



## MPM3684

18V 15A Step-Down Power Module in 12x15x4mm QFN

### DESCRIPTION

The MPM3684 is an easy-to-use fully integrated 15A step-down DC/DC power module. It integrates the DC/DC converter, power inductor, input/output capacitors and the necessary resistors/capacitors in a compact QFN 12mmX15mmX4mm package. This total power solution needs as few as two external components (one resistor and one capacitor) to work. MPM3684 can deliver 15A output current over a wide input supply voltage range with excellent load and line regulation.

The MPM3684 uses Constant-On-Time (COT) control to provide fast transient response and ease the loop stabilization.

The default under voltage lockout threshold is internally set around 4.1V, but a resistor network on the enable pin can increase this threshold. The MPM3684 has an internal LDO to power the control circuits and the integrated power devices. This LDO can be disabled by an external 5V to boost the efficiency.

The MPM3684 has an internal about 3ms soft start (SS) timer. It can be increased with an extra SS capacitor. An open drain power good signal indicates that the output voltage is within nominal voltage range.

The MPM3684 has fully integrated protection features that include over-current protection, over-voltage protection and thermal shutdown.

### FEATURES

- Complete 15A DC-to-DC Solution
- Wide Input Voltage Range from 2.5V:
- -- 2.5V to 18V with External 5V Bias
- -- 4.5V to 18V with Internal Bias
- 1% Reference Voltage Over 0°C to 70°C Junction Temperature Range
- Adaptive COT Control for Ultrafast Transient Response
- Programmable Switching Frequency from 200KHz to 1MHz
- Support Pre-Bias Start Up
- Programmable Soft-Start Time with Default 3ms
- Non-latch OCP, OVP and Thermal Shutdown
- Output Adjustable from 0.65V to 5V
- 12 x 15 x 4 (mm) QFN package

### APPLICATIONS

- Telecom and Networking Systems
- Base Stations
- Servers
- Personal Video Recorders
- Flat Panel Television and Monitors
- Distributed Power Systems

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### TYPICAL APPLICATION

