EUP3401

2A, 3MHz Synchronous Step-Down DC-DC with I^{2}C Compatible Interface

DESCRIPTION

The EUP3401 is a high-frequency synchronous step-down dc-dc converter optimized for battery-powered portable applications. Intended for low-power applications, the EUP3401 supports up to 2A load current and allows the use of small, low cost inductors and capacitors.

The device is ideal for mobile phones and similar portable applications powered by a single-cell Li-Ion battery. With an output voltage range adjustable via I^{2}C interface from 0.75V to 1.5375V, the device supports low-voltage DSPs and processors core power supplies in smart-phones, PDAs, and handheld computers.

The EUP3401 operates at 3-MHz fixed switching frequency. During light load conditions, the regulator includes a PFM mode to enhance light-load efficiency. The regulator transitions smoothly between PWM and PFM modes. In shutdown mode, the current is reduced to less than 200nA.

The serial interface is compatible with Fast/Standard and High-Speed mode I^{2}C specification allowing transfers at up to 3.4 Mbps. This communication interface is used for dynamic voltage scaling with voltage steps down to 12.5 mV, for reprogramming the mode of operation (PFM or Forced PWM) or disable/ enabling the output voltage.

FEATURES

- High Efficiency
- 3MHz Constant Switching Frequency
- 2A Available Load Current
- I^{2}C Compatible Interface up to 3.4Mbps
- 43µA Typical Quiescent Current
- 2.7V to 5.5V Input Voltage Range
- Excellent Load and Line Transient Response
- Short Circuit and Thermal Protection
- Small size, 1µH Inductor Solution
- High-Efficiency, Low Ripple, Light-Load PFM
- Smooth Transition between PWM and PFM
- Pin-Selectable or I^{2}C programmable Output Voltage
- Available in 3mm×3mm TDFN-10 Package
- RoHS Compliant and 100% Lead (Pb)-Free Halogen-Free

APPLICATIONS

- PDA, Pocket PCs
- Cell Phones, Smart Phones
- SmartReflex Compliant Power Supply
- Split Supply DSPs and µP Solutions OMAP, XSCALE
- Digital Cameras
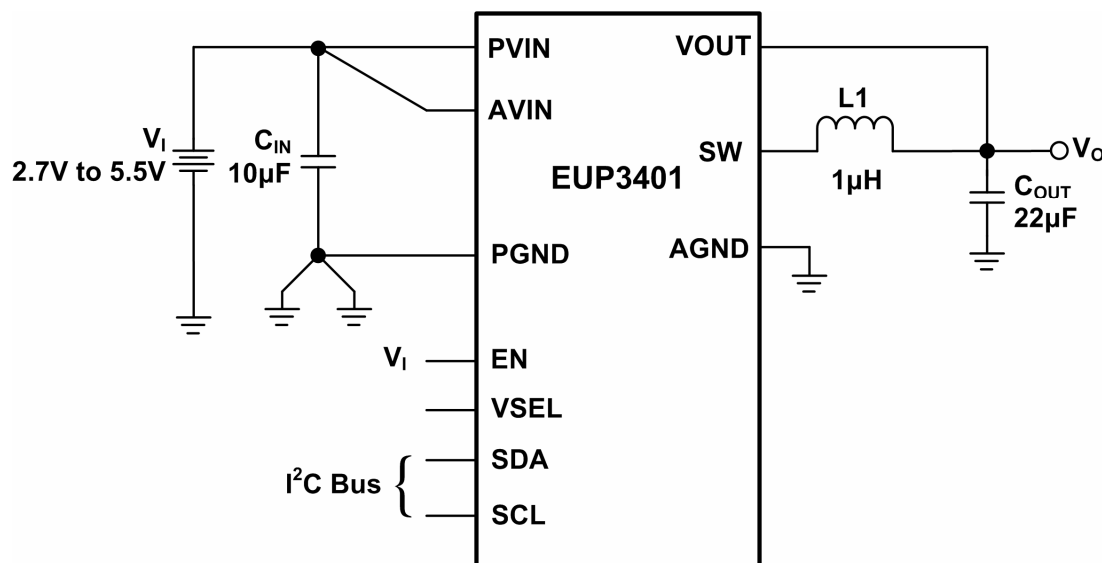- Micro DC-DC Converter Modules

Typical Application Circuit

Figure 1.