ABSTRACT

Design of programmable, low power, low dropout voltage regulators for portable applications
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Abraham Islas Ohlmaier

Chair of Advisory Committee: Jose Silva-Martinez

As portable electronics constantly find their way into the hands of eager consumers, the demands placed on these products and their circuits are ever increasing. More features and more performance are continuously demanded by consumers. This feature-driven market has brought with it several constraints on the type of circuits utilized in developing these portable devices. Cell-Phones, PDA's, MP3 players and various other portable electronics require different voltage levels to power different architectures that realize the many features within the device. This work demonstrates a technique to design Programmable Low Power Low Dropout Voltage Regulators (LDO). The LDO proposed in this research utilizes a fast-transient feedback loop in order to improve transient response and guarantee stability in all the programmable output levels. Specifically, the main parameters to be improved are stability over the entire load current range, reduced overshoot and undershoot variations in transient response, reduction of LDO deflection voltage, minimization of standby current and low voltage (Vin = 1.2V) operation.