## ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change. 8/97

# MXXIM

### Low-Voltage, Precision, Step-Down Controller for Portable CPU Power in a QSOP

#### **General Description**

#### Features

**MAX1637** 

- ±2% DC Accuracy
- On-Board Integrator Error Amplifier
- Up to 350kHz Adjustable Switching Frequency
- Low-Dropout Operation
- Idle Mode™ Pulse-Skipping Operation
- IA Gate Drivers
- 1.1V to 5.5V Adjustable Output Voltage
- 100mV, ±20mV Current-Limit Threshold
- 3.15V Minimum Chip-Supply Voltage (at Vcc pin)
- Internal Digital Soft-Start
- ♦ 1.1V, ±2% Reference Output
- 1µA (typ) Total Shutdown Current
- Output Overvoltage Crowbar Protection
- Output Undervoltage Shutdown
- 16-pin QSOP Package

#### **Ordering Information**

PART	TEMP. RANGE	PIN-PACKAGE
MAX1637EEE	-40°C to +85°C	16 QSOP

### Pin Configuration



Idle Mode is a registered trademark of Maxim Integrated Products

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The MAX1637 is a synchronous buck switch-mode power-supply controller that generates the CPU supply voltage in battery-powered systems. This device is a bare-bones MAX1636 in a 16-pin QSOP package. It achieves excellent DC-voltage output accuracy from the internal integrator and 2% AC-voltage accuracy including line and load regulation. Other features are low-voltage operation (3.15V) and excellent loadtransient response needed by upcoming generations of dynamic-clock CPUs.

Up to 95% efficiency is achieved through synchronous rectification. Efficiency is greater than 80% over a 1000:1 load-current range, which extends battery life in system-suspend or standby mode. Excellent dynamic response corrects output load transients caused by the latest dynamic-clock CPUs within five 300kHz clock cycles. Strong, 1A on-board gate drivers ensure fast external N-channel MOSFET switching.

The MAX1637 features a logic-controlled and synchronizable, fixed-frequency, pulse-width-modulation (PWM) operating mode. This reduces noise and RF interference in sensitive mobile communications and pen-entry applications. Holding SKIP high forces fixedfrequency mode, for lowest noise under all load conditions.

For a stand-alone device that includes a 5V linear regulator, refer to the MAX1636 data sheet.

Applications

Notebook Computers Subnotebook Computers Handy-Terminals, PDAs

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