

2.5MHz 5V 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 2.5V to 6V and provide 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 μ 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.

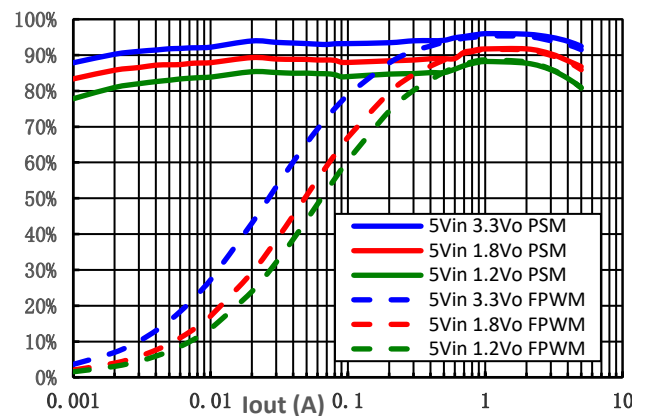
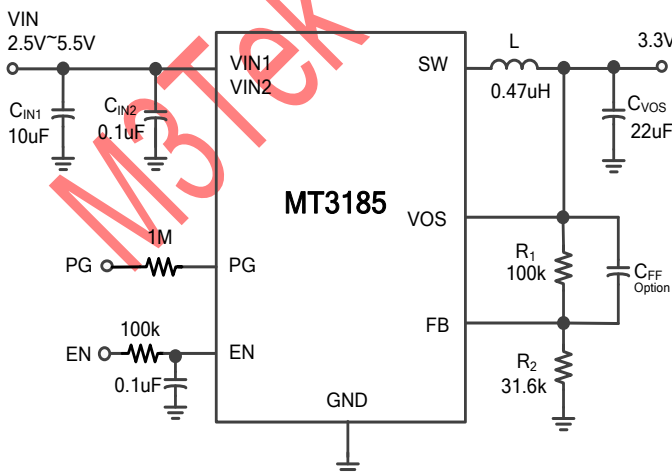
FEATURES

- 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 μ 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 Ω HS and 25m Ω 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
- 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



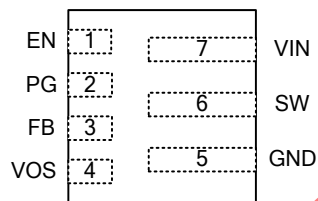
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Ordering Information

Part No.	Marking	Temp. Range	Package	MOQ
MT3185NFDR	3185 YWxx	-40°C ~+85°C	DFN 2x2_7L	3000/Tape & Reel
MT3185AFDR	185A YWxx	-40°C ~+85°C	DFN 2x2_7L	3000/Tape & Reel

Note: Y: Year, WW: Week, x: Manufacture Code

PIN CONFIGURATION



MT3185_DFN2X2_7LTOP VIEW

Pin Description

PIN NAME	PIN NO.	DESCRIPTION
EN	1	Enable Control Input with accurate 1.21V enable threshold which can be used to build precision R-C turn-on delay and input under-voltage lockout. EN pin has an internal 500KΩ pull-down resistor to AGND. Drive EN above 1.21V to turn on the converter Drive EN below 1.11V to turn off the converter and discharge output (Optional).
PG	2	Power Good Open-drain Output. Connect a 100kΩ pull-up resistor to V_{IN} or V_{OUT} .
FB	3	Feedback voltage input connect to external feedback resistors
VOS	4	Output voltage sense pin. This pin must be directly connected to the output capacitor.
GND	5	Analog ground and LS switch Power ground
SW	6	Switching pin, connect to the external inductor
VIN	7	Analog input supply voltage and HS Switch input Supply voltage