

18V 12A 1.5MHz Fast-PWM Synchronous Step-Down Converter

DESCRIPTION

The MT3912 is a fully integrated high efficiency synchronous step-down converter which requires minimum number of external components. It offers very compact solution 12A continuous output current over a wide input range. The MT3912 employs proprietary Constant On-Time (COT) control scheme providing superior transient response and maintaining constant switching frequency in the continuous conduction mode operation. The external ramp compensation network allows stable operation with ultra-low equivalent series resistance (ESR) output ceramic capacitors. An error amplifier in the control loop provides excellent line and load regulation.

The MT3912 integrates extensive protection functions including Input 2.85V under-voltage lockout (UVLO), thermal shutdown, input over-voltage protection (OVP), cycle by cycle current limiting, and short-circuit protection. An open drain power good signal indicates the output within its regulation voltage range. The converter is available in a small 16 lead 3mmx3mm QFN package.

FEATURES

- Input Voltage Range from 3V to 18V
- 1% Feedback Voltage Accuracy
- 12A continuous output current
- Support 100% duty cycle Low Dropout Operation
- Stable operation with output low ESR ceramic capacitors
- Fast-PWM COT control with superior transient performance
- Constant 1.5MHz Switching Frequency
- Integrate 14mΩ/5.5mΩ HS/LS Power Switches
- Accurate 1.26V EN threshold with 260mV Hysteresis
- MT3912A_FPWM/MT3912N_PFM/MT3912U_UA mode operation
- 400μA Low Quiescent Current for MT3912U_UA mode
- 250μA Low Quiescent Current for MT3912N_PFM mode
- Internal fixed or External programmable Soft-start Time
- Thermal Shutdown
- Hiccup Mode Short Circuit Protection
- Small QFN 3mmx3mm_16L package

APPLICATIONS

- Communication Equipment
- Computing and Edge Devices
- Consumer and Embedded Products
- Gaming consoles and graphics card power supplies
- Digital Set-Top Boxes

TYPICAL APPLICATIONS

