

1MHz 5V 6A Fast PWM Synchronous Step-Down Converter

DESCRIPTION

The MT3076 is a 6A high efficiency constant on-time controlled synchronous step-down converter. It operates with input voltage from 2.7V to 6V and provides an output range from 0.6V 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 1MHz switching frequency. MT3076N 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, MT3076 has cycle-by-cycle current limit protection and hiccup mode for short circuit or over-load condition.

MT3076 is available in 7 lead DFN 2mmx2mm package and ideal for high performance portable applications.

FEATURES

- Wide Input Range from 2.7V to 6V.
- MT3076N:1MHz with Pulse Skip Mode (PSM)
MT3076A:1MHz with Forced PWM Mode (FPWM)
- 17 μ A Quiescent Current for MT3076N
- Continuous 6A Output Current
- High Efficiency up to 95%
- Output Voltage as low as 0.6V
- 100% Duty Cycle Operation
- +/-1% 0.6V Feedback Voltage Accuracy
- 1MHz Pseudo Constant Switching Frequency
- Built-in 25m Ω HS and 20m 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
- Output Discharging Function in Shutdown
- Thermal Shutdown Protection
- Stable with low ESR ceramic Output Capacitors
- Available in a Small DFN 2x2_7L Package
- Pb-Free RoHS Compliant

APPLICATIONS

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

TYPICAL APPLICATIONS

