analog Converter
Using the Comparator for Analog Conversions Window Comparator; Combining the Comparator with a Timer; Using the Timer and Comparator to Build a Sigma-Delta A/D Converter; Conclusion; Chapter 8 References; Chapter 9: Systems Where Analog and Digital Work Together; Selecting the Right Battery Chemistry for Your Application; Taking the Battery Voltage to a Useful System Voltage; Defining Power Supply Efficiency; Comparing The Three Power Devices; What is the Best Solution for Battery-Operated Systems?; Designing Low-Power Microcontroller Systems is a State of Mind; Conclusion
Chapter 9 References

Sommario/riassunto

This book has been written to help digital engineers who need a few basic analog tools in their toolbox. For practicing digital engineers, students, educators and hands-on managers who are looking for the analog foundation they need to handle their daily engineering problems, this will serve as a valuable reference to the nuts-and-bolts of system analog design in a digital world. This book is a hands-on designer's guide to the most important topics in analog electronics- such as Analog-to-Digital and Digital-to-Analog conversion, operational amplifiers, filters, and integrating analog
