SUMMIT MICROELECTRONICS, Inc.

SMB111

Preliminary Information

Four Channel Programmable DC-DC System Power Manager

FEATURES & APPLICATIONS

- **Digital programming of all major parameters via I²C interface and non-volatile memory**
  - **Output voltage set point**
  - **Output power-up/down sequencing**
  - **Digital soft-start and output slew rate**
  - **Input/Battery voltage monitoring**
  - **UV/OV monitoring of all outputs**
  - **Enable/Disable outputs independently**
- **Four output channels**
  - **Three synchronous step-down (buck) channels**
  - **One step-up (boost) channel**
- **User friendly Graphical User Interface (GUI)**
- **+2.7V to +6.0V Input range**
- **Highly accurate output voltage (<0.5%) with Active DC Output Control (ADOC™) technology**
- **Undervoltage Lockout (UVLO) with hysteresis**
- **800 kHz operating frequency**
- **96 bytes of user configurable nonvolatile memory**

Applications

- **Digital camcorders/still cameras**
- **Portable DVD/MP3/GPS**
- **Camera/smart phones**
- **TFT/LCD Displays/Monitors/TV's**
- **Mobile Computing/PDA's**
- **Consumer battery-operated equipment**

INTRODUCTION

The SMB111 is a highly integrated and flexible four-channel power manager designed for use in a wide range of portable applications. The built-in digital programmability allows system designers to custom tailor the device to suit almost any multi-channel power supply application from digital camcorders to mobile phones. Complete with a user friendly GUI, all programmable settings including output voltages and input/output voltage monitoring can be customized with ease.

The SMB111 integrates all the essential blocks required to implement a complete four-channel power subsystem including three synchronous step-down "buck" controllers and one step-up "boost" controller. Additionally sophisticated power control/monitoring functions required by complex systems are built-in. These include digitally programmable output voltage set point, power-up/down sequencing, enable/disable, margining and UV/OV/input/output monitoring on all channels.

The integration of features and built-in flexibility of the SMB111 allows the system designer to create a "platform solution" that can be easily modified via software without major hardware changes. Combined with the re-programmability of the SMB111 this facilitates rapid design cycles and proliferation from a base design to future generations of product.

The SMB111 is suited to battery-powered applications with an input range of +2.7V to +6.0V. Output voltages are extremely accurate (<0.5%) employing proprietary ADOC™ technology. Communication is via the industry standard I²C bus. All user-programmed settings are stored in non-volatile EEPROM of which 96 bytes may be used for general-purpose memory applications. The operating temperature range is 0C to +70C and the available package is a lead-free, Green, RoHS compliant, 32-pad QFN-32.

SIMPLIFIED APPLICATIONS DRAWING

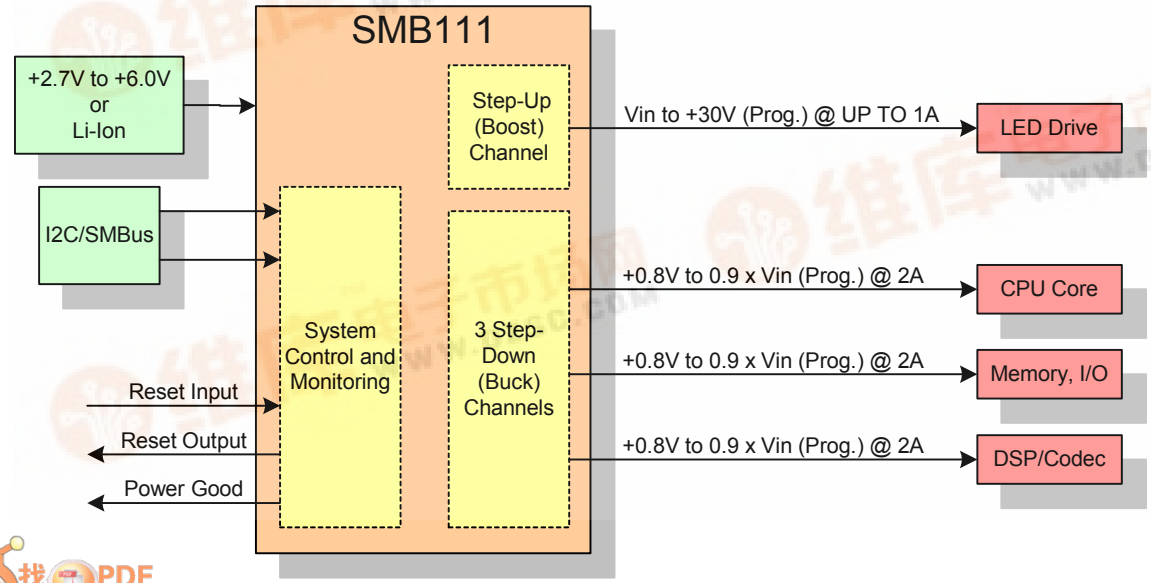

Figure 1: Applications schematic featuring the SMB111 four-channel, programmable DC-DC controller
Note: This is an applications example only. Some pins, components and values are not shown.