



The Future of Analog IC Technology®

# MPQ8883

## High-Efficiency, 45V, 3A, Digital Calibrated Synchronous Step-Down Converter

### DESCRIPTION

The MPQ8883 is a high-frequency synchronous rectified, step-down converter with I<sup>2</sup>C control interface and a multipage one-time programmable memory. It can achieve up to 3A continuous output current with excellent load and line regulation over a wide input supply range.

The MPQ8883 integrates internal high-side and low-side power MOSFETs for high efficiency without an external Schottky diode and is available in a 16-pin QFN3x3 package. With internal compensation and feedback divider, the MPQ8883 can offer a very compact solution with a minimum number of readily available standard external components.

The MPQ8883 is designed to be very versatile. The output voltage level can be adjusted from 0.6V to 12V, on the fly through an I<sup>2</sup>C serial interface. Voltage slew rate, switching frequency, enable and power savings mode are also programmable via the I<sup>2</sup>C interface. This allows users to optimize each output for their particular requirements.

During bench evaluations, different configurations can be easily obtained through the I<sup>2</sup>C interface instead of reworking external components. Once the desired optimum setting has been reached, a multipage one-time programmable memory is available allowing the settings to be permanently stored.

Current-mode operation provides fast transient response and eases loop stabilization. Full protection features include under-voltage lockout (UVLO), over-voltage protection (OVP), over-current protection (OCP) and over-temperature protection (OTP).

**Please email "[mpq8883info@monolithicpower.com](mailto:mpq8883info@monolithicpower.com)" for more information**

### FEATURES

- Wide 3.5V to 45V Operation Input Range
- 3A Continuous Output Current
- High Efficiency Synchronous Mode Control
- Internal 80mΩ/40mΩ Low R<sub>DS(ON)</sub> MOSFETs
- Power Good and Fault Indications
- OVP, OCP and OTP
- Internal Soft-Start
- Programmable Address by Resistor
- Programmability via I<sup>2</sup>C Interface
  - Output Range from 0.6V to 12V
  - Switching Frequency
  - Compensation Network
  - Slope Compensation
  - EN Threshold
  - Input UVLO Threshold
  - PG Threshold
  - AAM, CCM Selection
  - Light-load Mode Threshold
  - SCP Mode Selection
  - Current Limit Threshold
  - OVP Mode Selection
  - Input /Output OVP Threshold
  - OTP Threshold
  - Switching Slew Rate
  - Output Slew Rate (SS Time)
  - SYNC Input/Output Selection
  - Phase Shift
  - Frequency Dithering for Low-EMI Operation
- Multipage One-Time Programmable Memory for Permanent Storage
- Available in 16-pin QFN3x3 Package

### APPLICATIONS

- Industrial Power Systems
- Automotive Power Systems
- Telecommunication Systems

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

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**TYPICAL APPLICATION**

