

## 2.5MHz 6V 5A Fast PWM Synchronous Step-Down Converter

## DESCRIPTION

The MT3185 is a 5A high efficiency constant on-time controlled synchronous step-down converter. It operates with input voltage from 2.7V to 6V and provides output range from 0.8V to as high as input level, thanks to its 100% duty cycle operation. Its advanced constant on-time control Fast-PWM scheme simplifies loop compensation and offers excellent load transient response while maintaining a relatively constant 2.5MHz switching frequency. MT3185N consumes extremely low 17 $\mu$ A quiescent current hence achieves superior light load efficiency. The high gain error amplifier in the control loop provides excellent load and line regulation. For fault tolerant operation, MT3185 has cycle-by-cycle current limit protection and hiccup mode for short circuit or over-load condition. MT3185 is available in 7 lead DFN2mmx2mm package and ideal for high performance, portable applications.

## FEATURES

- Wide Input Range from 2.7V to 6V.
- MT3185N:2.5MHz with Pulse Skip Mode (PSM)
- MT3185A:2.5MHz with Forced PWM Mode (FPWM)
- 17 $\mu$ A Quiescent Current (MT3185N)
- Continuous 5A Output Current, Peak up to 6A.
- High Efficiency up to 97%
- Output Voltage as low as 0.8V
- 100% Duty Cycle Operation
- +/-1% 0.8V Feedback Voltage Accuracy
- 2.5MHz Pseudo Constant Switching Frequency
- Built-in 30m $\Omega$  HS and 25m $\Omega$  LS Power Switches
- Cycle-by-cycle Current Limit Protection
- Hiccup Mode for Short Circuit and Over-Load Protection
- Open Drain Power Good Indication with Internal Pull-up Resistor
- Output Discharging Function in Shutdown
- Thermal Shutdown Protection
- Stable with low ESR ceramic Output Capacitors
- Available in a Small DFN 2mmx2mm\_7L Package
- Pb-Free RoHS Compliant

## APPLICATIONS

- Solid-State and Hard Disk Drives
- Portable / Handheld Devices
- WiFi Module/ Set-top Boxes
- DC/DC Micro Modules

## TYPICAL APPLICATIONS

